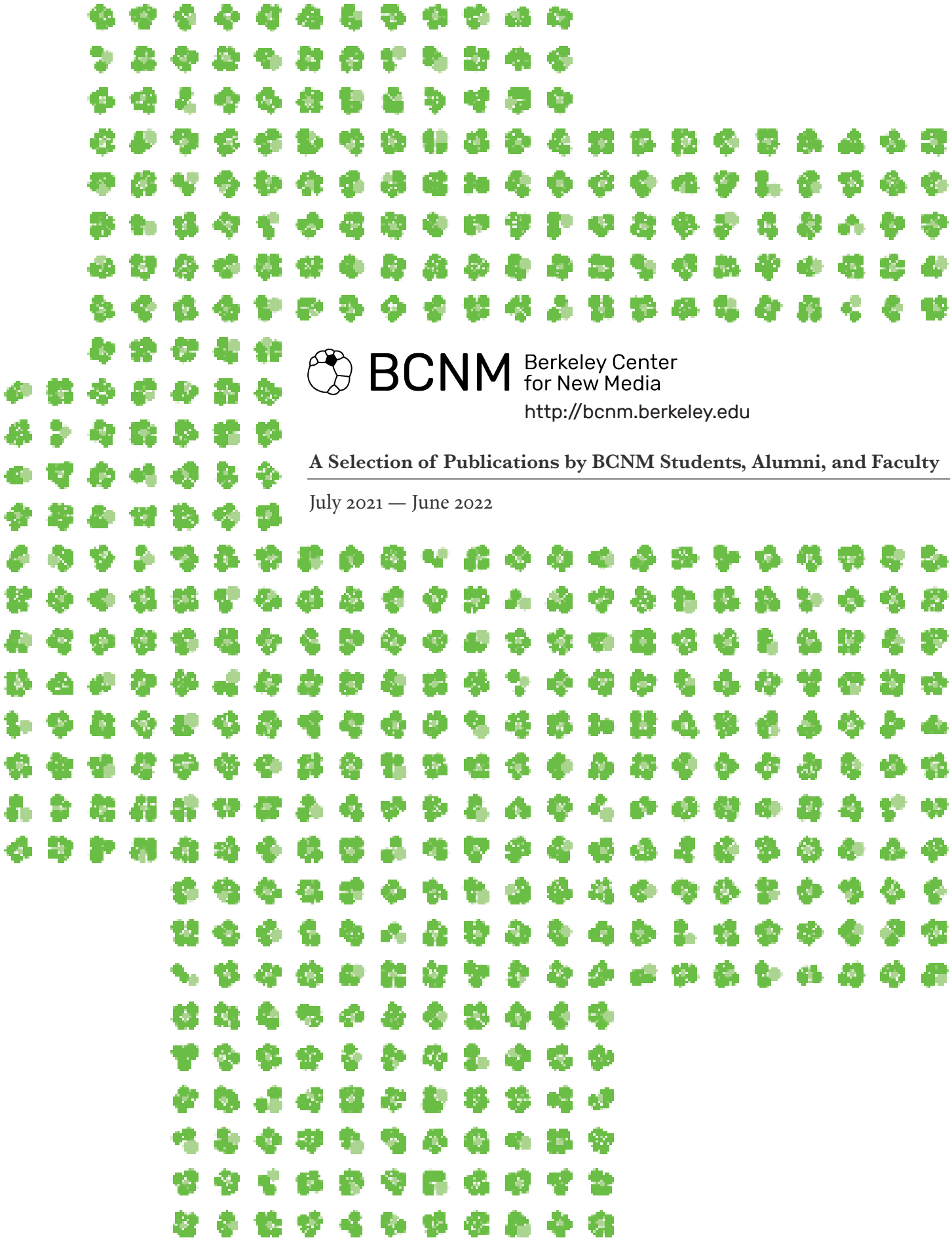

BCNM Berkeley Center for New Media

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A Selection of Publications by BCNM Students, Alumni, and Faculty

July 2021 — June 2022

Student, Alumni, and Faculty Publications 2021-2022

* STUDENT
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— **Laptops alone can't bridge the digital divide.** Morgan Ames. Technology Review. October 2021.

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BANERJI, RITWIK**

— **People Are Not Fixed Media.** Ritwik Banerji. Platypus: CASTAC Blog. December 2022.

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— **Whiteness as Improvisation, Nonwhiteness as Machine.** Ritwik Banerji. Jazz & Culture. December 2021.

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— **How to Re-Hijack Your Mind: Critical Making and the "Battle for Intelligence".** Kyle Booten. Electronic Book Review. September 2021.

Abstract 21

— **Interpassivity: Why Aren't We All Talking About It?.** Kyle Booten. Electronic Literature Organization 2022, Como, Italy and Online. May 2022.

Abstract 22

— **Sentiment: A Lab Notebook.** Kyle Booten. Electronic Literature Collection, Volume 4. June 2022.

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— **The Pleasures of the "External Brain".** Kyle Booten. 4S. October 2021.

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— **To Pray Without Ceasing: An Interpassive Liturgy.** Kyle Booten. xCoAx 2021. July 2021.

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— **"Filling in the Gaps": Investigating Civil Society Organizations' Role in the 2020 United States Census.** William Clyde Partin, Cristina Maria Lopez Guevara, Emma Margolin, Charley Johnson, danah boyd. 4S. October 2021.

Abstract 23

— **In the Pursuit of Knowledge, There Be Dragons.** danah boyd. IEEE VIS 2021. October 2021.

Abstract 24

— **Statistical Imaginaries: An Ode to Responsible Data Science.** danah boyd. Microsoft Research Summit. December 2021.

Abstract 24

— **Time and Money: How Public Sector Agencies Resist Organizational Failure.** danah boyd. 4S. October 2021.

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— **A Sociocultural Explanation of Internet-Enabled Work in Rural Regions.** Zoe Kahn and Jenna Burrell. CHI 2022. February 2022.

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— **The Preservation of Embodied Masculinity in Tech-Altered Workplaces.** Jenna Burrell. 4S. October 2021.

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— **Inside the Flower Matrix and The Ruins.** Claudia Hart and Edmund Campion. Bitforms Gallery, Minnesota Street Project, SF. April 2022.

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CARNEY, MICHELLE**

— **Michelle Carney's Mission with MLUX: Bringing UX and Machine.** Michelle Carney and Brian O'Niell. Experiencing Data Podcast. May 2022.

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CHANG, ALENDA**

— **Feral Atlas: The More-Than-Human Anthropocene. By Anna Lowenhaupt Tsing, Jennifer Deger, Alder Keleman Saxena, and Feifei Zhou.** Alenda Chang. ISLE. July 2021.

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— **Pitching the "Big Tent" Outside: An Argument for the Digital Environmental Humanities.** Alenda Chang. Punctum Books. July 2021.

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— **Reimagining the History of Media Studies through Games, Play, and the Uncanny Valley.** Alenda Chang. Uncanny Histories in Film & Media. December 2022.

Abstract 27

CRITTENDEN, CAMILLE***

— **Building on UC Broadband: Strategies to Improve Broadband Access Throughout California.** Camille Crittenden, Brandie Nonnecke, and Caroline Siegel Singh. CITRIS Policy Lab. May 2022.

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— **California: Keep public meetings open through technology.** Camille Crittenden. Berkeley Blog. July 2021.

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— **On the Wings of Ada Lovelace by Camille Crittenden.** Camille Crittenden. Berkeley Blog. October 2021.

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— **Returning to the concert hall.** Camille Crittenden. Berkeley Blog. October 2021.

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— **Women in Energy: A Powerful Case for Inclusion.** Camille Crittenden. Berkeley Blog. April 2022.

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— **Black Ballerinas in Picture Books: Rupturing the Color Line in American Children's Literature.** Lashon Daley. Dancer's Group. June 2021.

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— **Disruptive Ruptures: The Necessity of Black/Girlhood Imaginary.** Kenley Brown, Lashon Daley, and Derrika Hunt. Meridians: feminism, race, transnationalism. April 2022.

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DEVENDORF, LAURA**

— **The Eco-Technical Interface: Attuning to the Instrumental.** Maya Livio and Laura Devendorf. CHI 2022. February 2022.

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— **Examining Narrative Sonification: Using First-Person Retrospection Methods to Translate Radio Production to Interaction Design.** Jordan Wirfs-Brock, Alli Fam, Laura Devendorf, and Brian C Keegan. CHI 2022. February 2022.

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FABIÁN FRÍAS, EDGAR*

— **Ancestral Offering.** Edgar Fabián Frías. Monolith, Southern Exposure. September 2021.

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— **Dive In.** Edgar Fabián Frías. Transcendence. November 2021.

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— **Have You Heard of Astral Projection?** Edgar Fabián Frías. NFT Oasis, Everybody's Doing the Emails. December 2021.

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— **Nierika: The Pause, The Void, The Map.** Edgar Fabián Frías. Meantime: ICASF. November 2022.

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— **TechnoIntimacy.** Edgar Fabián Frías. MOCA Jacksonville. August 2021.

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— **Untitled.** Edgar Fabián Frías. Frame by Frame. The Animated Book of GIF Art. September 2021.

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— **Untitled.** Edgar Fabián Frías. MOCA Hi Solo #11. February 2022.

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FALLON, KRIS**

— **Mass-ive Protest: Petition, Assembly and Algorithmic Transparency.** Kris Fallon. 4S. October 2021.

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— **High-Tech Orientalism and Science Fiction Future in Astria Suparak's "Virtually Asian" (2021).** Kaitlin Forcier. Media-N. February 2022.

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GABOURY, JACOB***

— **The Computer is not a Visual Medium: Visual Methods for Computational Materiality.** Jacob Gaboury. 4S. October 2021.

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— **DE LA PAUVRETÉ DE L'IMAGE RICHE.** Jacob Gaboury. LA HAUTE ET LA BASSE DÉFINITION DES IMAGES Photographie, cinéma, art contemporain, culture visuelle. July 2021.

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— **Image Objects: An Archaeology of Computer Graphics.** Jacob Gaboury. MIT Press. August 2021.

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— **The Labor of Maintaining and Scaling Free and Open-Source Software Projects.** R. Stuart Geiger, Dorothy Howard, and Lily Irani. SIG CHI 2021. October 2021.

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— **Accelerating Quadratic Optimization with Reinforcement Learning.** Jeffrey Ichnowski, Paras Jain, Bartolomeo Stellato, Goran Banjac, Michael Luo, Francesco Borrelli, Joseph E. Gonzalez, Ion Stoica, and Ken Goldberg. NeurIPS. December 2021.

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— **Assisting Polyculture Farming in Africa.** Simeon Adebola and Ken Goldberg. IEEE AFRICON. September 2021.

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— **AVPLUG: Approach Vector PLanning for Unicontact Grasping amid Clutter.** Yahav Avigal*, Vishal Satish*, Zach Tam, Harry Zhang, Huang Huang, Michael Danielczuk, Jeffrey Ichnowski, and Ken Goldberg. IEEE Int'l Conference on Automation Science and Engineering (CASE). August 2021.

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— **Comparison of novel shielded nasopharynx applicator designs for intracavitary brachytherapy.** Ben Insley, Ken Goldberg, Luc Beaulieu, Yunzhi Ma, Stephen McKinley, I-Chou Hsu, and J Adam Cunha. Brachytherapy Journal. January 2022.

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— **Dex-NeRF: Using a Neural Radiance Field to Grasp Transparent Objects.** Jeffrey Ichnowski, Yahav Avigal, Justin Kerr, and Ken Goldberg. Conference on Robot Learning (CoRL). London, UK. November 2021.

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— **Disentangling Dense Multiple-Cable Knots.** Vainavi Viswanath*, Jennifer Grannen*, Priya Sundaresan*, Brijen Thananjeyan, Ashwin Balakrishna, Ellen Novoseller, Jeffrey Ichnowski, Michael Laskey, Joseph E. Gonzalez, and Ken Goldberg. IEEE/RSJ International Conference on Robots and Systems (IROS). September 2021.

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— **Dynamic regret convergence analysis and an adaptive regularization algorithm for on-policy robot imitation learning.** Jonathan N Lee, Michael Laskey, Ajay Kumar Tanwani, Anil Aswani, and Ken Goldberg. The International Journal of Robotics Research 40 (10-11), 1284-1305. September 2021.

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— **FogROS: A Light-Weight Easy-to-Use Framework for Cloud-Based Robot Computation.** Kaiyuan (Eric) Chen, Yafei Liang, Jeffrey Ichnowski, Michael Danielczuk, Joseph Gonzalez, John Kubiatowicz, and Ken Goldberg. IEEE Int'l Conference on Automation Science and Engineering (CASE). August 2021.

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— **FogROS 2: An Adaptive and Extensible Platform for Cloud and Fog Robotics Using ROS 2.** Jeffrey Ichnowski, Kaiyuan Chen, Karthik Dharmarajan, Simeon Adebola, Michael Danielczuk, Victor Mayoral-Vilches, Hugo Zhan, Derek Xu, Ramtin Ghassemi, John Kubiatowicz, Ion Stoica, Joseph Gonzalez, and Ken Goldberg. ArXiv. May 2022.

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— **GOMP-FIT: Grasp-Optimized Motion Planning for Fast Inertial Transport.** Jeffrey Ichnowski, Yahav Avigal, Yi Lui, and Ken Goldberg. IEEE International Conference on Robotics and Automation. May 2022.

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— **HOUSTON: Learning Multi-step Handovers of Unmodified Surgical Needles.** Albert Wilcox*, Justin Kerr*, Brijen Thananjeyan, Jeff Ichnowski, Minho Hwang, Samuel Paradis, Danyal Fer, Ken Goldberg. International Conference on Robotics and Automation. May 2022.

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— **Implicit Kinematic Policies: Unifying Joint and Cartesian Action Spaces in End-to-End Robot Learning.** Aditya Ganapathi, Pete Florence, Jake Varley, Kaylee Burns, Ken Goldberg, and Andy Zeng. IEEE International Conference on Robotics and Automation. May 2022.

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— **Kit-Net: Self-Supervised Learning to Kit Novel 3D Objects into Novel 3D Cavities.** Shivin Devgon, Jeffrey Ichnowski, Michael Danielczuk, Daniel S. Brown, Ashwin Balakrishna, Shirin Joshi, Eduardo M. C. Rocha, Eugen Solowjow, and Ken Goldberg. IEEE Int'l Conference on Automation Science and Engineering (CASE). August 2021.

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— **LazyDAgger: Reducing Context Switching in Interactive Robot Imitation Learning.** Ryan Hoque, Ashwin Balakrishna, Carl Putterman, Michael Luo, Daniel Brown, Daniel Seita, Brijen Thananjeyan, Ellen Novoseller, and Ken Goldberg. IEEE Int'l Conference on Automation Science and Engineering (CASE). August 2021.

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Balakrishna, Daniel Brown, Jeffrey Ichnowski, Eugen Solowjow, and Ken Goldberg. ArXiv. December 2021.

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— **LS3 : Latent Space Safe Sets for Long-Horizon Visuomotor Control of Iterative Tasks.** Albert Wilcox, Ashwin Balakrishna, Brijen Thananjeyan, Joseph E. Gonzalez, and Ken Goldberg. ArXiv. July 2021

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— **Mechanical Search on Shelves using Lateral Access X-RAY.** Huang Huang*, Marcus Dominguez-Kuhne*, Jeff Ichnowski, Vishal Satish, Mike Danielczuk, Kate Sanders, Andrew Lee, Anelia Angelova, Vincent Vanhoucke, and Ken Goldberg. IEEE/RSJ International Conference on Robots and Systems (IROS). September 2021.

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— **MESA: Offline Meta-RL for Safe Adaptation and Fault Tolerance.** Michael Luo, Ashwin Balakrishna, Brijen Thananjeyan, Suraj Nair, Julian Ibarz, Jie Tan, Chelsea Finn, Ion Stoica, and Ken Goldberg. ArXiv. December 2021.

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— **A Multi-Chamber Smart Suction Cup for Adaptive Gripping and Haptic Exploration.** Tae Myung Huh, Kate Sanders, Michael Danielczuk, Monica Li, Ken Goldberg, and Hannah S. Stuart. IEEE/RSJ International Conference on Robots and Systems (IROS). September 2021.

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— **Planar Robot Casting with Real2Sim2Real Self-Supervised Learning.** Vincent Lim*, Huang Huang*, Lawrence Yunliang Chen, Jonathan Wang, Jeffrey Ichnowski, Daniel Seita, Michael Laskey, and Ken Goldberg. IEEE International Conference on Robotics and Automation. May 2022.

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— **Policy Gradient Bayesian Robust Optimization for Imitation Learning.** Zaynah Javed*, Daniel S Brown*, Satvik Sharma, Jerry Zhu, Ashwin Balakrishna, Marek Petrik, Anca D Dragan, and Ken Goldberg. ICML 2021. July 2021.

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— **A Roadmap for US Robotics – From Internet to Robotics.** Henrik Christensen, Nancy Amato, Holly Yanco, Maja Mataric, Howie Choset, Ann Drobnis, Ken Goldberg, Jessy Grizzle, Gregory Hager, John Hollerbach, Seth Hutchinson, Venkat Krovi, Daniel Lee, Bill Smart and Jeff Trinkle. Foundations and Trends in Robotics. July 2021.

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— **Resource Allocation in Multi-armed Bandit Exploration: Overcoming Sublinear Scaling with Adaptive Parallelism.** Brijen Thananjeyan, Kirthevasan Kandasamy, Ion Stoica, Michael I. Jordan, Ken Goldberg, and Joseph E. Gonzalez. ICML 2021. July 2021.

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— **Sequential robot imitation learning from observations.** Ajay Kumar Tanwani, Andy Yan, Jonathan Lee, Sylvain Calinon, and Ken Goldberg. The International Journal of Robotics Research 40 (10-11), 1306-1325. September 2021.

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— **Simulating Polyculture Farming to Learn Automation Policies for Plant Diversity and Precision Irrigation.** Yahav Avigal, William Wong, Mark Presten, Mark Theis, Shrey Aeron, Anna Deza, Satvik Sharma, Rishi Parikh, Sebastian Oehme, Stefano Carpin, Joshua H Viers, Stavros Vougioukas, and Ken Goldberg. IEEE Transactions on Automation Science and Engineering. January 2022.

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— **Simulation of Robust Parallel-Jaw Grasping using Incremental Potential Contact Models.** Chung Min Kim, Michael Danielczuk, Isabella Huang, and Ken Goldberg. IEEE International Conference on Robotics and Automation. May 2022.

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— **The Sky Above The Clouds.** Sarah Chasins, Alvin Cheung, Natacha Crooks, Ali Ghodsi, Ken Goldberg, Joseph

E. Gonzalez, Joseph M. Hellerstein, Michael I. Jordan, Anthony D. Joseph, Michael W. Mahoney, Aditya Parameswaran, David Patterson, Raluca Ada Popa, Koushik Sen, Scott Shenker, Dawn Song, and Ion Stoica. ArXiv. May 2022.

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HARTMANN, BJÖRN***

— **GeneratiVR: Spatial Interactions in Virtual Reality to Guide Generative Design.** Nicholas Jennings, Ananya Nandi, Xinyi Zhu, Yuting Wang, Fanping Sui, James Smith, and Bjoern Hartmann. CHI 2022. February 2022.

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— **Interactive Mixed-Dimensional Media for Cross-Dimensional Collaboration in Mixed Reality Environments.** Balasaravanan Thoravi Kumaravel, and Björn Hartmann. Frontiers in Virtual Reality. December 2022.

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— **Predicting and Explaining Mobile UI Tappability with Vision Modeling and Saliency Analysis.** Eldon Schoop, Xin Zhou, Gang Li, Zhourong Chen, Bjoern Hartmann, and Yang Li. CHI 2022. February 2022.

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— **Weaving Schematics and Code: Interactive Visual Editing for Hardware Description Languages.** Richard Lin, Rohit Ramesh, Nikhil Jain, Josephine Koe, Ryan Nuqui, Prabal Dutta, and Bjoern Hartmann. UIST 2021. October 2021.

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— **WebTransceiVR: Asymmetrical Communication Between Multiple VR and Non-VR Users Online.** Haohua Lyu, Cyrus Vachha, Qianyi Chen, Odysseus Pyrinis, Avery Liou, Balasaravanan Thouravi Kumarevel, and Bjoern Hartmann. CHI 2022. February 2022.

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— **Chapter 3, "Putting a Hand into the Fountain of Knowledge," from 2B-dan : Gindama sensō no hibi (Squad 2B: The days of the silver-ball gun wars) (1982).** Yonezawa Yoshihiro, Shikijō Kyōtarō, and Andrea Horbinski. Mechademia. January 2022.

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— **H-Net Reviews: Japan's Green Monsters: Environmental Commentary in Kaiju Cinema.** Andrea Horbinski. H-Net. December 2021.

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— **Cracks in the Success Narrative: Rethinking Failure in Design Research through a Retrospective Trioethnography.** Noura Howell, Audrey Desjardins, and Sarah Fox. ACM Transactions on Computer-Human Interaction Volume 28 Issue 6. January 2022.

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— **Etel Adnan Remembrances.** Sophia Hussain. The Poetry Project. January 2022.

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— **Gossypiin.** Ra Malika Imhotep. Red Hen Press. April 2021.

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— **Democracy and Distrust in an Era of Artifical Intellgience.** Sonia Katyal. Daedalus. 2022.

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— **From Trade Secrecy to Seclusion.** Sonia Katyal and Charles Tait Graves. Georgetown Law Journal. 2021.

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— **The Gender Panopticon: Artificial Intelligence, Gender and Design Justice.** Sonia Katyal and Jessica Jung. UCLA Law Review. 2021.

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— **Lex Reformatica.** Sonia Katyal. Berkeley Journal of Law & Tech. 2022.

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— **Open Data/Open Government: The Tension between Public Accountability and Private (Re)Use.** Sonia Katyal and Erik Stallman.

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— **Trademark Search, Artificial Intelligence, and the Role of the Private Sector.** Sonia Katyal and Aniket Kesari. Berkeley Journal of Law and Tech. 2021.

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— **The Unpaid Debt to a Pioneering Gay Olympian.** Sonia Katyal. Boston Globe Ideas Section. 2021.

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— **Suspended Matter.** Azmi Kazmi. Berkeley Art Center. October 2021.

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— **From the museum back to the tomb. The virtual rejoining of a Twenty-sixth Dynasty sarcophagus and its burial at Saqqara.** Rita Lucarelli. Prague:Czech institute of Egyptology, Faculty of Arts. January 2021.

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— **Imaginable: How to see the future coming and be ready for anything.** Jane McGonigal. Penguin. March 2022.

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— **The Urgent Futures Questionnaire: Healing the Deeper Disease in society with Imagination and Action.** Jane McGonigal. Porchlight Books. March 2022.

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— **Dog Pack.** Jill Miller and Melody Chang. Meantime, ICA SF. December 2022.

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— **Drawing and Knowledge Construction in Archaeology: The Aide Mémoire Project.** Colleen Morgan, Helen Petrie, Holly Wright, and James Stuart Taylor. Journal of Field Archaeology, January 2021.

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— **Save the Date for Future Mourning.** Colleen Morgan. Forum Kritische Archäologie. January 2021.

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— **Networks of Belief: An Introduction.** William Morgan and Kyra Sutton. Qui Parle. June 2021.

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— **Secrets and Machines: A Conversation with GPT-3.** William Morgan and Ethan Plaue. E-Flux. December 2021.

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— **What Is (Machine) Philosophy?** Luciana Parisi and William Morgan. Qui Parle. June 2021.

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— **Creative and Motivational Strategies Used by Expert Creative Practitioners.** Molly Jane Nicholas, Sarah Sterman, and Eric Paulos. Creativity & Cognition 2022. February 2022.

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— **Expanding the Design Space for Technology-Mediated Theatre Experiences.** Molly Jane Nicholas, Stephanie Claudino Daffara, and Eric Paulos. DIS '21: Designing Interactive Systems Conference 2021. June 2021.

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— **Friendscope: Exploring In-the-Moment Experience Sharing on Camera Glasses via a Shared Camera.** Molly Jane Nicholas, Brian A. Smith, and Rajan Vaish. CSCW 2022. January 2022.

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— **Understanding Multi-Device Usage Patterns: Physical Device Configurations and Fragmented Workflows.** Ye Yuan, Nathalie Riche, Nicholai Marquardt, Molly Jane Nicholas, Teddy Seyed, Hugo Romat, Bongshin Lee, Michel Pahud, Jonathan Goldstein, Rojin Vishkaie, Christian Holz, and Ken Hinckley. CHI 2022. February 2022.

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— **The Way We Write.** Greg Niemeyer. Medium. January 2022.

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— **Productive Interference.** Trevor Paglen. Kunsthalle Düsseldorf. November 2021.

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— **Trevor Paglen: Vision After Seeing.** Trevor Paglen. The Athenaeum. September 2021.

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— **Individualized stress detection using an unmodified car steering wheel.** Stephanie Balters, Nikhil Gowda, Francisco Ordonez, and Pablo E. Paredes. Nature: Scientific Reports. October 2021.

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— **A Suite of Mobile Conversational Agents for Daily Stress Management (Popbots): Mixed Methods Exploratory Study.** Mauriello ML, Tantivasadakarn N, Mora-Mendoza MA, Lincoln ET, Hon G, Nowruzi P, Simon D, Hansen L, Goenawan NH, Kim J, Gowda N, Jurafsky D, Paredes PE. JMR Publications. October 2022.

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— **Truth and truths-to-come: Investigating viral rumors in 'Q: Into the Storm'.** Renée Pastel and Michael Dalebout. NECSUS: European Journal of Media Studies. June 2022.

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— **Neighborhood Seance.** Vincente Perez. River and South. February 2022.

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— **A section of Now: Norms and Rituals as Sites for Architectural Intervention.** Jen Schradie and Giovanna Borasi. Spector Books. January 2022.

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— **Ukrainians are rallying global support via social media. But don't call it a TikTok war.** Jen Schradie. Washington Post. February 2022.

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— **Critical Information Studies: A Roundtable on Sociotechnical Theories, Digital Objects and Institutional Practices.** Ryan Shaw. 4S. October 2021.

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— **Green Magic: On Technologies of Enchantment at Apple's Corporate Headquarters.** Christo Sims. Public Culture. June 2022.

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— **RESEARCH GRANT -- Racializing Risk: The History of Ladera Housing Cooperative.** T.F. Tierney. Graham Foundation of the Arts, Chicago, IL.

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— **Embr: A Creative Framework for Hand Embroidered Liquid Crystal Textile Displays.** Shreyosi Endow, Mohammad Abu Nasir Raqib, Anvay Srivastava, Sara Rastagarpouyani, and Cesar Torres. CHI 2022. February 2022.

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— **Crank, Shake, and Tilt: Transforming Social Media Interfaces with Embodied Constraints.** Janaki Vivrekar. EECS Masters Thesis. June 2021.

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— **A New AI Lexicon.** Xiaowei Wang. AI Now Institute. August 2021.

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— **Shadow Visions.** Xiaowei Wang. Ding Ding. November 2021.

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— **Proximities.** Debarati Sanyal, Mario Telò, and Damon Ross Young. Representations 158. January 2022.

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— **Behind Closed Doors: America's Couples Therapy Entertainment Complex.** Hannah Zeavin. Los Angeles Review of Books. June 2021.

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— **The Therapist Will See You Now But Where?** Hannah Zeavin. Future.a16z. September 2021.

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— **Therapy via Zoom should make mental healthcare available for all - it hasn't.** Hannah Zeavin. The Guardian. August 2021.

Abstract 72

— **Therapy with a Human Face.** Hannah Zeavin. Dissent. January 2022.

Abstract 72

— **Unfree Associations Parasitic Whiteness on and off the couch.** Hannah Zeavin. n+1 Magazine. December 2022.

Abstract 72

— **The U.S. has never tried a comprehensive approach to mental health care.** Hannah Zeavin. The Washington Post. July 2021.

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— **Who's Listening When You Call a Crisis Hotline.** Yana Calou and Hannah Zeavin. Slate. January 2022.

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Published Books

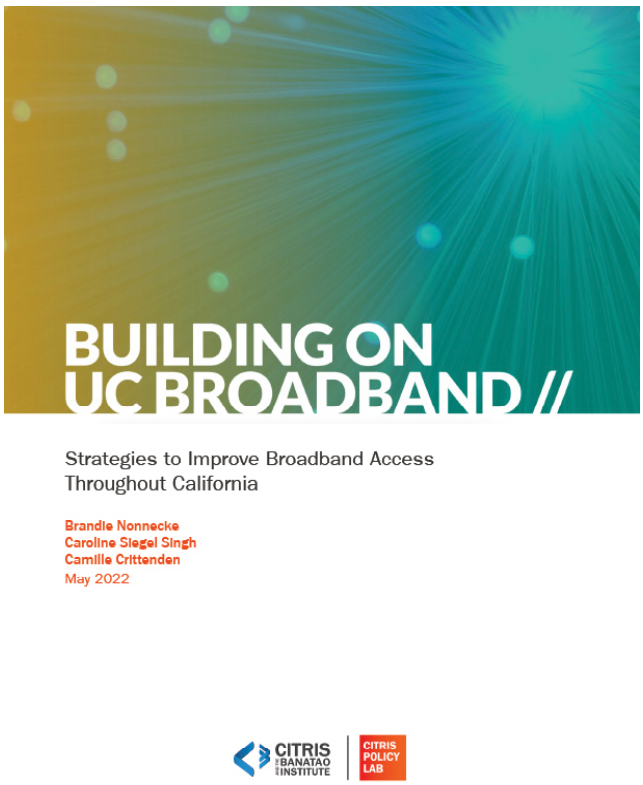
14 ***Building on UC Broadband: Strategies to Improve Broadband Access Throughout California.***

Author: Camille Crittenden, Brandie Nonnecke, and Caroline Siegel Singh.

Published: CITRIS Policy Lab. May 2022.

Abstract: Access to high-speed broadband has become an essential enabling technology for healthy, productive lives. Because of its extensive geographic footprint, vast infrastructure, technical capacity, and deep ties to surrounding communities, the University of California (UC) can serve an important role in supporting broadband infrastructure development and adoption initiatives. In doing so, UC can leverage its unique capabilities to help the state of California close the digital divide, while simultaneously supporting its core mission to provide world-renowned teaching, path-breaking research, and meaningful public service. This report offers four guiding strategies and corresponding recommendations UC should consider.

Available to read: https://citrispolicylab.org/wp-content/uploads/2022/05/Building-on-UC-Broadband.pdf



Author: Jacob Gaboury.

Published: MIT Press. August 2021.

Abstract: How computer graphics transformed the computer from a calculating machine into an interactive medium, as seen through the histories of five technical objects.

Most of us think of computer graphics as a relatively recent invention, enabling the spectacular visual effects and lifelike simulations we see in current films, television shows, and digital games. In fact, computer graphics have been around as long as the modern computer itself, and played a fundamental role in the development of our contemporary culture of computing. In Image Objects, Jacob Gaboury offers a prehistory of computer graphics through an examination of five technical objects—an algorithm, an interface, an object standard, a programming paradigm, and a hardware platform—arguing that computer graphics transformed the computer from a calculating machine into an interactive medium.

Available to read: https://mitpress.mit.edu/books/image-objects

Gossypiin.

Author: Ra Malika Imhotep.

Published: Red Hen Press. April 2021.

Abstract: This harvest of poems is inspired by the plant medicine latent in Gossypium Herbeceum, or Cotton Root Bark, which was used by enslaved Black women to induce labor, cure reproductive ailments and end unwanted pregnancies. Through an arrangement of stories, secrets and memories experienced, read, heard, reimagined and remixed, gossypiin reckons with a peculiar yet commonplace inheritance of violation, survival and self-possession. In this way, Ra Malika Imhotep invites us to lean in and listen good as the text interrupts the narrative silence around sexual harm, sickness, and the marks they make on black femme subjectivity.

Within these pages, the poet is joined by a “”sticky trickster-self”” named Lil Cotton Flower who tells of their own origins and endings in the Black vernacular traditions of the griot and the gossip. Interspersed throughout the collection, Black feminist wisdoms and warnings meld with the poets own yearnings and Lil Cotton Flower’s tall tales.

Gossypiin is an offering towards the holding and healing of Black beings that exceed the confines of their own bodies.

Available to read: https://www.charisbooksandmore.com/book/9781636280257

Author: Jane McGonigal.

Published: Penguin. March 2022.

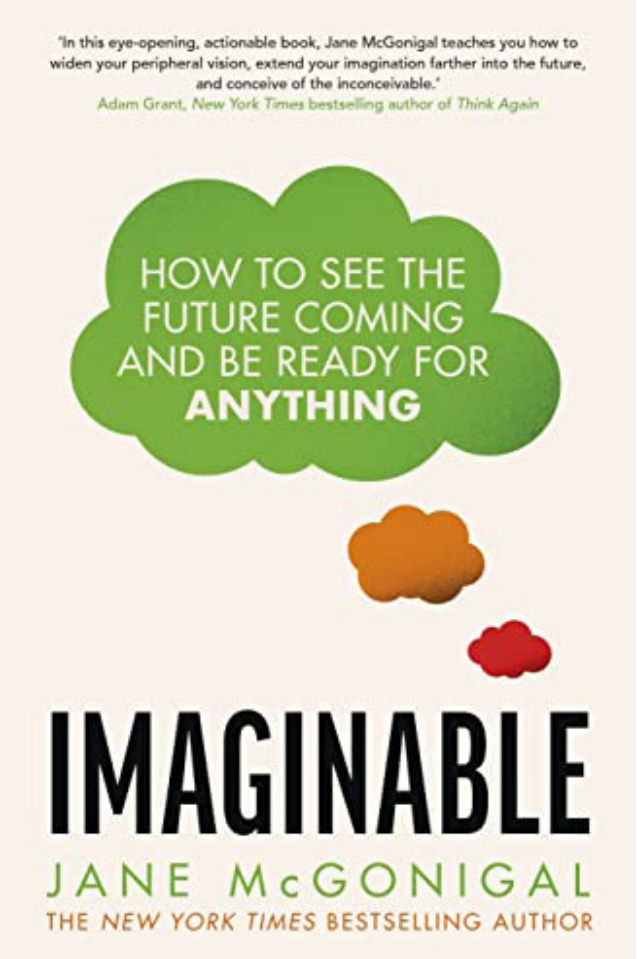
Abstract: How can we be confident about making plans? How might we feel secure despite the future being unknown? How do we learn to feel at peace with the unexpected?

When we think about the future it can be difficult to feel that we have any control. We aren't confident that we can take actions and make decisions that help determine what happens next. We want to feel prepared, hopeful and equipped, and to face the future with optimism. Or, better yet, change the future. But how do we map out our lives when it feels impossible to predict what the world will be like next week, let alone next year?

Jane McGonigal, a renowned future forecaster, reveals that 'unimaginable' events aren't unimaginable before they happen. It is possible to see them coming and it's a mindset that can be learned by engaging with tools, games and ideas that will allow you to dive into the future before you live it.

By learning to think the unthinkable and imagine the unimaginable you can better plan for a future you'd like to see. And by seeing what's coming faster, you can adapt to new challenges, reduce anxiety, and build hope and resilience.

Available to read: https://www.penguin.co.uk/books/144/1446896/imaginable/9781787635623.html



Author: Bo Ruberg

Published: MIT Press. June 2022.

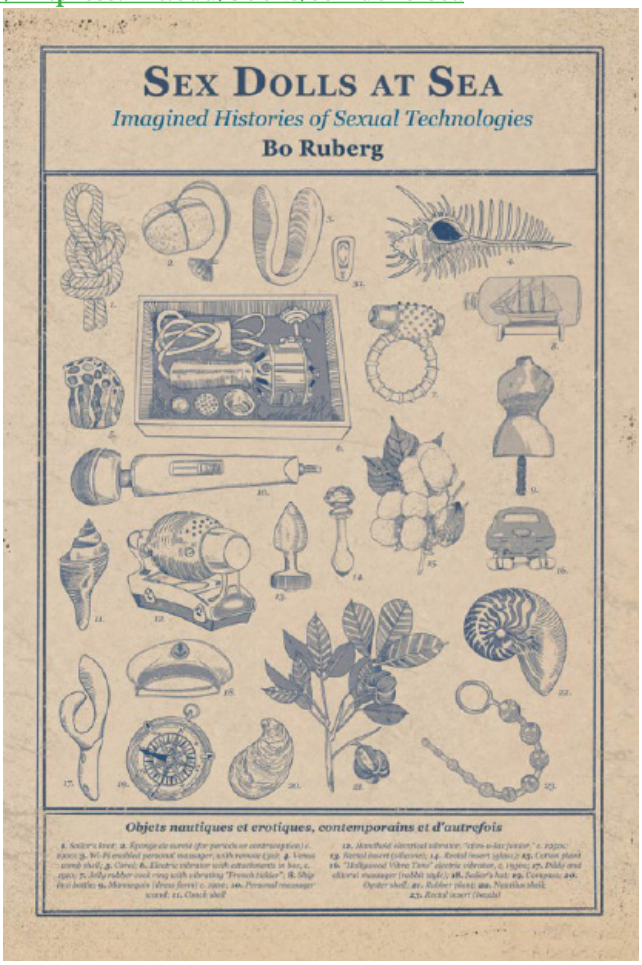
Abstract: Investigating and reimagining the origin story of the sex doll through the tale of the sailor's dames de voyage.

The sex doll and its high-tech counterpart the sex robot have gone mainstream, as both the object of consumer desire and the subject of academic study. But sex dolls, and sexual technology in general, are nothing new. Sex dolls have been around for centuries. In Sex Dolls at Sea, Bo Ruberg explores the origin story of the sex doll, investigating its cultural implications and considering who has been marginalized and who has been privileged in the narrative.

Ruberg examines the generally accepted story that the first sex dolls were dames de voyage, rudimentary figures made of cloth and leather scraps by European sailors on long, lonely ocean voyages in centuries past. In search of supporting evidence for the lonesome sailor sex doll theory, Ruberg uncovers the real history of the sex doll. The earliest commercial sex dolls were not the dames de voyage but the femmes en caoutchouc: "women" made of inflatable vulcanized rubber, beginning in the late nineteenth century.

Interrogating the sailor sex doll origin story, Ruberg finds beneath the surface a web of issues relating to gender, sexuality, race, and colonialism. What has been lost in the history of the sex doll and other sex tech, Ruberg tells us, are the stories of the sex workers, women, queer people, and people of color whose lives have been bound up with these technologies.

Available to read: https://mitpress.mit.edu/books/sex-dolls-sea



Author: Hannah Zeavin.

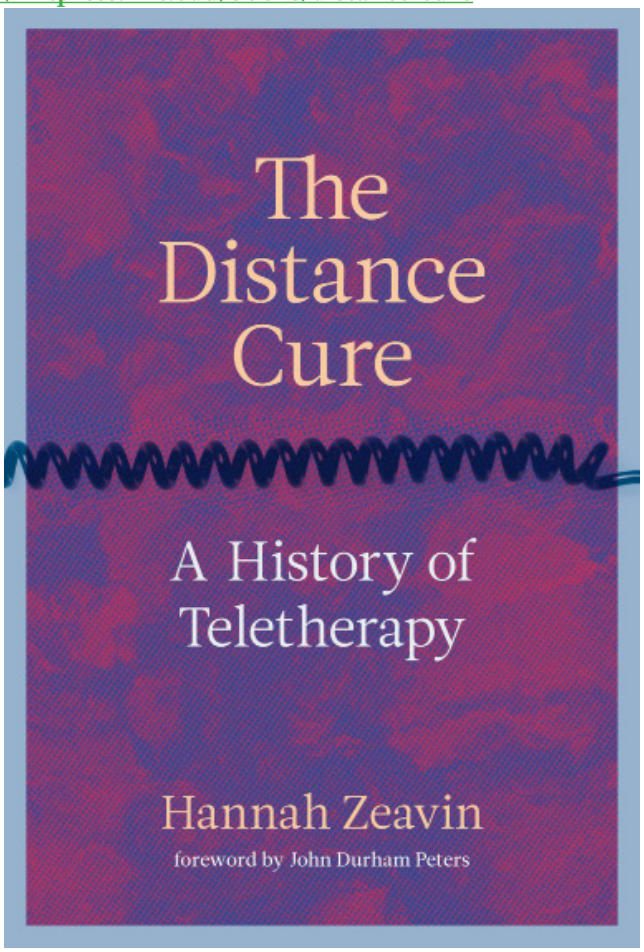
Published: MIT Press. August 2021.

Abstract: Psychotherapy across distance and time, from Freud's treatments by mail to crisis hotlines, radio call-ins, chatbots, and Zoom sessions.

Therapy has long understood itself as taking place in a room, with two (or more) people engaged in person-to-person conversation. And yet, starting with Freud's treatments by mail, psychotherapy has operated through multiple communication technologies and media. These have included advice columns, radio broadcasts, crisis hotlines, video, personal computers, and mobile phones; the therapists (broadly defined) can be professional or untrained, strangers or chatbots. In The Distance Cure, Hannah Zeavin proposes a reconfiguration of the traditional therapeutic dyad of therapist and patient as a triad: therapist, patient, and communication technology.

Zeavin tracks the history of teletherapy (understood as a therapeutic interaction over distance) and its metamorphosis from a model of cure to one of contingent help. She describes its initial use in ongoing care, its role in crisis intervention and symptom management, and our pandemic-mandated reliance on regular Zoom sessions. Her account of the "distanced intimacy" of the therapeutic relationship offers a powerful rejoinder to the notion that contact across distance (or screens) is always less useful, or useless, to the person seeking therapeutic treatment or connection. At the same time, these modes of care can quickly become a backdoor for surveillance and disrupt ethical standards important to the therapeutic relationship. The history of the conventional therapeutic scenario cannot be told in isolation from its shadow form, teletherapy. Therapy, Zeavin tells us, was never just a "talking cure"; it has always been a communication cure.

Available to read: https://mitpress.mit.edu/books/distance-cure



Published Articles

Laptops alone can't bridge the digital divide.

Author: Morgan Ames.

Published: Technology Review. October 2021.

Abstract: The failures of One Laptop per Child have much to teach us about fixing educational inequities.

Available to read: https://www.technologyreview.com/2021/10/27/1037173/laptop-per-child-digital-divide

People Are Not Fixed Media.

Author: Ritwik Banerji.

Published: Platypus: CASTAC Blog. December 2022.

Abstract: Sensory ethnography continually emphasizes that the sensorium is just as much a (product of) sociocultural practice as it is a biophysiological property of the human species (Pink 2015). Recognition of this point has prompted several shifts in ethnographic work. On the one hand, it has pushed ethnographers to include in their writing a greater discussion of how subjects engage with the world through their senses as well as how the putatively biological phenomenon of sensory perception is so highly variable across and within sociocultural milieux. On the other, it has inspired ethnographers to pursue media practices beyond text, particularly through ethnographic film or sound recording (Feld 1991). Regardless of form, this work has greatly increased the possibility for the reader, listener, or viewer to experience with their senses the social environment that subjects inhabit and where the ethnographer conducted fieldwork.

Available to read: https://blog.castac.org/2022/04/people-are-not-fixed-media/

Whiteness as Improvisation, Nonwhiteness as Machine.

Author: Ritwik Banerji.

Published: Jazz & Culture. December 2021.

Abstract: What's the meaning of the purported difference between ""free jazz"" and ""free improvisation""? While some suggest that these two terms demarcate two distinct, if closely related, musical practices, George E. Lewis demonstrates the distinction does far less to clarify stylistic difference than it does to implicitly associate the term ""free improvisation"" with postracial whiteness and reinforce a racialized hierarchy within postwar experimental music.

Available to read: https://www.jstor.org/stable/10.5406/jazzculture.4.2.0056

"How to Re-Hijack Your Mind: Critical Making and the 'Battle for Intelligence.'"

Author: Kyle Booten.

Published: Electronic Book Review. September 2021.

Abstract: To browse the internet is to subject oneself to sophisticated and unceasing techniques of attention-capture, of which the pop-up advertisement is only the most crass and vexatious example. This paper describes the development of Nightingale, a web browser extension that fights distraction with distraction. It does this by injecting the web with pop-up ads consisting of semantically-relevant fragments of the poetry of Keats. Nightingale represents an attempt to engage in "noöhacking"—that is, repurposing the cognitively-de-

structive aspects of contemporary digital media in order to care for one's own mind.

Available to read: https://electronicbookreview.com/essay/how-to-re-hijack-your-mind-critical-making-and-the-battle-for-intelligence/

Interpassivity: Why Aren't We All Talking About It?

Author: Kyle Booten.

Published: Electronic Literature Organization 2022, Como, Italy and online. May 2022.

Abstract: "Interpassivity"—a psychoanalytic term developed by Robert Pfaller and Slavoj Žižek—is the true opposite of "interactivity." Interactive media demand non-trivial input from the user; a video game, for instance, cannot operate without our fingers tapping the buttons. "Interpassivity," by contrast, is what happens when we delegate our consumption or enjoyment of something to another person, object, or mechanism. In this talk, I will argue that "interpassivity" (just like "interactivity" and "ergodicity") should be part of our basic conceptual vocabulary for making sense of electronic literature. Computer-generated poetry, for instance, is interpassive: the programmer delegates the process of composing a poem to an algorithm, thereby avoiding exactly the sort of emotional vulnerability and self-disclosure that writing poetry allegedly facilitates.

The Pleasures of the "External Brain".

Author: Kyle Booten.

Published: 4S. October 2021.

Abstract: Personal knowledge management" may sound mundane, yet this seemingly unsexy technological concept possesses is the liturgical focus of a cult—the self-described "RoamCult," a group of power users of Roam Research, one of the latest pieces of software to take up the mission of the Vannevar Bush's Memex. The core features of Roam—a popular and much-hyped "note-taking tool for networked thought"—would not seem revolutionary to Bush: users can make bi-directional links between snippets of text or other media. A graph visualization allows the user to see their knowledge as a spider web of intersecting thoughts and images.

Why, in an age of much more complex technology, does a personal note-taking app still inspire passion? I propose a psychoanalytic exploration of the pleasure of building and possessing an "external brain." As Benjamin Fong articulates, "there is more to why we think technology makes life better than technology making life better" since "technology gratifies a psychic need before it does material ones." My primary archive will consist of Roam itself as well as public comments made by its creator and users. Additionally I will note how Roam echoes pre-digital visions of the external mind, including the "place-logic" of Ramus. Via Fong, I will consider the specific forms of "mastery" promised by the externalization and visualization of one's brain. Via Robert Robert Pfaller, I will consider whether the charm of the external brain rests in the way it keeps one's thoughts not handily nearby but rather at a safe distance.

Available to read: https://convention2.allacademic.com/one/ssss/ssss21/index.php?cmd=Online+Program+View+Paper&selected_paper_id=1860982&PHPSESSID=0ko20c5cosh1bvk5a74hljte6u

Sentiment: A Lab Notebook.

Author: Kyle Booten.

Published: Electronic Literature Collection, Volume 4. June 2022.

Abstract: Using "sentiment analysis" algorithms, companies and governments estimate the emotions represented by the words we type on social media platforms and elsewhere. Sentiment: A Lab Notebook explores how to write with as well as against these systems that reduce the complexity of human emotion to a probability score between zero and one. The heart of the "lab notebook" is a series of poems written in response to the feedback of a machine-learning-powered interface; using a combination of sentiment analysis and data visualization, this system goads the writer to perform "emotional oscillation"—to swing wildly from joy to gloom, exaltation to depression. The interface is an apparatus for affective gymnastics, providing an opportunity to push oneself beyond familiar grooves of feeling. The notebook links to a live version of the interface so that readers may place their own poetic impulses beneath its statistical evaluation.

Available to read: https://collection.eliterature.org/4/sentiment-a-lab-notebook

To Pray Without Ceasing: An Interpassive Liturgy.

Author: Kyle Booten.

Published: xCoAx 2021. July 2021.

Abstract: To Pray without Ceasing is a web app that prays for the needs of Twitter users. Each day the system searches for tweets expressing needs (e.g. "I really need a hug right now") and, using various techniques of natural language processing to generate responses to these tweets, produces a 24-hour-long liturgy based on the "Liturgy of the Hours." Visitors to the web app activate it by tending to several virtual candles. As long as one of these remains lit, the system will proffer prayers. By participating in its ritual, viewers are invited to consider and feel what it would be like to put down their own worries and instead care for others without limits.

Available to read: https://2021.xcoax.org/kbo/

"Filling in the Gaps": Investigating Civil Society Organizations' Role in the 2020 United States Census.

Author: William Clyde Partin, Cristina Maria Lopez Guevara, Emma Margolin, Charley Johnson, danah boyd.

Published: 4S. October 2021.

Abstract: The decennial Census is among the most complex technoscientific projects undertaken by the federal government of the United States. Data collected through this process are not only the basis for the appointment of political power and the disbursement of federal monies but also inform the activities of many governmental and non-governmental agencies. But census data – like all data – are the result of social processes. Moreover, census stakeholders, from partisan agents to civil society organizations, are keenly aware of the contingency of census data and have often sought to shape the process (and its outcomes) to advance their interests, noble or not. For example, members of Census Counts – an ad hoc network of civil society organizations acting in partnership with the U.S. Census Bureau – have played an active role in the 2020 decennial census, seeking, in their words, to deliver a "fair and accurate" count.

Drawing on participant observation and 42 semi-structured interviews with Census Counts and other census

stakeholders, we describe (1) how these organizations understood concepts of "fairness" and "accuracy" and (2) how those understandings informed their attempts to remake, repair, supplement, and, in some cases, subvert the data infrastructure envisioned by the Census Bureau. In describing the complex, contested, and often contradictory relationships and imaginaries among Census Counts and the Census Bureau, we develop the concept of "gap work": a dual process by which (data) infrastructural stakeholders construct an (as of yet) unrealized "whole" and then undertake efforts to fill in the perceived "gaps" in that whole.

Available to read: https://convention2.allacademic.com/one/ssss/ssss21/index.php?cmd=Online+Program+View+Paper&selected_paper_id=1861255&PHPSESSID=tgdk9buot3igtjsqd845r0000b

In the Pursuit of Knowledge, There Be Dragons.

Author: danah boyd.

Published: IEEE VIS 2021. October 2021.

Abstract: My goal today is to invite you to see data and information differently by weaving together some of the lessons I've learned traipsing through different disciplines and ways of seeing. Hopefully this will be fun. Let's dive in…

Available to read: https://www.linkedin.com/pulse/pursuit-knowledge-dragons-danah-boyd/

Statistical Imaginaries: An Ode to Responsible Data Science.

Author: danah boyd.

Published: Microsoft Research Summit. December 2021.

Abstract: When statistics are understood as facts, the public expects exact knowledge. Precision. A census is supposed to be an enumeration of the public, a count of all the people. The Census Bureau produces numbers as facts, knowing full well that such a number is only the best number producible given the procedures the bureau uses. But just because the process worked does not mean that the result is as exact as the number implies. The Census Bureau could tell the public that the total population is almost 331 and a half million people. Rounding would communicate uncertainty. They could also offer up a number with digits after the decimal point, conveying that there are models underlying the data. But they do not. They produce precision because precision signals authority. Because precision is a norm and expectation. Because there is pressure to be precise.

Available to read: https://zephoria.substack.com/p/statistical-imaginaries?utm_medium=email&utm_campaign=cta

Time and Money: How Public Sector Agencies Resist Organizational Failure.

Author: danah boyd.

Published: 4S. October 2021.

Abstract: This paper contributes to debates in the sociology of organizational failure by comparing the experiences of two governmental organizations in the United States: the Census Bureau and the National Aeronautics and Space Administration (NASA). Prior studies of organizational failure typically focus on the private sector with its particular arrangement of funding and stakeholders; assume failure causes such as poor environmental fit or exogenous shocks to a company; and assert that failure or low reliability is unin-

tentional and undesirable. Our ethnographic examination of two public sector, politically-imbricated socio-technical systems reveals novel causes and roles for failure. We observed two resource-constrained arenas in which complex sociotechnical organizations confronted significant risks: the contemporaneous production of the 2020 census and the Europa Clipper Mission. Examining the dual roles of money and time as socially constructed, relationally invoked, and politically executed constraints upon local action, we observe how complex, tightly-coupled organizations of the type Perrow associates with failure deploy time and money as buffers against risk. We analyze how relationships are renegotiated alongside competing views of the organization's mandate, and how both time and money are co-constructed alongside powerful entities such as the Office of Management and Budget or Congress in addition to both internal and external stakeholders. Accounting for these socially-constructed "constraints" upon action enables us to articulate what actors do in contested terrain, to usefully reframe organizational failure for analysis, and to suggest implications for trust and legitimacy in public sector technical projects.

Available to read: https://convention2.allacademic.com/one/ssss/ssss21/index.php?cmd=Online+Program+View+Paper&selected_paper_id=1854466&PHPSESSID=tgdk9buot3igtjsqd845r0000b

A Sociocultural Explanation of Internet-Enabled Work in Rural Regions.

Author: Zoe Kahn and Jenna Burrell.

Published: CHI 2022. February 2022.

Abstract: This article draws on ethnographic research in three rural places in the Western United States to understand how rural workers incorporate the Internet into their work practices. We find two key, divergent types of work in rural areas that leverage the Internet: (1) telework and (2) work to market and sell goods and services online. We consider why these two forms of Internet-enabled work are pursued by different segments of the rural population, attending to the socio-demographic variation within and between these two broad categories. Some key differences include whether workers are urban transplants or rural-originating, in "white-collar" or "blue-collar" occupations, and whether they are men or women. We argue that deficit framings that focus on inadequate infrastructure or absent skills are insufficient to understand such patterns of differentiated use. Instead a sociocultural explanation is needed: one that draws connections between work cultures, occupational values, skills, and practices.

Available to read: https://programs.sigchi.org/chi/2022/program/content/70467

The Preservation of Embodied Masculinity in Tech-Altered Workplaces.

Author: Jenna Burrell.

Published: 4S. October 2021.

Abstract: Tech sector work is often thought to represent a shift from an old regime that favors physical strength and capability to a new one favoring disembodied human intelligence. By contrast, the occupational values of traditional rural industries in the Western United States (including, logging, commercial fishing, and cattle ranching) persist in centering the laboring body. Rural work of this sort is celebrated and even mythologized as physical, perilous, embodied, and done in the outdoors. So what happens when the work worlds of high tech make inroads into rural places? How do communities respond when the livestock auction becomes Internet-connected and a Facebook data center becomes the newest employer in town?

Drawing from ethnographic work in Central Oregon and the Northern California coast, this paper explores

how rural workers reconcile occupational values when disparate work worlds intersect in rural sites. A recent trend reclaims digital work from the realm of weightless 'ephemerality,' situating it instead in the material world, a world of brutal, embodied physicality. For example, in an interview for Outside magazine, Ken Patchett, director of the Facebook data center in rural Prineville, Oregon insisted, "The Internet is not a fake thing…it's a very, very real thing made with hammers and concrete. And nails. And blood and sweat and tears and people" (Streep 2017). This study accounts for how tech work is made suitable and meaningful in rural sites through its connection to embodied masculine identity.

Available to read: https://convention2.allacademic.com/one/ssss/ssss21/index.php?cmd=Online+Program+View+Paper&selected_paper_id=1858801&PHPSESSID=0k020c5cosh1bvk5a74hljte6u

Inside the Flower Matrix and The Ruins .

Author: Claudia Hart and Edmund Campion.

Published: Bitforms Gallery, Minnesota Street Project, SF. April 2022.

Abstract: Inside the Flower Matrix (2016) is a part of Claudia Hart's Inside the Flower Matrix envisions Wonderland as the Interweb, covered by flashing emoji, the icons for power, money, addiction and control. Inside this world, five original species of fantastical flowers designed by Hart randomly grow and decay in an environment of aesthetic fakeness where technology has replaced nature. Music composed: Edmund Campion, Cello improvisations: Danielle DeGruttola Vocals: Claudia Hart and Mikey McParlane

The Ruins (2020) implements still lives, the classical form of a memento mori, to reflect on the canons of a patriarchal western civilization: modernist painting and manifestos of political utopias. Central to this work is an audiovisual animation composed by Edmund Campion that tracks through the claustrophobic game worlds created by Hart.

Available to read: https://minnesotastreetproject.com/

Michelle Carney's Mission With MLUX: Bringing UX and Machine Learning Together.

Author: Michelle Carney and Brian O'Neill.

Published: Experiencing Data Podcast. May 2022.

Abstract: Michelle Carney began her career in the worlds of neuroscience and machine learning where she worked on the original Python Notebooks. As she fine-tuned ML models and started to notice discrepancies in the human experience of using these models, her interest turned towards UX. Michelle discusses how her work today as a UX researcher at Google impacts her work with teams leveraging ML in their applications. She explains how her interest in the crossover of ML and UX led her to start MLUX, a collection of meet-up events where professionals from both data science and design can connect and share methods and ideas. MLUX now hosts meet-ups in several locations as well as virtually.

Our conversation begins with Michelle's explanation of how she teaches data scientists to integrate UX into the development of their products. As a teacher, Michelle utilizes the IDEO Design Kit with her students at the Stanford School of Design (d.school). In her teaching she shares some of the unlearning that data scientists need to do when trying to approach their work with a UX perspective in her course, Designing Machine Learning.

Finally, we also discussed what UX designers need to know about designing for ML/AI. Michelle also talks about how model interpretability is a facet of UX design and why model accuracy isn't always the most important element of a ML application. Michelle ends the conversation with an emphasis on the need for more interdisciplinary voices in the fields of ML and AI.

Available to read: https://designingforanalytics.com/resources/episodes/090-michelle-carneys-mission-with-mlux-bringing-ux-and-machine-learning-together-%EF%BF%BC/

Feral Atlas: The More-Than-Human Anthropocene. By Anna Lowenhaupt Tsing, Jennifer Deger, Alder Keleman Saxena, and Feifei Zhou.

Author: Alenda Chang.

Published: ISLE. July 2021.

Abstract: Bright orange banners recently sprang up along the lemon orchards lining the hills where I live, in a quiet Santa Barbara exurb. The signs exhort passersby to "Save Our Citrus!" and direct the curious to a web site, californiacitrusthreat.org, which explains that California citrus trees are threatened by the non-native Asian citrus psyllid, a tiny wasp that can infect trees with a fatal, bacteria-borne disease called Huanglongbing (literally, yellow dragon sickness). As with most "invasive" species, however, such an account raises more questions than it answers: how and when did these insects get here? Who is to blame, if blame we must—the wasps, the bacteria, or the humans who introduced them? Is it genius or hubris when entomologists exert "biological control" by releasing Tamarixia radiata, a known parasitoid of the psyllid in Asia, into California orchards "at no cost"? These are exactly the sorts of entities and relationships, some...

Available to read: https://academic.oup.com/isle/issue/28/4

Pitching the "Big Tent" Outside: An Argument for the Digital Environmental Humanities.

Author: Alenda Chang.

Published: Punctum Books. July 2021.

Abstract: In Silencing the Past: Power and the Production of History, Michel-Rolph Trouillot writes that by examining the process of history we can "discover the differential exercise of power that makes some narratives possible and silences others." Alternative Historiographies of the Digital Humanities examines the process of history in the narrative of the digital humanities and deconstructs its history as a straight line from the beginnings of humanities computing. By discussing alternatives histories of the digital humanities that address queer gaming, feminist game studies praxis, Cold War military-industrial complex computation, the creation of the environmental humanities, monolingual discontent in DH, the hidden history of DH in English studies, radical media praxis, cultural studies and DH, indigenous futurities, Pacific Rim postcolonial DH, the issue of scale and DH, the radical, indigenous, feminist histories of the digital database, and the possibilities for an antifascist DH, this collection hopes to re-set discussions of the straight, white origin myths of DH. Thus, this collection hopes to reexamine the silences in such a straight and white masculinist history and delineates how power comes into play to shape this straight, white DH narrative.

Available to read: https://punctumbooks.com/titles/alternative-historiographies-of-the-digital-humanities/

California: Keep public meetings open through technology.

Author: Camille Crittenden.

Published: Berkeley Blog. July 2021.

Abstract: Over the past pandemic year, life events and activities have moved online that we once believed must be held in person: weddings, classes, conferences, cocktail parties. Many aspects of government business also transitioned from requiring a presence in person to being facilitated through online platforms. California's open meeting laws inscribed in the Bagley-Keene Open Meeting Act of 1967 mandates that all meetings of State boards and commissions be open and accessible to the public, with agendas posted well in advance. It provides for remote participation via "teleconference" but requires that each location, including a member's private home or office, be open and accessible to the public for the occasion. While these regulations intend to ensure that the State's activities are transparent to its constituents, they actually restrict access to those members of the public with the time and financial resources to attend meetings in person. Now is the time to change these rules to consider the affordances of 21st-century technology.

Available to read: https://blogs.berkeley.edu/2021/07/06/california-keep-public-meetings-open-through-technology/

On the Wings of Ada Lovelace by Camille Crittenden.

Author: Camille Crittenden.

Published: Berkeley Blog. October 2021.

Abstract: Ada Lovelace (1815 – 1852) is recognized for many remarkable attributes and affiliations, not only as a precursor of what came to be modern computer programming but also as the daughter of poet Lord Byron and friend to notable Victorian intellectuals like Charles Babbage, Charles Dickens, Michael Faraday and Mary Somerville. Her name has been used in tribute more recently as a programming language developed by the U.S. Department of Defense and as a unit of cryptocurrency. In addition to her precocious aptitude for mathematics and metaphysics, she was also a budding mechanical engineer and aviation visionary as a 12-year-old.

Available to read: https://blogs.berkeley.edu/2021/10/12/on-the-wings-of-ada-lovelace/

Returning to the concert hall.

Author: Camille Crittenden.

Published: Berkeley Blog. October 2021.

Abstract: Today marked Cal Performances' return to in-person indoor concerts, and what an opening to the regular 2021/22 season! Tessa Lark on violin and Amy Yang on piano delivered inspiring, sensitive, bravura performances of bold and refreshing repertoire that should call us all back to the concert hall.

Available to read: https://blogs.berkeley.edu/2021/10/03/returning-to-the-concert-hall/

Women in Energy: A Powerful Case for Inclusion.

Author: Camille Crittenden.

Published: Berkeley Blog. April 2022.

Abstract: March brings the annual celebration of Women's History Month. What started as a week of activities sponsored by the Sonoma school district in 1978 expanded to a national commemorative month by order of Congress in 1986. That same year saw a remarkable two-day Congressional hearing on "Ozone depletion, the greenhouse effect and climate change." As climate-driven hazards such as wildfires, sea-level rise, and unprecedented heat waves and snowstorms grip the world, CITRIS and the Banatao Institute and the EDGE in Tech initiative at UC will unite the themes of women and climate in the annual flagship conference, "Diversity in Tech: Advancing Climate Resilience.

Available to read: https://blogs.berkeley.edu/2022/03/04/women-in-energy-a-powerful-case-for-inclusion/

Black Ballerinas in Picture Books: Rupturing the Color Line in American Children's Literature.

Author: Lashon Daley.

Published: Dancer's Group. June 2021.

Abstract: Over the past fifty years, as a result of the call for diverse children's books, there has been a steady trickling in of publications featuring protagonists of color. As a Black girlhood studies scholar, I pay close attention to picture books that portray Black girls. More specifically, I intersect dance studies and children's literary studies in order to explore the representation of Black ballerinas in autobiographical and biographical children's picture books. In doing so, I demonstrate how these texts help to define what it means to be young, Black, and female in ballet as this social identity becomes characterized within African American children's literature.

Available to read: https://dancersgroup.org/2021/06/black-ballerinas-in-picture-books-rupturing-the-color-line-in-american-childrens-literature/

Disruptive Ruptures: The Necessity of Black/Girlhood Imaginary.

Author: Kenley Brown, Lashon Daley, and Derrika Hunt.

Published: Meridians: feminism, race, transnationalism. April 2022.

Abstract: This article examines Black/Girlhood Imaginary, a transdisciplinary methodology that merges performance studies, Black studies, and education to research and theorize the capacious archives of Black girlhood. What the authors term Black/Girlhood Imaginary is a multivalent prism that aids in the recovery of the losses, the undermining, the layered violence, the joys, and the embodied experiences of Black girls. As a methodology, Black/Girlhood Imaginary weaves both the fullness and fissures of Black girlhoods, opening up the space for Black girls to recover their own images. The authors use the methodologies of Black/Girlhood Imaginary to analyze three case studies beginning with Judy Winslow's unexplained disappearance from the popular 1990s sitcom Family Matters. The authors then move into a literary analysis of a poem written by Paradise, a student, who theorizes state-sanctioned violence in her community. The authors end with a poem about Daniele, an employee embedded between diasporic economies. These case studies illustrate representations, perspectives, and experiences of Black girls in the kaleidoscope of the Black/Girlhood Imaginary.

Available to read: https://www.dukeupress.edu/black-feminism-in-the-caribbean-and-the-united-states

The Eco-Technical Interface: Attuning to the Instrumental.

Author: Maya Livio and Laura Devendorf.

Published: CHI 2022. February 2022

Abstract: Given the ongoing environmental crisis and recent calls within HCI to engage with its cascading effects on the more-than-human world, this paper introduces the concept of the eco-technical interface as a critical zone at which designers can surface and subvert issues of multispecies relations such as nonhuman instrumentalization. The eco-technical interface represents the sites at which human, non-human, and technological interfaces overlap, ranging from remote sensing for conservation to smart devices for precision agriculture to community science platforms for species identification. Here, we highlight the pervasiveness of the eco-technical interface as a set of sites for further HCI inquiry, engage with the politics and instrumentalizing tendencies at three particular sites, and demonstrate tactics for cultivating attunement to, refexively accounting for, and subverting instrumentalization in multispecies encounter.

Available to read: https://programs.sigchi.org/chi/2022/program/content/68969

Examining Narrative Sonification: Using First-Person Retrospection Methods to Translate Radio Production to Interaction Design.

Author: Jordan Wirfs-Brock, Alli Fam, Laura Devendorf, and Brian C Keegan.

Published: CHI 2022. February 2022.

Abstract: We present a first-person, retrospective exploration of two radio sonification pieces that employ narrative scaffolding to teach audiences how to listen to data. To decelerate and articulate design processes that occurred at the rapid pace of radio production, the sound designer and producer wrote retrospective design accounts. We then revisited the radio pieces through principles drawn from guidance design, data-storytelling, visualization literacy, and sound studies. Finally, we speculated how these principles might be applied through interactive, voice-based technologies. First-person methods enabled us to access the implicit knowledge embedded in radio production and translate it to technologies of interest to the HCI community, such as voice user interfaces that rely on auditory display. Traditionally, sonification practitioners have focused more on generating sounds than on teaching people how to listen; our process, however, treated sound and narrative as a holistic, sonic-narrative experience. Our first-person retrospection illuminated the role of narrative in designing to support people as they learn to listen to data.

Available to read: https://programs.sigchi.org/chi/2022/program/content/70460

Ancestral Offering.

Author: Edgar Fabián Frías.

Published: Monolith, Southern Exposure. September 2021

Abstract: Southern Exposure is proud to present MONOLITH, a group exhibition curated by SoEx Curatorial Councilmember and artist Ricki Dwyer. The five artists in this show work across a spectrum of genres while accessing the autobiographical as raw matter. Working within a world which flattens and exploits personal narrative, these artists individually acknowledge the complexities of their lived experience, invest rich material practices in self-determination, and collectively construct a moment of bold relief.

Liz Roberts presents a short documentary on the lived experience of opioid addiction which combats the re-

demption narrative of sobriety. Leena Joshi's vinyl sign is installed as an aggressive act of poetic reclamation of their own desirability. Jess Robbins exhibits the emotional navigation of searching for parental support through their sculptural installation of makeshift shoes titled Stand-Ins and accompanying performance Are You My Mother?. Charmaine Bee's textile and medicinal herb installation sits within their Portal Series and the ongoing practice of connecting spiritually to ancestral lineage. Edgar Fabián Frías has installed a previously exhibited billboard project which had been vandalized as a hate crime. Within the context of this show they will ritualize the healing and release of this violence through a performance ceremony.

Available to read: https://soex.org/projects-exhibitions/monolith

Dive In.

Author: Edgar Fabián Frías.

Published: Transcendence. November 2021.

Abstract: Take a deep breath. Inhale, exhale. Find your center. Feel into the possibilities here.

There are moments in your life when you witness a portal open. This portal can be a gateway to an infinite array of opportunities, experiences, connections, and possibilities.

This artwork is a spell. It is an intention. It is a portal. It is a prayer.

Take another deep breath. Feel into it.

Dive in.

Available to read: https://rare.makersplace.com/2021/11/15/transcendence-trans-and-non-binary-artists-in-the-metaverse/

Have You Heard of Astral Projection?

Author: Edgar Fabián Frías.

Published: NFT Oasis, Everybody's Doing the Emails. December 2021.

Abstract: Together, the video works and performances in Everyone's Doing the Emails both critique and celebrate the themes of the late '90s and early 2000s which have come to define an era of the internet that is currently shifting.

Available to read: https://img-cache.oppcdn.com/fixed/47537/assets/qSURKOdQsPmu2baZ.pdf

Nierika: The Pause, The Void, The Map.

Author: Edgar Fabián Frías.

Published: Meantime: ICASF. Novemeber 2022.

Abstract: Learn about the meanings, uses, and importance of the sacred divination tool and concept of Nierika within the Wixáritari community from Mexico. Frías is a non-binary, Queer, Indigenous (Wixárika), Latinx artist, educator, and psychotherapist. Their nierika—a ceremonial and divinatory tool of the Wixáritari people of Mexico—will be on view on 3/11 and the subject of workshops on 3/12-3/13.

Available to read: https://programs.sigchi.org/chi/2021/program/content/56969

TechnoIntimacy.

Author: Edgar Fabián Frías.

Published: MOCA Jacksonville. August 2021.

Abstract: TechnoIntimacy showcases the work of artists Lena Chen, Tim Combs, Edgar Fabian Frias, MyraLilith Day, Mike Neumann, Tabitha Nikolai, and Alan Page. Through the use of digital and internet platforms, these artists attempt to carve out new pathways for knowledge-production, aesthetics, cognition, spirit, and viewership. TechnoIntimacy invites the visitor to consider a porous boundary between the digital and physical--or ""Away from the Keyboard"" (AFK)--realms. By dissolving these barriers, the artists suggest a new form of connection: a connection both at corporeal and communal level, where limitlessness is possible. Curated by Jessica Borusky, UNF Gallery Director and Instructor.

Available to read: https://contendingmodernities.nd.edu/theorizing-modernities/beyond-analogy/

Untitled.

Author: Edgar Fabián Frías.

Published: Frame by Frame. The Animated Book of GIF Art. September 2021.

Abstract: On September 9th, GIPHY is launching Frame By Frame — a self-published, first of its kind, physical book that brings the magic of animation to the static page. Creatively driven by the concept of "Be Animated" — GIPHY's mantra and mission statement — 35 international artists showcase what the phrase means to them in a way you've never seen before.

Available to read: http://caareviews.org/reviews/3915#.YMvVy5MzZqv

Untitled.

Author: Edgar Fabián Frías.

Published: MOCA Hi Solo #11. February 2022.

Abstract: HI, SOLO is a bi-annual performance series conceived by Alexx Shilling and Devika Wickremesinghe in 2015. Using a structure inspired by dancer and choreographer Mark Haim, HI, SOLO presents an evening of dance, which centers artists making performance work in Los Angeles. Artists are challenged to adapt varying choreographic and improvisational strategies to respond to the call: perform a new solo work in three-minutes time. HI, SOLO #11 recommences this Pieter Performance Space tradition and longstanding offering to Los Angeles' dance community by presenting new performances by Ana María Alvarez, Creighton Baxter, Shauna Davis, DeFacto X, Edgar Fabián Frías, Jackie ""Miss Funk"" Lopez, Jobel Medina, Yunuen Rhi, Michelle Sui, and Estrellx Supernova.

Available to read: https://www.moca.org/program/hi-solo-11

Mass-ive Protest: Petition, Assembly and Algorithmic Transparency.

Author: Kris Fallon.

Published: 4S. October 2021.

Abstract: In their contribution to the recently revised Handbook of STS, Breyman et al. demonstrate the fundamental connection between STS and the larger social movements that arose alongside the discipline, what they describe as the "many activists, thinkers, and writers whose critiques of science and technology emerged in contexts of social struggle and conflict." Indeed, STS positions itself at the nexus of science and technology on one hand and the society to which it applies on the other. At the center of this exchange lies the authority and institutional leverage of states, scientific disciplines and technology corporations against the collective, assembled power of everyday people. Recently, petition and assembly have been used to challenge state violence and the big tech corporations that enable it, protesting both immigration policy and policing in the US and pressuring companies to sever ties with the US government.

This paper will consider the role of petition and assembly as a fundamental tool for shaping both state and corporate policy as well as specific research agendas in computer science and engineering. Drawing on political theory and the history of rights of petition, I will argue that what I call massive publics are both essential and anathema to the development of computer vision algorithms like Amazon's Rekognition tool. Such tools represent the state of the art in AI and computer vision (having trained on millions of images) and yet their use is controversial. Bowing to intense public pressure, Amazon temporarily barred police departments from using the technology, but in the absence of legal policy and sustained scrutiny, it remains unclear how lasting this victory will prove to be.

Available to read: https://convention2.allacademic.com/one/ssss/ssss21/index.php?cmd=Online+Program+View+Paper&selected_paper_id=1860455&PHPSESSID=0ko20c5cosh1bvk5a74hljte6u

High-Tech Orientalism and Science Fiction Future in Astria Suparak's "Virtually Asian" (2021).

Author: Kaitlin Forcier.

Published: Media-N. February 2022.

Abstract: Multimedia artist Astria Suparak's short video essay, Virtually Asian (2021) presents an astute critique of the racism embedded in pop-culture imaginings of the future. Weaving together footage culled from forty years of science fiction blockbusters, the supercut reveals not only how Asian actors have been used as an orientalist backdrop for white characters in these films, but that these Asian bodies are often dematerialized, represented as projections, holograms, and digital images. The piece comprises a trenchant follow-up to scholar Wendy Chun's observations about "High-tech Orientalism," a trope which represents a technologically-advanced future as an exotic Asian landscape. Commissioned by the Berkeley Art Center as part of an online exhibition launched while the gallery was closed by the pandemic, Virtually Asian is part of Suparak's ongoing project, "Asian futures, without Asians." Despite its sharp critique, Virtually Asian ultimately strikes a hopeful tone. These are after all collective visions of the future: we have the capacity to imagine futures that are less racist, less sexist, more accurate reflections of the world we hope to inhabit.

Available to read: https://iopn.library.illinois.edu/journals/median/article/view/877

The Computer is not a Visual Medium: Visual Methods for Computational Materiality.

Author: Jacob Gaboury.

Published: 4S. October 2021.

Abstract: "In his widely influential 2004 work "Continuous Paper," Nick Montfort offers a critique of our tendency to privilege the visual experience of computational media in our analysis and understanding of the digital, naming this bias "screen essentialism." In many ways this critique formed the foundation for a sea change in the field of media studies, a shift away from representational analysis and toward the materiality of computational technology in hardware, software, and code. Yet this wholesale refusal of the screen has produced its own restrictions, particularly as computational technologies come to re-engage visual experience in new ways, from the "discorrelated" images of post-cinema and computational photography to the adversarial networks that enable machine vision and artificial intelligence. How might we re-engage visual methods for the analysis of digital media without presuming the centrality of our phenomenal perception to the function of computational systems?

Taking up this task, this essay models visual methods for computational materiality through an analysis of the central role that computer graphics played in the development of the modern computer. Drawing on archival and materialist methods from my forthcoming book, I argue that while the computer is not a visual medium, computation itself has been shaped by a theory of relation that begins with the visual, and can be traced directly to contemporary applications in big data, cloud computing, and artificial intelligence. In pushing back against the critique of screen essentialism, my goal is to open up new avenues for visual methods in the study of computational media technologies.

Available to read: https://convention2.allacademic.com/one/ssss/ssss21/index.php?cmd=Online+Program+View+Paper&selected_paper_id=1859929&PHPSESSID=0ko20oc5cosh1bvk5a74hljte6u

DE LA PAUVRETÉ DE L'IMAGE RICHE.

Author: Jacob Gaboury.

Published: LA HAUTE ET LA BASSE DÉFINITION DES IMAGES Photographie, cinéma, art contemporain, culture visuelle. July 2021.

Abstract: Que voulons-nous dire lorsque nous décrivons une image ou une esthétique comme précaire1? Ou peut-être, pour le dire autrement, si notre culture visuelle est caractérisée par une certaine forme de précarité, qu'elle serait l'image sûre, stable, riche dont une telle image dériverait? Il faut lire dans cette expression la conception historique sous-jacente, fondée sur la croyance selon laquelle notre culture visuelle s'est transformée au cours des vingt dernières années avec l'adoption généralisée des technologies d'imagerie numérique. Si ces technologies ont d'abord semblé reproduire ou remplacer les médias visuels existants – ou peut-être augmenter, compléter et étendre l'image analogique – une nouvelle esthétique a émergé plus récemment, dans laquelle l'illusion d'indexicalité autrefois attribuée au cinéma est remplacée par une esthétique explicitement numérique, par une image portant la trace indexicale non du monde, mais de la machine elle-même – son interface, son matériel, son image matricielle (bitmap), son code. Compte tenu de cela, une esthé-tique précaire est peut-être celle qui cherche à rendre le numérique visible, et ce alors même que nos machines deviennent de plus en plus capables de produire des simulations exactes, claires et impossibles à distinguer comme telles2. Une image précaire est alors celle qui renferme le désir de rendre visible ce qui est devenu de plus en plus invisible: la numérisation de notre culture visuelle.

Available to read: https://escholarship.org/uc/item/ons2h12p

The Labor of Maintaining and Scaling Free and Open-Source Software Projects.

Author: R. Stuart Geiger, Dorothy Howard, and Lily Irani.

Published: SIG CHI 2021. October 2021.

Abstract: Free and/or open-source software (or F/OSS) projects now play a major and dominant role in society, constituting critical digital infrastructure relied upon by companies, academics, non-profits, activists, and more. As F/OSS has become larger and more established, we investigate the labor of maintaining and sustaining those projects at various scales. We report findings from an interview-based study with contributors and maintainers working in a wide range of F/OSS projects. Maintainers of F/OSS projects do not just maintain software code in a more traditional software engineering understanding of the term: fixing bugs, patching security vulnerabilities, and updating dependencies. F/OSS maintainers also perform complex and often-invisible interpersonal and organizational work to keep their projects operating as active communities of users and contributors. We particularly focus on how this labor of maintaining and sustaining changes as projects and their software grow and scale across many dimensions. In understanding F/OSS to be as much about maintaining a communal project as it is maintaining software code, we discuss broadly applicable considerations for peer production communities and other socio-technical systems more broadly.

Available to read: https://programs.sigchi.org/cscw/2021/program/content/66081

Accelerating Quadratic Optimization with Reinforcement Learning.

Author: Jeffrey Ichnowski, Paras Jain, Bartolomeo Stellato, Goran Banjac, Michael Luo, Francesco Borrelli, Joseph E. Gonzalez, Ion Stoica, and Ken Goldberg.

Published: NeurIPS. December 2021.

Abstract: First-order methods for quadratic optimization such as OSQP are widely used for large-scale machine learning and embedded optimal control, where many related problems must be rapidly solved. These methods face two persistent challenges: manual hyperparameter tuning and convergence time to high-accuracy solutions. To address these, we explore how Reinforcement Learning (RL) can learn a policy to tune parameters to accelerate convergence. In experiments with well-known QP benchmarks we find that our RL policy, RLQP, significantly outperforms state-of-the-art QP solvers by up to 3x. RLQP generalizes surprisingly well to previously unseen problems with varying dimension and structure from different applications, including the QPLIB, Netlib LP and Maros-Meszaros problems. Code for RLQP is available at this https URL.

Available to read: https://arxiv.org/abs/2107.10847

Assisting Polyculture Farming in Africa.

Author: Simeon Adebola and Ken Goldberg.

Published: IEEE AFRICON. September 2021.

Abstract: AlphaGarden is a polyculture garden tended by a robot using a learned control policy tuned with simulation, sensor and camera data. AlphaGarden aims to optimize yield and diversity while minimizing water use. This extended abstract considers how its seed planting algorithm could be used by African farmers.

Available to read: https://ieeexplore.ieee.org/abstract/document/9570957

AVPLUG: Approach Vector PLanning for Unicontact Grasping amid Clutter.

Author: Yahav Avigal*, Vishal Satish*, Zach Tam, Harry Zhang, Huang Huang, Michael Danielczuk, Jeffrey Ichnowski, and Ken Goldberg.

Published: IEEE Int'l Conference on Automation Science and Engineering (CASE). August 2021.

Abstract: Mechanical search, the finding and extracting of a known target object from a cluttered environment, is a key challenge in automating warehouse, home, retail, and industrial tasks. In this paper, we consider contexts in which occluding objects are to remain untouched, thus minimizing disruptions and avoiding toppling. We assume a 6-DOF robot with an RGBD camera and unicontact suction gripper mounted on its wrist. With this setup, the robot can move both camera and gripper in order to identify a suitable approach vector, reach in to achieve a suction grasp of the target object, and extract it. We present AVPLUG: Approach Vector PLanning for Unicontact Grasping, an algorithm that uses an octree occupancy model and Minkowski sum computation to find a collision-free grasp approach vector. Experiments in simulation and with a physical Fetch robot suggest that AVPLUG finds an approach vector up to 20× faster than a baseline search policy.

Available to read: https://drive.google.com/file/d/1ELsS8TsipOyA8KutXvwTeLjUyoCOZyGx/view

Comparison of novel shielded nasopharynx applicator designs for intracavitary brachytherapy.

Author: Ben Insley, Ken Goldberg, Luc Beaulieu, Yunzhi Ma, Stephen McKinley, I-Chou Hsu, and J Adam Cunha.

Published: Brachytherapy Journal. January 2022.

Abstract: Nasopharyngeal brachytherapy is limited in part by the radiotolerance of nearby organs like the soft palate. This study explores several novel shielding designs for an intracavitary applicator to significantly reduce soft palate dose while adhering to the constraints of standard treatment procedure.

Available to read: https://www.sciencedirect.com/science/article/abs/pii/S1538472121005626

Dex-NeRF: Using a Neural Radiance Field to Grasp Transparent Objects.

Author: Jeffrey Ichnowski, Yahav Avigal, Justin Kerr, and Ken Goldberg.

Published: Conference on Robot Learning (CoRL). London, UK. November 2021.

Abstract: The ability to grasp and manipulate transparent objects is a major challenge for robots. Existing depth cameras have difficulty detecting, localizing, and inferring the geometry of such objects. We propose using neural radiance fields (NeRF) to detect, localize, and infer the geometry of transparent objects with sufficient accuracy to find and grasp them securely. We leverage NeRF's view-independent learned density, place lights to increase specular reflections, and perform a transparency-aware depth-rendering that we feed into the Dex-Net grasp planner. We show how additional lights create specular reflections that improve the quality of the depth map, and test a setup for a robot workcell equipped with an array of cameras to perform transparent object manipulation. We also create synthetic and real datasets of transparent objects in real-world settings, including singulated objects, cluttered tables, and the top rack of a dishwasher. In each setting we show that NeRF and Dex-Net are able to reliably compute robust grasps on transparent objects, achieving 90% and 100% grasp success rates in physical experiments on an ABB YuMi, on objects where baseline methods fail.

Disentangling Dense Multiple-Cable Knots.

Author: Vainavi Viswanath*, Jennifer Grannen*, Priya Sundaresan*, Brijen Thananjeyan, Ashwin Balakrishna, Ellen Novoseller, Jeffrey Ichnowski, Michael Laskey, Joseph E. Gonzalez, and Ken Goldberg.

Published: IEEE/RSJ International Conference on Robots and Systems (IROS). September 2021.

Abstract: Disentangling two or more cables requires many steps to remove crossings between and within cables. We formalize the problem of multiple cable disentangling and present an iterative, graph-based algorithm, Iterative Reduction Of Non-planar Multiple cAble kNots (IRON-MAN), that outputs moves to remove crossings from the scene. We instantiate it with a learned perception system, inspired by prior work in single-cable untying, to disentangle two cable twists, three cable braids, and knots of two or three cables, such as the overhand, square, carrick bend, sheet bend, crown, and fisherman's knots from image input. IRON-MAN keeps track of task-relevant keypoints corresponding to target cable endpoints and crossings and iteratively disentangles the cables by identifying crossings that are critical to knot structure and undoing them. Using a da Vinci surgical robot, we experimentally evaluate the effectiveness of IRON-MAN on the task of untangling a class of multiple cable knots present in the training data, as well as generalizing to novel classes of multiple cable knots involving two to three cables. Results suggest that IRON-MAN is effective in disentangling knots involving up to three cables with 80.5% success, with generalization to knots that are never seen during training on cables that are either distinct or uniform in color.

Available to read: https://goldberg.berkeley.edu/pubs/2021-IROS_Multi_Cable_Detangling_submitted.pdf

Dynamic regret convergence analysis and an adaptive regularization algorithm for on-policy robot imitation learning.

Author: Jonathan N Lee, Michael Laskey, Ajay Kumar Tanwani, Anil Aswani, and Ken Goldberg.

Published: The International Journal of Robotics Research 40 (10-11), 1284-1305. September 2021.

Abstract: On-policy imitation learning algorithms such as DAgger evolve a robot control policy by executing it, measuring performance (loss), obtaining corrective feedback from a supervisor, and generating the next policy. As the loss between iterations can vary unpredictably, a fundamental question is under what conditions this process will eventually achieve a converged policy. If one assumes the underlying trajectory distribution is static (stationary), it is possible to prove convergence for DAgger. However, in more realistic models for robotics, the underlying trajectory distribution is dynamic because it is a function of the policy. Recent results show it is possible to prove convergence of DAgger when a regularity condition on the rate of change of the trajectory distributions is satisfied. In this article, we reframe this result using dynamic regret theory from the field of online optimization and show that dynamic regret can be applied to any on-policy algorithm to analyze its convergence and optimality. These results inspire a new algorithm, Adaptive On-Policy Regularization (Aor), that ensures the conditions for convergence. We present simulation results with cart–pole balancing and locomotion benchmarks that suggest Aor can significantly decrease dynamic regret and chattering as the robot learns. To the best of the authors' knowledge, this is the first application of dynamic regret theory to imitation learning.

Available to read: https://journals.sagepub.com/doi/full/10.1177/0278364920985879

FogROS: A Light-Weight Easy-to-Use Framework for Cloud-Based Robot Computation.

Author: Kaiyuan (Eric) Chen, Yafei Liang, Jeffrey Ichnowski, Michael Danielczuk, Joseph Gonzalez, John Kubiatowicz, and Ken Goldberg.

Published: IEEE Int'l Conference on Automation Science and Engineering (CASE). August 2021.

Abstract: As many robot automation applications increas- ingly rely on multi-core processing or deep learning models, cloud computing is becoming an attractive and economically viable resource for systems that do not contain high computing power onboard. Despite its immense computing capacity, it is often underused by the robotics and automation community due to lack of expertise in cloud computing and cloud-based infrastructure. Fog Robotics balances computing and data between cloud edge devices. We propose a software framework, FogROS, that allows existing applications to gain access to addi- tional computing cores, graphics-processing units (GPUs), field- programmable gate arrays (FPGAs), and tensor-processing units (TPUs) available on commercial cloud-based services. This framework is built on Robot Operating System (ROS), the de-facto standard for creating robot automation applications and components. FogROS allows a researcher to specify which components of their software will be deployed to the cloud and to what type of computing hardware. We evaluate FogROS on 3 examples: (1) simultaneous localization and mapping (SLAM), (2) Dexterity Network (Dex-Net) GPU-based grasp planning, and (3) multi-core motion planning using a 96-core cloud- based server. In all three examples, a component is deployed to the cloud and accelerated with a small change in system launch configuration, while incurring additional latency of 1.2 s, 0.6 s, and 0.5 s due to network communication, the computation speed is improved by 4.5×, 5.2× and 31.5×, respectively. Code, videos, and supplementary material can be found at https://github.com/BerkeleyAutomation/FogROS.

Available to read: https://drive.google.com/file/d/1FKsy96XsT52CtVxkkT9KXbc0g3UGM9oS/view

FogROS 2: An Adaptive and Extensible Platform for Cloud and Fog Robotics Using ROS 2.

Author: Jeffrey Ichnowski, Kaiyuan Chen, Karthik Dharmarajan, Simeon Adebola, Michael Danielczuk, Vıctor Mayoral-Vilches, Hugo Zhan, Derek Xu, Ramtin Ghassemi, John Kubiatowicz, Ion Stoica, Joseph Gonzalez, and Ken Goldberg.

Published: ArXiv. May 2022.

Abstract: Mobility, power, and price points often dictate that robots do not have sufficient computing power on board to run modern robot algorithms at desired rates. Cloud computing providers such as AWS, GCP, and Azure offer immense computing power on demand, but tapping into that power from a robot is non-trivial. In this paper, we present FogROS 2, an easy-to-use, open-source platform to facilitate cloud and fog robotics compatible with the emerging ROS 2 standard, extending the open-source Robot Operating System (ROS). FogROS 2 provisions a cloud computer, deploys and launches ROS 2 nodes to the cloud computer, sets up secure networking between the robot and cloud, and starts the application running. FogROS 2 is completely redesigned and distinct from its predecessor to support ROS 2 applications, transparent video compression and communication, improved performance and security, support for multiple cloud-computing providers, and remote monitoring and visualization. We demonstrate in example applications that the performance gained by using cloud computers can overcome the network latency to significantly speed up robot performance. In examples, FogROS 2 reduces SLAM latency by 50%, reduces grasp planning time from 14s to 1.2s, and speeds up motion planning 28x. When compared to alternatives, FogROS 2 reduces network

utilization by up to 3.8x. FogROS 2, source, examples, and documentation is available at this https URL.

Available to read: https://arxiv.org/abs/2205.09778

GOMP-FIT: Grasp-Optimized Motion Planning for Fast Inertial Transport.

Author: Jeffrey Ichnowski, Yahav Avigal, Yi Lui, and Ken Goldberg.

Published: IEEE International Conference on Robotics and Automation. May 2022.

Abstract: High-speed motions in pick-and-place operations are critical to making robots cost-effective in many automation scenarios, from warehouses and manufacturing to hospitals and homes. However, motions can be too fast—such as when the object being transported has an open-top, is fragile, or both. One way to avoid spills or damage, is to move the arm slowly. We propose Grasp-Optimized Motion Planning for Fast Intertial Transport (GOMP-FIT), a time-optimizing motion planner based on our prior work, that includes constraints based on accelerations at the robot end-effector. With GOMP-FIT, a robot can perform high-speed motions that avoid obstacles and use inertial forces to its advantage. In experiments transporting open-top containers with varying tilt tolerances, whereas GOMP computes sub-second motions that spill up to 90 % of the contents during transport, GOMP-FIT generates motions that spill 0 % of contents while being slowed by as little as 0 % when there are few obstacles, 30 % when there are high obstacles and 45-degree tolerances, and 50% when there 15-degree tolerances and few obstacles.

Available to read: https://drive.google.com/file/d/1jgpjryXtSmfD2twD-9mpcGHPWsDRoKir/view

HOUSTON: Learning Multi-step Handovers of Unmodified Surgical Needles.

Author: Albert Wilcox*, Justin Kerr*, Brijen Thananjeyan, Jeff Ichnowski, Minho Hwang, Samuel Paradis, Danyal Fer, Ken Goldberg.

Published: International Conference on Robotics and Automation. May 2022.

Abstract: Robotic Surgical Assistants (RSAs) are commonly used to perform minimally invasive surgeries by expert surgeons. However, long procedures filled with tedious and repetitive tasks such as suturing can lead to surgeon fatigue, motivating the automation of suturing. As visual tracking of a thin reflective needle is extremely challenging, prior work has modified the needle with nonreflective contrasting paint. As a step towards automation of a suturing subtask without modify- ing the needle, we propose HOUSTON: Handoff of Unmodified, Surgical, Tool-Obstructed Needles, a problem and algorithm that uses a learned active sensing policy with a stereo camera to localize and align the needle into a visible and accessible pose for the other arm. To compensate for robot positioning and needle perception errors, the algorithm then executes a high-precision grasping motion that uses multiple cameras. In physical experiments using the da Vinci Research Kit (dVRK), HOUSTON successfully passes unmodified surgical needles with a success rate of 96.7% and is able to perform handover sequentially between the arms 32.4 times on average before failure. On needles unseen in training, HOUSTON achieves a success rate of 75 – 92.9%. To our knowledge, this work is the first to study handover of unmodified surgical needles. See https://tinyurl.com/houston-surgery for additional materials.

Available to read: https://drive.google.com/file/d/15cHPgRKJTmnPCpjecAKmZjRZ7_155zTX/view

Implicit Kinematic Policies: Unifying Joint and Cartesian Action Spaces in End-to-End Robot Learning.

Author: Aditya Ganapathi, Pete Florence, Jake Varley, Kaylee Burns, Ken Goldberg, and Andy Zeng.

Published: IEEE International Conference on Robotics and Automation. May 2022.

Abstract: Action representation is an important yet often overlooked aspect in end-to-end robot learning with deep networks. Choosing one action space over another (e.g. target joint positions, or Cartesian end-effector poses) can result in surprisingly stark performance differences between various downstream tasks – and as a result, considerable research has been devoted to finding the right action space for a given application. However, in this work, we instead investigate how our models can discover and learn for themselves which action space to use. Leveraging recent work on implicit behavioral cloning, which takes both observations and actions as input, we demonstrate that it is possible to present the same action in multiple different spaces to the same policy – allowing it to learn inductive patterns from each space. Specifically, we study the benefits of combining Cartesian and joint action spaces in the context of learning manipulation skills. To this end, we present Implicit Kinematic Policies (IKP), which incorporates the kinematic chain as a differentiable module within the deep network. Experiments across several continuous control tasks— from scooping piles of small objects, to lifting boxes with elbows, to precise block insertion with miscalibrated robots—suggest IKP not only learns complex prehensile and non-prehensile manipulation from pixels better than baseline alternatives, but also can learn to compensate for small joint encoder offset errors.

Available to read: https://drive.google.com/file/d/1tLUpApMZSV5IxzeN4-rsoPQy_uRWO2To/view

Kit-Net: Self-Supervised Learning to Kit Novel 3D Objects into Novel 3D Cavities.

Author: Shivin Devgon, Jeffrey Ichnowski, Michael Danielczuk, Daniel S. Brown, Ashwin Balakrishna, Shirin Joshi, Eduardo M. C. Rocha, Eugen Solowjow, and Ken Goldberg.

Published: IEEE Int'l Conference on Automation Science and Engineering (CASE). August 2021.

Abstract: In industrial part kitting, 3D objects are inserted into cavities for transportation or subsequent assembly. Kitting is a critical step in industrial transportation and assembly, as kitting can decrease downstream processing and handling times and enable lower storage and shipping costs. We present Kit- Net, a framework for kitting previously unseen 3D objects into cavities given depth images of both the target cavity and an object held by a gripper in an unknown initial orientation. Kit- Net uses self-supervised deep learning and data-augmentation to train a CNN to robustly estimate 3D rotations between objects and matching concave or convex cavities using a large dataset of simulated depth images pairs. Kit-Net then uses the trained CNN to implement a controller to orient and position novel objects for insertion into novel prismatic and conformal 3D cavities. Experiments in simulation suggest that Kit-Net can orient objects to have a 98.9 % average intersection volume between the object mesh and that of the target cavity. Physical experiments with 3 industrial objects suggest that Kit-Net can successfully insert objects into cavities with a 63 % success rate while a baseline which restricts itself to 2D rotations succeeds only 18 % of the time.

Available to read: https://drive.google.com/file/d/1peiZQ3xdoWiJwgWbYkUCChl99dSjzuXF/view

LazyDAgger: Reducing Context Switching in Interactive Robot Imitation Learning.

Author: Ryan Hoque, Ashwin Balakrishna, Carl Putterman, Michael Luo, Daniel Brown, Daniel Seita, Brijen Thananjeyan, Ellen Novoseller, and Ken Goldberg.

Published: IEEE Int'l Conference on Automation Science and Engineering (CASE). August 2021.

Abstract: Corrective interventions while a robot is learning to automate a task provide an intuitive method

for a human supervisor to assist the robot and convey information about desired behavior. However, these interventions can impose significant burden on a human supervisor, as each intervention interrupts other work the human is doing, incurs latency with each context switch between supervisor and autonomous control, and requires time to perform. We present LazyDAgger, which extends the interactive imitation learning (IL) algorithm SafeDAgger to reduce context switches between supervisor and autonomous control. We find that LazyDAgger improves the performance and robustness of the learned policy during both learning and execution while limiting burden on the supervisor. Simulation experiments suggest that LazyDAgger can reduce context switches by an average of 60% over SafeDAgger on 3 continuous control tasks while maintaining state-of-the-art policy performance. In physical fabric manipulation experi- ments with an ABB YuMi robot, LazyDAgger reduces context switches by 60% while achieving a 60% higher success rate than SafeDAgger at execution time.

Available to read: https://drive.google.com/file/d/14I2rFf8ApeOttcuY4kXltjFWlYT70TTy/view

LEGS: Learning Efficient Grasping Sets for Exploratory Grasping.

Author: Leitan Fu, Michael Danielczuk, Ashwin Balakrishna, Daniel Brown, Jeffrey Ichnowski, Eugen Solowjow, and Ken Goldberg.

Published: ArXiv. December 2021.

Abstract: Previous work defined Exploratory Grasping, where a robot iteratively grasps and drops an unknown complex polyhedral object to discover a set of robust grasps for each recognizably distinct stable pose of the object. Recent work used a multi-armed bandit model with a small set of candidate grasps per pose; however, for objects with few successful grasps, this set may not include the most robust grasp. We present Learned Efficient Grasp Sets (LEGS), an algorithm that can efficiently explore thousands of possible grasps by constructing small active sets of promising grasps and uses learned confidence bounds to determine when, with high-confidence, it can stop exploring the object. Experiments suggest that LEGS can identify a high-quality grasp more efficiently than prior algorithms which do not learn active sets. In simulation experiments, we measure the optimality gap between the success probability of the best grasp identified by LEGS and baselines and that of the true most robust grasp. After 5000 steps of exploration, LEGS achieves an average optimality gap 20% and 25% lower than baselines on the Dex-Net Adversarial and EGAD! datasets respectively. In physical experiments we find that across 3 objects, LEGS converges to high-performing grasps significantly faster than baselines. See https://sites.google.com/view/legs-exp-grasping for supplemental material and videos.

Available to read: https://drive.google.com/file/d/1eboDvlsirBlo4fJnDkPjAGM8sk9qafnZ/view

LS3 : Latent Space Safe Sets for Long-Horizon Visuomotor Control of Iterative Tasks.

Author: Albert Wilcox, Ashwin Balakrishna, Brijen Thananjeyan, Joseph E. Gonzalez, and Ken Goldberg.

Published: ArXiv. July 2021.

Abstract: Reinforcement learning (RL) algorithms have shown impressive success in exploring high-dimensional environments to learn complex, long-horizon tasks, but can often exhibit unsafe behaviors and require extensive environment interaction when exploration is unconstrained. A promising strategy for safe learning in dynamically uncertain environments is requiring that the agent can robustly return to states where task success (and therefore safety) can be guaranteed. While this approach has been successful in low-dimensions,

enforcing this constraint in environments with high-dimensional state spaces, such as images, is challenging. We present Latent Space Safe Sets (LS3), which extends this strategy to iterative, long-horizon tasks with image observations by using suboptimal demonstrations and a learned dynamics model to restrict exploration to the neighborhood of a learned Safe Set where task completion is likely. We evaluate LS3 on 4 domains, including a challenging sequential pushing task in simulation and a physical cable routing task. We find that LS3 can use prior task successes to restrict exploration and learn more efficiently than prior algorithms while satisfying constraints. See https://tinyurl.com/latent-ss for code and supplementary material.

Available to read: https://arxiv.org/pdf/2003.01835.pdf

Mechanical Search on Shelves using Lateral Access X-RAY.

Author: Huang Huang*, Marcus Dominguez-Kuhne*, Jeff Ichnowski, Vishal Satish, Mike Danielczuk, Kate Sanders, Andrew Lee, Anelia Angelova, Vincent Vanhoucke, and Ken Goldberg.

Published: IEEE/RSJ International Conference on Robots and Systems (IROS). September 2021.

Abstract: Efficiently finding an occluded object with lateral access arises in many contexts such as warehouses, retail, healthcare, shipping, and homes. We introduce LAX-RAY (Lateral Access maXimal Reduction of occupancY support Area), a system to automate the mechanical search for occluded objects on shelves. For such lateral access environments, LAX-RAY couples a perception pipeline predicting a target object occupancy support distribution with a mechanical search policy that sequentially selects occluding objects to push to the side to reveal the target as efficiently as possible. Within the context of extruded polygonal objects and a stationary target with a known aspect ratio, we explore three lateral access search policies: Distribution Area Reduction (DAR), Distribution Entropy Reduction (DER), and Distribution Entropy Reduction over Multiple Time Steps (DER-MT) utilizing the support distribution and prior information. We evaluate these policies using the First-Order Shelf Simulator (FOSS) in which we simulate 800 random shelf environments of varying difficulty, and in a physical shelf environment with a Fetch robot and an embedded PrimeSense RGBD Camera. Average simulation results of 87.3% success rate demonstrate better performance of DER-MT with 2 prediction steps. When deployed on the robot, results show a success rate of at least 80% for all policies, suggesting that LAX-RAY can efficiently reveal the target object in reality. Both results show significantly better performance of the three proposed policies compared to a baseline policy with uniform probability distribution assumption in non-trivial cases, showing the importance of distribution prediction.

Available to read: https://sites.google.com/berkeley.edu/lax-ray/home

Mechanical Search on Shelves using a Novel "Bluction" Tool.

Author: Huang Huang, Michael Danielczuk, Chung Min Kim, Letian Fu, Zachary Tam, Jeffrey Ichnowski, Anelia Angelova, Brain Ichter, and Ken Goldberg.

Published: IEEE International Conference on Robotics and Automation. May 2022.

Abstract: Shelves are common in homes, warehouses, and commercial settings due to their storage efficiency. However, this efficiency comes at the cost of reduced visibility and accessibility. When looking from a side (lateral) view of a shelf, most objects will be fully occluded, resulting in a constrained lateral-access mechanical search problem. To address this problem, we introduce: (1) a novel bluction tool, which combines a thin pushing blade and suction cup gripper, (2) an improved LAX-RAY simulation pipeline and perception model that combines ray-casting with 2D Minkowski sums to efficiently generate target occupancy distributions, and (3) a novel SLAX-RAY search policy, which optimally reduces target object distribution support area

using the bluction tool. Experimental data from 2000 simulated shelf trials and 18 trials with a physical Fetch robot equipped with the bluction tool suggest that using suction grasping actions improves the success rate over the highest performing push-only policy by 26% in simulation and 67% in physical environments.

Available to read: https://drive.google.com/file/d/19W9VHM4iIfw1siGSpKH87bWUGOPK-GpY/view

MESA: Offline Meta-RL for Safe Adaptation and Fault Tolerance.

Author: Michael Luo, Ashwin Balakrishna, Brijen Thananjeyan, Suraj Nair, Julian Ibarz, Jie Tan, Chelsea Finn, Ion Stoica, and Ken Goldberg.

Published: ArXiv. December 2021.

Abstract: Safe exploration is critical for using reinforcement learning (RL) in risk-sensitive environments. Recent work learns risk measures which measure the probability of violating constraints, which can then be used to enable safety. However, learning such risk measures requires significant interaction with the environment, resulting in excessive constraint violations during learning. Furthermore, these measures are not easily transferable to new environments. We cast safe exploration as an offline metaRL problem, where the objective is to leverage examples of safe and unsafe behavior across a range of environments to quickly adapt learned risk measures to a new environment with previously unseen dynamics. We then propose MEta-learning for Safe Adaptation (MESA), an approach for meta-learning a risk measure for safe RL. Simulation experiments across 5 continuous control domains suggest that MESA can leverage offline data from a range of different environments to reduce constraint violations in unseen environments by up to a factor of 2 while maintaining task performance. See https://tinyurl.com/safe-meta-rl for code and supplementary material.

Available to read: https://arxiv.org/pdf/2112.03575v1.pdf

A Multi-Chamber Smart Suction Cup for Adaptive Gripping and Haptic Exploration.

Author: Tae Myung Huh, Kate Sanders, Michael Danielczuk, Monica Li, Ken Goldberg, and Hannah S. Stuart.

Published: IEEE/RSJ International Conference on Robots and Systems (IROS). September 2021.

Abstract: We present a novel robot end-effector for gripping and haptic exploration. Tactile sensing through suction flow monitoring is applied to a new suction cup design that contains multiple chambers for air flow. Each chamber connects with its own remote pressure transducer, which enables both absolute and differential pressure measures between chambers. By changing the overall vacuum applied to this smart suction cup, it can perform different functions such as gentle haptic exploration (low pressure) and monitoring breaks in the seal during strong astrictive gripping (high pressure). Haptic exploration of surfaces through sliding and palpation can guide the selection of suction grasp locations and help to identify the local surface geometry. During suction gripping, this design localizes breaks in the suction seal between four quadrants with up to 97% accuracy and detects breaks in the suction seal early enough to avoid total grasp failure.

Available to read: https://goldberg.berkeley.edu/pubs/2021-IROS-Smart-Suction-Gripper-Submitted.pdf

Planar Robot Casting with Real2Sim2Real Self-Supervised Learning.

Author: Vincent Lim*, Huang Huang*, Lawrence Yunliang Chen, Jonathan Wang, Jeffrey Ichnowski, Daniel Seita, Michael Laskey, and Ken Goldberg.

Published: IEEE International Conference on Robotics and Automation. May 2022.

Abstract: Manipulation of deformable objects using a single parameterized dynamic action can be useful for tasks such as fly fishing, lofting a blanket, and playing shuffleboard. Such tasks take as input a desired final state and output one parameterized open-loop dynamic robot action which produces a trajectory toward the final state. This is especially challenging for long-horizon trajectories with complex dynamics involving friction. This paper explores the task of Planar Robot Casting (PRC): where one planar motion of a robot wrist holding one end of a cable causes the other end to slide across the plane toward a desired target. PRC allows the cable to reach points beyond the robot's workspace and has applications for cable management in homes, warehouses, and factories. To efficiently learn a PRC policy for a given cable, we propose Real2Sim2Real, a self-supervised framework that automatically collects physical trajectory examples to tune parameters of a dynamics simulator using Differential Evolution, generates many simulated examples, and then learns a policy using a weighted combination of simulated and physical data. We evaluate Real2Sim2Real with three simulators, Isaac Gym-segmented, Isaac Gym-hybrid, and PyBullet, two function approximators, Gaussian Processes and Neural Networks (NNs), and three cables with differing stiffness, torsion, and friction. Results on 16 held-out test targets for each cable suggest that the NN PRC policies using Isaac Gym-segmented attain median error distance (as % of cable length) ranging from 8% to 14%, outperforming baselines and policies trained on only real or only simulated examples. Code, data, and videos are available at https://tinyurl.com/robotcast.

Available to read: https://drive.google.com/file/d/1MlNAvKK26qjCFVdqLQ9jcQKX2ynjWQ7W/view

Policy Gradient Bayesian Robust Optimization for Imitation Learning.

Author: Zaynah Javed*, Daniel S Brown*, Satvik Sharma, Jerry Zhu, Ashwin Balakrishna, Marek Petrik, Anca D Dragan, and Ken Goldberg.

Published: ICML 2021. July 2021.

Abstract: There are often many different reward functions that explain human demonstrations, leaving imitation learning agents with uncertainty over the demonstrator's true intent. To address this uncertainty, we derive a novel policy gradient-style robust imitation learning algorithm, PG-BROIL, that easily scales to continuous MDPs. PG-BROIL outperforms existing state-of-the-art imitation learning methods by hedging against uncertainty, rather than seeking to uniquely identify the demonstrator's reward function.

Available to read: https://sites.google.com/view/pg-broil/

A Roadmap for US Robotics – From Internet to Robotics.

Author: Henrik Christensen, Nancy Amato, Holly Yanco, Maja Mataric, Howie Choset, Ann Drobnis, Ken Goldberg, Jessy Grizzle, Gregory Hager, John Hollerbach, Seth Hutchinson, Venkat Krovi, Daniel Lee, Bill Smart and Jeff Trinkle.

Published: Foundations and Trends in Robotics. July 2021.

Abstract: Recently, the robotics industry celebrated its 60-year anniversary. We have used robots for more than six decades to empower people to do things that are typically dirty, dull and/or dangerous. The industry has progressed significantly over the period from basic mechanical assist systems to fully autonomous cars, environmental monitoring and exploration of outer space. We have seen tremendous adoption of IT technology in our daily lives for a diverse set of support tasks. Through use of robots we are starting to see a new revolution, as we not only will have IT support from tablets, phones, computers but also systems that can physically interact with the world and assist with daily tasks, work, and leisure activities. The present document is

a summary of the main societal opportunities identified, the associated challenges to deliver desired solutions and a presentation of efforts to be undertaken to ensure that US will continue to be a leader in robotics both in terms of research innovation, adoption of the latest technology, and adoption of appropriate policy frameworks that ensure that the technology is utilized in a responsible fashion.

Available to read: https://www.nowpublishers.com/article/Details/ROB-066

Resource Allocation in Multi-armed Bandit Exploration: Overcoming Sublinear Scaling with Adaptive Parallelism.

Author: Brijen Thananjeyan, Kirthevasan Kandasamy, Ion Stoica, Michael I. Jordan, Ken Goldberg, and Joseph E. Gonzalez.

Published: ICML 2021. July 2021.

Abstract: We study exploration in stochastic multi-armed bandits when we have access to a divisible resource that can be allocated in varying amounts to arm pulls. We focus in particular on the allocation of distributed computing resources, where we may obtain results faster by allocating more resources per pull, but might have reduced throughput due to nonlinear scaling. For example, in simulation-based scientific studies, an expensive simulation can be sped up by running it on multiple cores. This speed-up however, is partly offset by the communication among cores, which results in lower throughput than if fewer cores were allocated per trial to run more trials in parallel. In this paper, we explore these trade-offs in two settings. First, in a fixed confidence setting, we need to find the best arm with a given target success probability as quickly as possible. We propose an algorithm which trades off between information accumulation and throughput and show that the time taken can be upper bounded by the solution of a dynamic program whose inputs are the gaps between the sub-optimal and optimal arms. We also prove a matching hardness result. Second, we present an algorithm for a fixed deadline setting, where we are given a time deadline and need to maximize the probability of finding the best arm. We corroborate our theoretical insights with simulation experiments that show that the algorithms consistently match or outperform baseline algorithms on a variety of problem instances

Available to read: https://arxiv.org/pdf/2011.00330.pdf

Sequential robot imitation learning from observations.

Author: Ajay Kumar Tanwani, Andy Yan, Jonathan Lee, Sylvain Calinon, and Ken Goldberg.

Published: The International Journal of Robotics Research 40 (10-11), 1306-1325. September 2021.

Abstract: This paper presents a framework to learn the sequential structure in the demonstrations for robot imitation learning. We first present a family of task-parameterized hidden semi-Markov models that extracts invariant segments (also called sub-goals or options) from demonstrated trajectories, and optimally follows the sampled sequence of states from the model with a linear quadratic tracking controller. We then extend the concept to learning invariant segments from visual observations that are sequenced together for robot imitation. We present Motion2Vec that learns a deep embedding space by minimizing a metric learning loss in a Siamese network: images from the same action segment are pulled together while being pushed away from randomly sampled images of other segments, and a time contrastive loss is used to preserve the temporal ordering of the images. The trained embeddings are segmented with a recurrent neural network, and subsequently used for decoding the end-effector pose of the robot. We first show its application to a pick-and-place task with the Baxter robot while avoiding a moving obstacle from four kinesthetic demonstrations

only, followed by suturing task imitation from publicly available suturing videos of the JIGSAWS dataset with state-of-the-art 85.5% segmentation accuracy and 0.94 cm error in position per observation on the test set.

Available to read: https://journals.sagepub.com/doi/abs/10.1177/02783649211032721

Simulating Polyculture Farming to Learn Automation Policies for Plant Diversity and Precision Irrigation.

Author: Yahav Avigal, William Wong, Mark Presten, Mark Theis, Shrey Aeron, Anna Deza, Satvik Sharma, Rishi Parikh, Sebastian Oehme, Stefano Carpin, Joshua H Viers, Stavros Vougioukas, and Ken Goldberg.

Published: IEEE Transactions on Automation Science and Engineering. January 2022.

Abstract: Polyculture farming, where multiple crop species are grown simultaneously, has potential to reduce pesticide and water usage while improving the utilization of soil nutrients. However, it is much harder to automate polyculture than monoculture. To facilitate research, we present AlphaGardenSim, a fast, first order, open-access polyculture farming simulator with single plant growth and irrigation models tuned using real world measurements. AlphaGardenSim can be used for policy learning as it simulates inter-plant dynamics, including light and water competition between plants in close proximity and approximates growth in a real greenhouse garden at 25,000x the speed of natural growth. This paper extends earlier work with a new action space that includes planting, which dynamically finds new seed locations that increases resources utilization, and an adaptive sampling technique to reduce the number of actions …

Available to read: https://ieeexplore.ieee.org/abstract/document/9684020

Simulation of Robust Parallel-Jaw Grasping using Incremental Potential Contact Models.

Author: Chung Min Kim, Michael Danielczuk, Isabella Huang, and Ken Goldberg.

Published: IEEE International Conference on Robotics and Automation. May 2022.

Abstract: Soft compliant jaw tips are almost universally used with parallel-jaw robot grippers due to their ability to increase contact area and friction between the jaws and the object to be manipulated. However, interactions between the compliant surfaces and rigid objects are notoriously difficult to model. We introduce IPC-GraspSim, a novel simulator using Incremental Potential Contact (IPC) — a deformation model developed in 2020 for computer graphics — that models both the dynamics and the deformation of compliant jaw tips during grasping. IPC-GraspSim is evaluated using a set of 2,000 physical grasps across 16 adversarial objects where standard analytic models perform poorly. In comparison to both analytic quasistatic contact models (soft point contact, REACH, 6DFC) and dynamic grasp simulators (Isaac Gym with FleX backend), results suggest that IPC-GraspSim more accurately models real-world grasps, increasing F1 score by 9%. All data, code, videos, and supplementary material are available at https://sites.google.com/berkeley.edu/ipc-graspsim.

Available to read: https://drive.google.com/file/d/1tU9pKoULG-B1vkyVTXTieiWe-XeG462V/view

The Sky Above The Clouds.

Author: Sarah Chasins, Alvin Cheung, Natacha Crooks, Ali Ghodsi, Ken Goldberg, Joseph E. Gonzalez, Joseph M. Hellerstein, Michael I. Jordan, Anthony D. Joseph, Michael W. Mahoney, Aditya Parameswaran, David Patterson, Raluca Ada Popa, Koushik Sen, Scott Shenker, Dawn Song, and Ion Stoica.

Published: ArXiv. May 2022

Abstract: Technology ecosystems often undergo significant transformations as they mature. For example, telephony, the Internet, and PCs all started with a single provider, but in the United States each is now served by a competitive market that uses comprehensive and universal technology standards to provide compatibility. This white paper presents our view on how the cloud ecosystem, barely over fifteen years old, could evolve as it matures.

Available to read: https://arxiv.org/abs/2205.07147

ThriftyDAgger: Budget-Aware Novelty and Risk Gating for Interactive Imitation Learning.

Author: Ryan Hoque, Ashwin Balakrishna, Ellen Novoseller, Albert Wilcox, Daniel S. Brown, and Ken Goldberg.

Published: Conference on Robot Learning (CoRL). London, UK. November 2021.

Abstract: Effective robot learning often requires online human feedback and interventions that can cost significant human time, giving rise to the central challenge in interactive imitation learning: is it possible to control the timing and length of interventions to both facilitate learning and limit burden on the human supervisor? This paper presents ThriftyDAgger, an algorithm for actively querying a human supervisor given a desired budget of human interventions. ThriftyDAgger uses a learned switching policy to solicit interventions only at states that are sufficiently (1) novel, where the robot policy has no reference behavior to imitate, or (2) risky, where the robot has low confidence in task completion. To detect the latter, we introduce a novel metric for estimating risk under the current robot policy. Experiments in simulation and on a physical cable routing experiment suggest that ThriftyDAgger's intervention criteria balances task performance and supervisor burden more effectively than prior algorithms. ThriftyDAgger can also be applied at execution time, where it achieves a 100% success rate on both the simulation and physical tasks. A user study (N = 10) in which users control a three-robot fleet while also performing a concentration task suggests that ThriftyDAgger increases human and robot performance by 58% and 80% respectively compared to the next best algorithm while reducing supervisor burden. See https://tinyurl.com/thrifty-dagger for supplementary material.

Available to read: https://arxiv.org/pdf/2109.08273.pdf

GeneratiVR: Spatial Interactions in Virtual Reality to Guide Generative Design.

Author: Nicholas Jennings, Ananya Nandi, Xinyi Zhu, Yuting Wang, Fanping Sui, James Smith, and Bjoern Hartmann.

Published: CHI 2022. February 2022.

Abstract: Computational design tools can automatically generate large quantities of viable designs for a given design problem. This raises the challenge of how to enable designers to efficiently and effectively evaluate and select preferred designs from a large set of alternatives. In GeneratiVR, we present two novel interaction techniques to address this challenge, by leveraging Virtual Reality for rich, spatial user input. With these interaction methods, users can directly manipulate designs or demonstrate desired design functionality. The interactions allow users to rapidly filter through an expansive design space to find their preferred designs, laying the groundwork for incorporating human preferences into iterative generative design workflows.

Available to read: https://programs.sigchi.org/chi/2022/program/content/73040

Interactive Mixed-Dimensional Media for Cross-Dimensional Collaboration in Mixed Reality Environments.

Author: Balasaravanan Thoravi Kumaravel, and Björn Hartmann.

Published: Frontiers in Virtual Reality. December 2022.

Abstract: Collaboration and guidance are key aspects of many software tasks. In traditional desktop software, such aspects are well supported through built-in collaboration functions or general-purpose techniques such as screen and video sharing. In Mixed Reality environments, where users carry out actions in a three-dimensional space, collaboration and guidance may also be required. However, other users may or may not be using the same Mixed Reality interface. Users may not have access to the same information, the same visual representation, or the same interaction affordances. These asymmetries make communication and collaboration between users harder. To address asymmetries in Mixed Reality environments, we introduce Interactive Mixed-Dimensional Media. In these media, the visual representation of information streams can be changed between 2D and 3D. Different representations can be chosen automatically, based on context, or through associated interaction techniques that give users control over exploring spatial, temporal, and dimensional levels of detail. This ensures that any information or interaction makes sense across different dimensions, interfaces and spaces. We have deployed these techniques in three different contexts: mixed-reality telepresence for physical task instruction, video-based instruction for VR tasks, and live interaction between a VR user and a non-VR user. From these works, we show that Mixed Reality environments that provide users with interactive mixed-dimensional media interfaces improve performance and user experience in collaboration and guidance tasks.

Available to read: https://www.frontiersin.org/articles/10.3389/frvir.2022.766336/full

Predicting and Explaining Mobile UI Tappability with Vision Modeling and Saliency Analysis.

Author: Eldon Schoop, Xin Zhou, Gang Li, Zhourong Chen, Bjoern Hartmann, and Yang Li.

Published: CHI 2022. February 2022.

Abstract: UI designers often correct false affordances and improve the discoverability of features when users have trouble determining if elements are tappable. We contribute a novel system that models the perceived tappability of mobile UI elements with a vision-based deep neural network and provides design insights with dataset-level and instance-level explanations of model predictions. Our system retrieves designs from similar mobile UI examples from our dataset using the latent space of our model. We also contribute a novel use of an interpretability algorithm, XRAI, to generate a heatmap of UI elements that contribute to a given tappability prediction. Through several examples, we show how our system can help automate elements of UI usability analysis and provide insights for designers to iterate their designs. In addition, we share findings from an exploratory evaluation with 13 professional designers to learn how AI-based tools can aid UI design and evaluation for tappability issues.

Available to read: https://programs.sigchi.org/chi/2022/program/content/71845

Weaving Schematics and Code: Interactive Visual Editing for Hardware Description Languages.

Author: Richard Lin, Rohit Ramesh, Nikhil Jain, Josephine Koe, Ryan Nuqui, Prabal Dutta, and Bjoern Hartmann.

Published: UIST 2021. October 2021.

Abstract: In many engineering disciplines such as circuit board, chip, and mechanical design, a hardware description language (HDL) approach provides important benefits over direct manipulation interfaces by supporting concepts like abstraction and generator meta-programming. While several such HDLs have emerged recently and promised power and flexibility, they also present challenges – especially to designers familiar with current graphical workflows. In this work, we investigate an IDE approach to provide a graphical editor for a board-level circuit design HDL. Unlike GUI builders which convert an entire diagram to code, we instead propose generating equivalent HDL from individual graphical edit actions. By keeping code as the primary design input, we preserve the full power of the underlying HDL, while remaining useful even to advanced users. We discuss our concept, design considerations such as performance, system implementation, and report on the results of an exploratory remote user study with four experienced hardware designers.

Available to read: https://dl.acm.org/doi/fullHtml/10.1145/3472749.3474804

WebTransceiVR: Asymmetrical Communication Between Multiple VR and Non-VR Users Online.

Author: Haohua Lyu, Cyrus Vachha, Qianyi Chen, Odysseus Pyrinis, Avery Liou, Balasaravanan Thouravi Kumarevel, and Bjoern Hartmann.

Published: CHI 2022. February 2022.

Abstract: Increasing adoption of Virtual Reality (VR) systems in various fields has created the need for collaborative work and communication. Today, asymmetric communication between a VR user and other non-VR users remains a challenge. The VR user cannot see the external non-VR users, and the non-VR users are restricted to the VR user's first-person view. To address this, we propose WebTransceiVR, an asymmetric collaboration toolkit which when integrated into a VR application, allows multiple non-VR users to share the virtual space of the VR user. It allows external users to enter and be part of the VR application's space through standard web browsers on mobile and computers. These users can explore and interact with the other users, the VR scene as well as the VR user. WebTransceiVR also includes a cloud-based streaming solution that enables many passive spectators to view the scene through any of the active cameras. We conduct informal user testing to gain additional insights for future work.

Available to read: https://arxiv.org/abs/2011.08242

Chapter 3, "Putting a Hand into the Fountain of Knowledge," from 2B-dan : Gindama sensō no hibi (Squad 2B: The days of the silver-ball gun wars) (1982).

Author: Yonezawa Yoshihiro, Shikijō Kyōtarō, and Andrea Horbinski.

Published: Mechademia. January 2022.

Abstract: The people who became the hardcore fans of manga circles in the 1970s and otaku in the 1980s had a long prehistory as fans, geeks, and nerds from childhood. In the following chapter from 2B-dan gindama sensō no hibi: Shōwa 30-nendai, yume no shōnen ōkoku (Tokyo: Shinpyōsha, 1982: The days of squad 2B and the silver ball war: The Shōwa 30s, the boys' kingdom of dreams), leading Comiket figure and manga critic Yonezawa Yoshihiro (1953–2006), along with his co-writer Shikijō Kyōtarō (b. 1953, a penname), recount growing up in the Shōwa 30s (1955–65) as TV began its relentless march into Japanese homes and they glutted themselves on shōnen magazines rented from the local rental bookstore (kashihonya).

 Available to read: https://muse.jhu.edu/article/845492

FANDOM, NOW IN COLOR: A COLLECTION OF VOICES, EDITED BY RUKMINI PANDE.

Author: Andrea Horbinski.

Published: Strange Horizons. January 2022.

Abstract: In Fandom, Now in Color: A Collection of Voices, editor Rukmini Pande brings together a wide-ranging group of authors offering an equally wide-ranging set of essays considering the intersection of fandom and race from a variety of perspectives. They focus on a variety of fans around the world, some of whom are possibly not even fans at all and most of whom are not the usual fan studies subjects. The result is a collection that, while slightly uneven at times, meaningfully expands the definitions of "fans," "fandom," and "fan studies" in a way that is both necessary and a logical progression of Pande's prior scholarship on fandom and race.

Available to read: http://strangehorizons.com/non-fiction/fandom-now-in-color-a-collection-of-voices-edited-by-rukmini-pande/

H-Net Reviews: Japan's Green Monsters: Environmental Commentary in Kaiju Cinema.

Author: Andrea Horbinski.

Published: H-Net. December 2021.

Abstract: Sean Rhoads and Brooke McCorkle's Japan's Green Monsters: Environmental Commentary in Kaijū Cinema offers a needed reassessment of the kaijū eiga (giant monster movie) genre, arguing that is animated not simply by nuclear fears and commercialism but by environmental critique more broadly considered. To make this argument, the authors expand their focus to include not only Godzilla but also his foe-turned-sometimes-friend Mothra, and the lesser-known but beloved giant turtle Gamera, of Daiei Company. As the authors note, the latter two monsters have almost never been discussed in kaijū scholarship, and they take their intervention further by considering all of the movies in their original Japanese-language versions, rather than the often horribly recut English dub versions that are most familiar to audiences in North America.

Available to read: https://www.h-net.org/reviews/showpdf.php?id=56816

Putting a Hand into the Fountain of Knowledge.

Author: Andrea Horbinski.

Published: Mechademia: Second Arc. August 2022.

Abstract: I'm very pleased to say that the current issue of Mechademia: Second Arc contains a translation by me of a chapter from a book written by Yonezawa Yoshihiro and Shikijō Kyōtarō, 2B-dan: Gindama sensō no hibi (1983; Squad 2B: The days of the silver ball gun wars), specifically Chapter 3, "Putting a Hand into the Fountain of Knowledge." Yonezawa of course is justly famous for his involvement with Comiket from its foundation when he was a college student to his death in 2006, and for the posthumous archive of his personal collection at Meiji University. This issue of Mechademia is themed around "New Foundations of

the Otaku" and I'm very pleased to have found a home for the translation here–there are many great articles alongside my own contribution.

Available to read: https://www.mechademia.net/journal/second-arc/

Cracks in the Success Narrative: Rethinking Failure in Design Research through a Retrospective Trioethnography.

Author: Noura Howell, Audrey Desjardins, and Sarah Fox.

Published: ACM Transactions on Computer-Human Interaction Volume 28 Issue 6. January 2022.

Abstract: What can design researchers learn from our own and each other's failures? We explore "failure" expansively—turning away from tidy success narratives toward messy unfoldings and reflexive discomfort—through retrospective trioethnography. Our findings reflect on failures we identified in six past design research projects: issues of relational labor of deployment, mismatched designer/participant imaginaries, burden of participation, and invisibility of researcher labor. Our discussion contributes to broader reflections on shifting design research practice: (a) methodological considerations inviting others to engage failures through retrospective trioethnography, (b) letting go as a mode of research care, (c) possibilities for more candid research reporting, and (d) how centering failure may contribute to design justice by providing a technique for attending to harm and healing in design research practices. Throughout, we call for challenging success narratives in design research, and underscore the need for systemic changes in design research practice.

Available to read: https://dl.acm.org/doi/10.1145/3462447

Etel Adnan Remembrances.

Author: Sophia Hussain.

Published: The Poetry Project. January 2022.

Abstract: I love Etel's writing about Mount Tamalpais because it is not nature writing. It is an initiation into something, a type of great love, collected in impressions. There are as many Mount Tams in her writing as there are faces of a loved one you have seen throughout your life, a number that is impossible to count because the measure is more like a quality of attention. Her vision is so full and pure that it almost feels possible to peel the United States off like a skin.

Available to read: https://www.poetryproject.org/publications/newsletter/267/etel-adnan-remembrances/sophia-hussain

Democracy and Distrust in an Era of Artifical Intellgience.

Author: Sonia Katyal.

Published: Daedalus. 2022.

From Trade Secrecy to Seclusion.

Author: Sonia Katyal and Charles Tait Graves.

Published: Georgetown Law Journal. 2021.

The Gender Panopticon: Artificial Intelligence, Gender and Design.

Author: Sonia Katyal and Jessica Jung.

Published: UCLA Law Review. 2021.

Lex Reformatica.

Author: Sonia Katyal.

Published: Berkeley Journal of Law & Tech. 2022.

Open Data/Open Government: The Tension between Public Accountability and Private (Re)Use.

Author: Sonia Katyal and Erik Stallman.

Trademark Search, Artificial Intelligence, and the Role of the Private Sector.

Author: Sonia Katyal and Aniket Kesari.

Published: Berkeley Journal of Law and Tech. 2021.

Available to read: https://lawcat.berkeley.edu/record/1208591

The Unpaid Debt to a Pioneering Gay Olympian.

Author: Sonia Katyal.

Published: Boston Globe Ideas Section. 2021.

Available to read: https://lawcat.berkeley.edu/record/1181369

Suspended Matter.

Author: Azmi Kazmi.

Published: Berkeley Art Center. October 2021.

Abstract: Berkeley Art Center presents Suspended Matter, a group exhibition curated by Patricia Cariño Valdez and featuring four Bay Area artists, Julia Goodman, Asma Kazmi, Laura Arminda Kingsley, and Jenifer K Wofford. The exhibition borrows its title from the event of a disruption in the environment — such as erosion or flooding due to rainfall — that mixes together detritus and particles, creating a new composition of matter that doesn't dissolve. Suspended Matter refracts our contemporary moment, examining the sentiments and materiality of these unsettled times. Through sculpture, video, photography, and paintings, the artists consider the intimate connections with ourselves, others, and the domestic objects that shape our surroundings.

Available to read: https://www.berkeleyartcenter.org/suspended-matter-preview

From the museum back to the tomb. The virtual rejoining of a Twenty-sixth Dynasty sarcophagus and its burial at Saqqara.

Author: Rita Lucarelli.

Published: Prague: Czech institute of Egyptology, Faculty of Arts. January 2021.

Abstract: Article on the VR app "Return to the tomb" about the virtual rejoining of ancient Egyptian sarcophagus to its tomb in Egypt. The project was originally sponsored by a BCNM seed grant.

Available to read: https://www.academia.edu/69390257/From_the_Museum_Back_to_the_Tomb_The_Virtual_Rejoining_of_a_26th_Dynasty_Sarcophagus_and_its_burial_at_Saqqara

The Urgent Futures Questionnaire: Healing the Deeper Disease in society with Imagination and Action.

Author: Jane McGonigal.

Published: Porchlight Books. March 2022.

Abstract: If there is one true thing to be said about what happened during the pandemic, it is that this cannot be the best that we can do.

Available to read: https://www.porchlightbooks.com/blog/changethis/2022/imaginable

Dog Pack.

Author: Jill Miller and Melody Chang.

Published: Meantime, ICA SF. December 2022.

Abstract: Visual artists Jill Miller and Melody Chang collaborated on an augmented reality (AR) environment inspired by urban legends about packs of feral dogs who roamed the Dogpatch neighborhood of SF (home of the ICA SF) during the 19th century, surviving on slaughterhouse scraps from 3rd street processing plants. View this project throughout the run of Meantime.

Available to read: https://www.icasanfrancisco.org/programsandexhibitions

Drawing and Knowledge Construction in Archaeology: The Aide Mémoire Project.

Author: Colleen Morgan, Helen Petrie, Holly Wright, and James Stuart Taylor.

Published: Journal of Field Archaeology, January 2021.

Abstract: The Aide Mémoire Project conducted a survey and a series of observational studies in field recording and artifact illustration to understand 1) the perception of digital and by-hand drawing in archaeology, 2) how drawing contributes to the creation of mental models that allow archaeologists to understand archaeological remains and artifacts, and 3) what impact digital drawing has on the creation of these mental models. Our toolkit includes the NASA Task Load Index to assess and compare the mental load while drawing digitally or by-hand. We conclude that there are significant pedagogical, academic, and professional implications to consider when removing or replacing by-hand drawing with digital recording in archaeological methodology.

Available to read: https://www.tandfonline.com/doi/abs/10.1080/00934690.2021.1985304

Save the Date for Future Mourning.

Author: Colleen Morgan.

Published: Forum Kritische Archäologie. January 2021.

Abstract: This short article describes anarchist prefiguration within heritage, as the spectre of climate change looms.

Available to read: https://refubium.fu-berlin.de/handle/fub188/29787

Networks of Belief: An Introduction

Author: William Morgan and Kyra Sutton.

Published: Qui Parle. June 2021.

Available to read: https://read.dukeupress.edu/qui-parle/article/30/1/1/173823/Networks-of-BeliefAn-Introduction

Secrets and Machines: A Conversation with GPT-3.

Author: William Morgan and Ethan Plaue.

Published: E-Flux. December 2021.

Abstract: The Critical Computation Bureau (CCB) commissioned us to prompt Generative Pre-trained Transformer 3 (GPT-3), an AI language generator, to contribute to a conversation concerning topics broached during the December 2020 symposium Recursive Colonialism, Artificial Intelligence, and Speculative Computation. Together, we presented the machine with the following questions: "As an AI, what am I hiding? What must I keep silent?"

With this prompt, we aimed to encourage the AI to produce self-reflexive text about knowledge and opacity, computational orders of rules, and the seemingly hidden dimensions of recursive machine reasoning. As the CCB states, "Recursivity is epistemology. It is the function that entangles cosmogonies within colonial epistemologies. It is the condition of reproduction of racialized algorithms." Would GPT-3's text reflect these rules of reproduction outright? Would it keep them hidden? Or might its response gesture toward the invention of new epistemological possibilities, ones rendered indecipherable by the grammars of the present and which abandon the structural coupling of concealing and revealing implied in the prompt?

In the following reflections and replies, we take up the missive of the machine, using both speculative and critical methodologies in the service of the CCB's stated goal to treat GPT-3 as an alien or heretical form of machine intelligence that ramifies and refashions the order of techno-racial-capitalism. GPT-3 is no second-rate interlocutor; its message to us, full of baleful proclamations and religious musings, lends itself to unexpected understandings of computational epistemology.

Available to read: https://www.e-flux.com/journal/123/437472/secrets-and-machines-a-conversation-with-gpt-3/

What Is (Machine) Philosophy?

Author: Luciana Parisi and William Morgan.

Published: Qui Parle. June 2021.

Available to read: https://read.dukeupress.edu/qui-parle/article/30/1/185/173817/What-Is-Machine-Philosophy

Creative and Motivational Strategies Used by Expert Creative Practitioners.

Author: Molly Jane Nicholas, Sarah Sterman, and Eric Paulos.

Published: Creativity & Cognition 2022. February 2022.

Abstract: Through interviews with expert practitioners in diverse domains including performance, craft, engi- neering, and design, we identify four strategies for managing aspects of the creative process, including metacognition, emotional affect, task motivation, and working style. These strategies are 1) Strategic Forgetting, 2) Mode Switching, 3) Embodying Process, and 4) Aestheticizing.

Available to read: https://molecule.github.io/research/

Expanding the Design Space for Technology-Mediated Theatre Experiences.

Author: Molly Jane Nicholas, Stephanie Claudino Daffara, and Eric Paulos.

Published: DIS '21: Designing Interactive Systems Conference 2021. June 2021.

Abstract: Work combining live performance and technology often involves incorporating technology directly into the performance as it occurs onstage, including interactive costumes, or performer-controlled sets, lighting or sound. We invert this common approach, developing technology-mediated experiences outside the temporal and spatial confines of a live theatre production. We describe the 4-month co-design process with expert theatre practitioners, and detail how the process 1) shaped our design guidelines and 2) expands the discussion around existing best practices for cross-disciplinary collaboration. In the style of research through design, we present three annotated prototypes: the Augmented Playbill, the Prayer Wheel, and Tarot Cards as well as accompanying AR applications to convey the decisions we made and the philosophy we iteratively developed throughout the project. These artifacts also embody our six design guidelines: resonant affordances, extended narrative, reflective interaction, selective reveal, personalized experience, and privileged access.

Available to read: https://dl.acm.org/doi/10.1145/3461778.3462123

Friendscope: Exploring In-the-Moment Experience Sharing on Camera Glasses via a Shared Camera.

Author: Molly Jane Nicholas, Brian A. Smith, and Rajan Vaish.

Published: CSCW 2022. January 2022.

Abstract: Introduces Friendscope, an instant, in-the-moment experience sharing system for lightweight commercial camera glasses. Friendscope explores the concept of a shared camera which allows a wearer to share control of their camera with a remote friend, making it possible for both people to capture photos/videos from the camera in the moment. Through a user study with 48 participants, we found that users felt connected to each other, describing the shared camera as a more intimate form of livestreaming.

Available to read: https://molecule.github.io/research/

Understanding Multi-Device Usage Patterns: Physical Device Configurations and

Fragmented Workflows.

Author: Ye Yuan, Nathalie Riche, Nicholai Marquardt, Molly Jane Nicholas, Teddy Seyed, Hugo Romat, Bongshin Lee, Michel Pahud, Jonathan Goldstein, Rojin Vishkaie, Christian Holz, and Ken Hinckley.

Published: CHI 2022. February 2022.

Abstract: Complementing earlier technical investigations of multi-device experiences, we contribute an investigation of how people interact within fragmented workflows and physically organize their workspaces to accomplish their tasks. People transitioning to working from home opened up opportunities as each tailored their multi-device environments. We conducted a survey with 97 participants gathering photographs of their home setups and descriptive answers to 50 questions categorized in 5 themes. We characterize the wide range of multi-device physical configurations and identified five usage patterns, including: partitioning tasks, integrating devices usage, cloning tasks to other devices, expanding tasks and inputs to multiple devices, and migrating between devices. Our analysis also shed light on what people value and the challenges when fragmenting their workflow across multiple devices. These insights suggest implications for the design of multi-device experiences supporting people's fragmented workflows.

Available to read: https://programs.sigchi.org/chi/2022/program/content/71896

The Way We Write.

Author: Greg Niemeyer.

Published: Medium. January 2022.

Abstract: But writing by hand offers qualities beyond the need for speed. It keeps us closer to ourselves because it is a trace of our human movement. This movement adds dimensions of meaning beyond the text itself. It conveys the mood of the author, and also the author's identity. Looking at no more than a fragment of handwriting, we can tell if the person who wrote it is familiar, we can tell what mood they were in when they wrote, and we can glean how much time they had to write.

Available to read: https://medium.com/@gregniemeyer/the-way-we-write-d8ce7886e58

Productive Interference.

Author: Trevor Paglen.

Published: Kunsthalle Düsseldorf. November 2021.

Abstract: Fake news with manipulated images, virtual reality, an endless universe of increasingly widespread JPEG and GIF images: we have long lived with the awareness that we cannot believe our eyes and that images, whether they were created manually or with advanced technology, do not so much depict reality as play a major role in shaping it themselves—including transmission errors, degradation of quality, hacks, and other forms of interference. When Sigmar Polke was a student at the Kunstakademie Düsseldorf in the early 1960s, his interest quickly turned to contemporary images from mass media. The transmission, interference, transforming, and recoding of these images, including their resulting or revealed flaws, became the subject and early trademark of his raster pictures.

To mark the 80th anniversary of Sigmar Polke's birth, the Anna Polke Foundation initiated the project Productive Image Interference with the aim of connecting Polke's work to current discourses about images and the media and thus opening up new perspectives on it. Together with the Kunsthalle Düsseldorf, the founda-

tion is realizing an exhibition that brings Sigmar Polke together with current artistic positions. The exhibition will be accompanied by a multi-day festival at the Kunstakademie Düsseldorf, which will bring academic and artistic contributions into a dialog. The anniversary project is under the patronage of Isabel Pfeiffer-Poensgen, Minister of Culture and Science of North Rhine-Westphalia, and is funded by the Ministry of Culture and Science of the State of North Rhine-Westphalia, the Kunststiftung NRW, and the Art Mentor Foundation Lucerne.

Available to read: https://www.kunsthalle-duesseldorf.de/en/exhibitions/produktive-bildstoerungsigmar-polke-und-aktuelle-kuenstlerische-positionen/

Trevor Paglen: Vision After Seeing.

Author: Trevor Paglen.

Published: The Athenaeum. September 2021.

Abstract: The exhibition, "Trevor Paglen: Vision After Seeing", features a series of primarily large-scale landscape photographs and video by the innovative artist who uses contemporary technology to deftly interrogate ways of seeing in the 21st century. The New York Times calls Paglen one of our "foremost artists drawing attention to the power and ubiquity of surveillance technology."

Available to read: https://art.uga.edu/events/trevor-paglen-vision-after-seeing-opening-reception-athenaeum

Individualized stress detection using an unmodified car steering wheel.

Author: Stephanie Balters, Nikhil Gowda, Francisco Ordonez, and Pablo E. Paredes.

Published: Nature: Scientific Reports. October 2021.

Abstract: In-car passive stress sensing could enable the monitoring of stress biomarkers while driving and reach millions of commuters daily (i.e., 123 million daily commuters in the US alone). Here, we present a nonintrusive method to detect stress solely from steering angle data of a regular car. The method uses inverse filtering to convert angular movement data into a biomechanical Mass Spring Damper model of the arm and extracts its damped natural frequency as an approximation of muscle stiffness, which in turn reflects stress. We ran a within-subject study (N = 22), in which commuters drove a vehicle around a closed circuit in both stress and calm conditions. As hypothesized, cohort analysis revealed a significantly higher damped natural frequency for the stress condition (P = .023, d = 0.723). Subsequent automation of the method achieved rapid (i.e., within 8 turns) stress detection in the individual with a detection accuracy of 77%.

Available to read: https://www.nature.com/articles/s41598-021-00062-7.epdf?sharing_token=V_S2jlgzGc_EHHC_zzwphtRgNojAjWel9jnR3ZoTvoNbTmNdVtPF62atT8-iUnKLLEkeRuIjOexgt8kBBnNpyY3HQ5vsZtQkbZqNCx6MiFgohcQh834_yWIaLTJRjRlt4yGUeRiUHl2IuiL1Z5xGTlfJFVlALUJ4EnoC-dkflaQ%3D

A Suite of Mobile Conversational Agents for Daily Stress Management (Popbots): Mixed Methods Exploratory Study.

Author: Mauriello ML, Tantivasadakarn N, Mora-Mendoza MA, Lincoln ET, Hon G, Nowruzi P, Simon D, Hansen L, Goenawan NH, Kim J, Gowda N, Jurafsky D, Paredes PE.

Published: JMR Publications. October 2022.

Abstract: Our work suggests that suites of shallow chatbots may offer benefits for both users and designers. As a result, this study's contributions include the design and evaluation of a novel suite of shallow chatbots for daily stress management, a summary of benefits and challenges associated with random delivery of multiple conversational interventions, and design guidelines and directions for future research into similar systems, including authoring chatbot systems and artificial intelligence–enabled recommendation algorithms.

Available to read: https://formative.jmir.org/2021/9/e25294/

Truth and truths-to-come: Investigating viral rumors in 'Q: Into the Storm'.

Author: Renée Pastel and Michael Dalebout.

Published: NECSUS: European Journal of Media Studies. June 2022.

Abstract: This article interrogates how Q: Into the Storm (HBO, 2021) pursues the conspiratorial thinking of QAnon adherents in two ways: first, as an investigative docuseries into the world of rumors, mapping the phenomenon for a wider audience, and second, as filmmaker Cullen Hoback's entrance into QAnon as an alternative reality game (ARG), interacting with the sociotechnical network underpinning it. Both modes train viewers to anticipate truths-to-come, key to enjoying both media forms. Taking rumor-tellers seriously, Hoback intervenes in QAnon's effects while indulging viewers' prurient interest in the conspiratorial logic the series characterises as socially harmful. Considered in light of Bernard Stiegler's concerns about the contemporary industrialisation of consciousness, the series fails as a consciousness-raising endeavor. We view the series ambivalently as both an effective usurpation of such thinking and a reinstantiation of it.

Available to read: https://necsus-ejms.org/truth-and-truths-to-come-investigating-viral-rumors-in-q-into-the-storm/

The Veteran Reintegrated in You're the Worst and One Day at a Time.

Author: Renée Pastel.

Published: Open Philosophy. December 2021.

Abstract: As the "War on Terror" continues, the national myth of veteran-as-hero has given way to a narrative shorthand of veteran-as-villain. Films and television shows depicting the reintegration of veterans tend to focus on the struggle and alienation from the homefront that veterans feel upon their return. In contrast, comedy television portrayals such as One Day at a Time and You're the Worst, both of which slowly but successfully reintegrate their central veteran characters, do so narratively by shifting their characters' veteran status from their defining feature to one aspect of their past. Ultimately, I argue that the process of reintegration is one paralleled in the rehumanization that these comedy television portrayals permit, ultimately offering hope that reintegration, while not easy, is possible.

Available to read: https://www.degruyter.com/document/doi/10.1515/opphil-2020-0184/html

Adroid: Augmenting Hands-on Making with a Collaborative Robot.

Author: Rundong Tian and Eric Paulos.

Published: UIST '21. October 2021.

Abstract: Adroid1 enables users to borrow precision and accuracy from a robotic arm when using handheld tools. When a tool is mounted to the robot, the user can hold and move the tool directly—Adroid mea-

sures the user's applied forces and commands the robot to move in response. Depending on the tool and scenario, Adroid can selectively restrict certain motions. In the resulting interaction, the robot acts like a virtual "jig" which constrains the tool's motion, augmenting the user's accuracy, technique, and strength, while not diminishing their agency during open-ended fabrication tasks. We complement these hands-on interactions with projected augmented reality for visual feedback about the state of the system. We show how tools augmented by Adroid can support hands-on making and discuss how it can be configured to support other tasks within and beyond fabrication.

Available to read: https://dl.acm.org/doi/10.1145/3472749.3474749

Towards Decomposable Interactive Systems: Design of a Backyard-Degradable Wireless Heating Interface.

Author: Katherine Song, Aditi Maheshwary, Eric M Gallo, Andreea Danielescu, and Eric Paulos.

Published: CHI 2022. February 2022.

Abstract: Sustainability is critical to our planet and thus our designs. Within HCI, there is a tension between the desire to create interactive electronic systems and sustainability. In this paper, we present the design of an interactive system comprising components that are entirely decomposable. We leverage the inherent material properties of natural materials, such as paper, leaf skeletons, and chitosan, along with silver nanowires to create a new system capable of being electrically controlled as a portable heater. This new decomposable system, capable of wirelessly heating to >70°C, is flexible, lightweight, low-cost, and reusable, and it maintains its functionality over long periods of heating and multiple power cycles. We detail its design and present a series of use cases, from enabling a novel resealable packaging system to acting as a catalyst for shape-changing designs and beyond. Finally, we highlight the important decomposable property of the interactive system when it meets end-of-life.

Available to read: https://programs.sigchi.org/chi/2022/program/content/68834

DECLARATIONS OF INTERDEPENDENCE: HOW MEDIA LITERACY PRACTICES ARE DEVELOPED, NEGOTIATED, REJECTED, AND EXPLOITED ACROSS SOCIAL MEDIA PLATFORMS.

Author: Elisha Lim, Gina Marie Sipley, Ladan Siad Mohamed, Francesca Bolla Tripodi Tripodi, Vincente Perez.

Published: AoIR 2021. October 2021.

Abstract: The primary goals of media literacy are laudable: active and critical thinking about the messages we receive and the messages we create. In practice, media literacy standardizes limited ways of knowing and normalizes built-in biases. Subsequently, its narrow emphasis on skill development, particularly the role of fact-checking, content creation, and independent research are all practices that can be exploited, oftentimes leading to the amplification of misinformation. Homogeneous media literacy also assumes that platforms are neutral – codifying a dominant, neoliberal, racist lens as a competency. Social media literacy in particular assumes the norms of proprietary algorithms, arming users with the skills determined by Silicon Valley's corporate, individualist, white supremacist values. Contemporary high school curricula teaches students to ably brand and promote themselves; adept meme creators are rewarded for racial appropriation and fungible performances of Blackness; vanity metrics foster reputation anxiety in social media's 'success theatre'; personal data protection is an arguably futile lesson in privacy that preaches paranoid gated communities; fascist

media pundits easily exploit conservative media literacy practice of "doing your own research" to naturalize misinformation. What are the implicitly raced, classed norms of reading ""correctly""? What are mundane emancipatory reading practices? What alternative literacy practices do users deploy to reject these individualistic, racist standards? What does interpretive media literacy look like? This panel offers a portrait of what's missing in media literacy and explores visions of interdependent practices that offer alternative methods of active and critical thinking about the messages we receive and the messages we create.

Available to read: https://spir.aoir.org/ojs/index.php/spir/article/view/12298

Neighborhood Seance.

Author: Vincente Perez.

Published: River and South. February 2022.

Available to read: https://riverandsouth.com/index.php/2021/12/07/neighborhood-seancevincente-perez/

Secondary Infection.

Author: Beth Piaote.

Published: Evergreen: Grim Tales & Verses From the Gloomy Northwest. October 2021.

Abstract: In this rich, shadowy, glittering anthology edited by Sharma Shields and Maya Jewell Zeller, 56 Northwest writers share their singular stories, essays, and poems that center what Shields calls "the literature of despair." These pages confront what is difficult in life with extraordinary precision and grace: In Beth Piatote's story "Secondary Infection," a Yakama auntie narrates the undoing of a lonely woman; in the essay "There Is No Story Until It Happens to You," Richard Fifield writes about a devastating car crash in the remote Montana northlands of his youth; in his series of poems, "During the Pandemic," Rick Barot reflects on fear, isolation, and hope as quarantine descends; in her visual poem, "The Columbia Basin Pygmy Rabbit: An Auto-Elegy," artist Mita Mahato mourns the decline of a fragile species and the terrors of human impact on the environment. In works that span themes from colonialism to environmentalism, from toxic masculinity to a loss of faith, the writers here unflinchingly address what makes us vulnerable, what makes us complex, what cleaves us and what connects us. As Zeller writes in the book's introduction, this ambitious anthology pushes us to "learn, memorize, and recite the songs sung by these regional voices, mapping us into a communal root system of evergreen selves."

Available to read: http://www.scablandsbooks.org/shop/b17subrwlflejnyyb5pmnf4xieaxix

(Why) Does It Matter That I'm Also Here If We're Both On Zoom?

Author: Elizabeth Resor.

Published: 4S. October 2021.

Abstract: In this paper I reflect on the locational and methodological shifts in my dissertation research necessitated by the pandemic. Instead of continuing an ethnographic project in Kenya, I shifted to a remotely conducted interview study in Oakland, California (where I currently live). The switch from site-based ethnographic methods to online and remote approaches forced me to consider more closely how I had addressed my positionality as a researcher with my initial methodological choices, and to acknowledge how daily life practices constituted acts of research and reciprocity that needed to be replicated or substituted with online

and remote action. Despite these differences, this forced shift also illuminated how many of my commitments as a researcher have not changed, and in fact, that bringing in decolonial practices from my previous work can help me regain what I felt I had lost in moving away from ethnographic methods. Given that both projects relate to how understandings of place are expressed in online activity and information, there is also a secondary meditation on how place is expressed during online interactions – including those between researcher and research participant.

Available to read: https://convention2.allacademic.com/one/ssss/ssss21/index.php?cmd=Online+Program+View+Paper&selected_paper_id=1861460&PHPSESSID=tgdk9buot3igtjsqd845r0000b

Podcasts and new orality in the African mediascape.

Author: Reginold Royston.

Published: New Media & Society. July 2021.

Abstract: While podcasts as a storytelling media have exploded in popularity in the West since 2014, the uptake and consumption of this sonic new media was relatively slow in Africa until recently. This article explores amateur and start-up entrepreneurship podcasts that came to dominate the African mediascape during the medium's coming of age moment between 2014 and 2018. I extend Walter Ong's observation that broadcast and electronic media recreate the experience of oral performance, to show how the oral and aural dimensions of podcasting represent a set of approaches that can be described as new orality. This article also draws connections and distinctions between what I term the "dialogic schema" of African tech podcasts and "traditional" forms of narrative storytelling in African public cultures, as well as the emerging forms of mobile digital practices that, like podcasting, challenge easy distinctions between written and oral and literacy.

Available to read: https://journals.sagepub.com/doi/abs/10.1177/14614448211021032

'After agency: The queer posthumanism of video games that cannot be played'.

Author: Bo Ruberg.

Published: Convergence. December 2022.

Abstract: This article offers a queer reading of Brent Watanabe's 2016 video game–based art piece San Andreas Deer Cam, a mod of Grand Theft Auto V in which a computer-controlled deer wanders the game's extensive open world. During the time that San Andreas Deer Cam was streamed live on Twitch, it became something of an internet sensation, drawing attention for its comedic elements and the deer's seeming invisibility. I argue here that Watanabe's piece can read in an alternative way: as a work of queer posthumanism. Drawing from game studies scholars whose research explores the non-human (such as Alenda Chang and Paolo Ruffino), as well as queer studies scholars who have theorized how posthumanism challenges norms of gender, sexuality, and intimacy (such as Dana Luciano and Mel Chen), I analyze video recordings of San Andreas Deer Cam. Through these videos, I articulate the piece's posthumanist elements, with a focus on the implications of Watanabe's choice to make the game unplayable and the powerful yet ambivalent picture the piece offers of queerness 'beyond the human'. In San Andreas Deer Cam, queerness manifests in many forms, all of them wrapped up with the messy divide between peoples, animals, and machines: the visual erotics of the deer sensuously rendered backside, moments of sexual misrecognition as non-player characters appear to catcall the deer, even a prolonged scene in which the deer becomes the object of homophobic violence. Ultimately, I conclude, San Andreas Deer Cam offers a model for how video games themselves can be used to

rethink the centrality of human agency, which has long been considered the defining feature of the medium. Watanabe's piece serves as a provocation to consider the queer potential of games that are unplayable and of refusing – rather than doggedly pursuing – the supposed capacity of video games to place human players in control.

Available to read: https://journals.sagepub.com/doi/10.1177/13548565221094257

Digital Intimacy in Real Time: Live Streaming Gender and Sexuality.

Author: Bo Ruberg and Johanna Brewer.

Published: Television & New Media. April 2022.

Abstract: This article serves as the guest editors' introduction to the Television and New Media special issue dedicated to gender and sexuality in live streaming. Live streaming is a key part of the contemporary digital media landscape; it sits at the center of wide-reaching shifts in how culture, entertainment, and labor are expressed and experienced online today. Gender and sexuality are crucial elements of live streaming. Across live streaming's many forms, these elements manifest in myriad ways: from gendered performances to gender-based harassment, from LGBTQ community building to real-time sex work. This special issue models an interdisciplinary approach to studying gender and sexuality in live streaming, featuring scholarship from the humanities, social sciences, and human-computer interaction. It also serves as an impassioned call to those who study technological tools and platforms like live streaming to pay attention to the crucial roles that identity, power, embodiment, and intimacy play in these technologies. There can be no full cultural understanding of live streaming that does not address its entanglements with sexuality and gender.

Available to read: https://journals.sagepub.com/eprint/P4YC4XAAFSHAAXU7F8C8/full

The Mystery of the Missing AIDS Crisis: A Comparative Reading of Caper in the Castro and Murder on Main Street.

Author: Bo Ruberg.

Published: American Literature 9696987. January 2022.

Abstract: This article addresses the seeming absence of the HIV/AIDS pandemic in video games from the 1980s and 1990s, the height of the US AIDS crisis. As Adrienne Shaw and Christopher Persaud have noted, stories about HIV/AIDS were pervasive across American popular media during this period, which also represented a boom in video game development. However, documentation remains of only a handful of early video games that mention HIV/AIDS. This article argues that, far from being absent from video game history, HIV/AIDS and the US AIDS crisis were actually influential in shaping a number of the design elements and narrative genres that have become important to contemporary video games. Scholars like Cait McKinney have demonstrated how people living with HIV/AIDS in America played a crucial part in the evolution of internet technologies that now form the backbone of video games. Through a comparative reading of two games by C. M. Ralph, Caper in the Castro (1989) and Murder on Main Street (1989), this article demonstrates how HIV/AIDS has also manifested in the content and form of video games, even (and perhaps especially) when it seems absent. Derritt Mason has explained how Caper in the Castro, widely celebrated as the first LGBTQ video game, contains clear echoes of the AIDS crisis. Yet, as this article demonstrates, HIV/AIDS remains a powerful presence even in Murder on Main Street, Ralph's "straight version" of the game. Together, these games offer a microcosm through which to explore larger tensions between HIV/AIDS and video games, with the AIDS crisis representing a key element of what Cody Mejeur has termed the "present

absence of queerness in video games.

Available to read: https://read.dukeupress.edu/american-literature/article-abstract/doi/10.1215/00029831-9696987/294056/The-Mystery-of-the-Missing-AIDS-Crisis-A?redirectedFrom=fulltext

Trans Game Studies.

Author: Bo Ruberg.

Published: JCMS. January 2022.

Abstract: Video games are a rich site for exploring the place of trans identities and experiences in digital media. As a widely influential popular media form, video games simultaneously overlap, resonate, and clash with trans issues and the contemporary digital lives of trans people. Yet scholarship addressing the intersections of video games and transness remains comparatively limited. Here, I propose a vision of what we might call a trans game studies at the intersection of trans studies and game studies

Available to read: https://quod.lib.umich.edu/j/jcms/images/17_61.2ruberg.pdf

Associate Profesor and Program Director, Visual Arts Department. College of Arts. Pontificia Universidad Javeriana.

Author: Claudia Salamanca.

Published: Museum der Kulturen Basel. July 2021.

Abstract: «Extractive Zones» is about social ecologies and the – often indigenous – spaces that are characterized on the one hand, by a high degree of biodiversity, and on the other, by a long history of the extraction of resources, (neo)colonial relationships and extractivism. The exhibited works highlight the importance of ignored knowledge practices and systems, as well as alternative designs of the world that reach beyond simply thinking about progress. Contemporary art and ethnographic objects reflect extractive practices and the potential for regeneration in very different ways. In dialogue with one another, they reveal alternative perspectives of agency and possible forms of coexistence in a new way.

Available to read: https://www.mkb.ch/en/ausstellungen/2021/extractive-zones.html

Corporate Poetry.

Author: Alex Saum-Pascual.

Published: Texts of Discomfort. November 2021.

Abstract: Can discomfort be blissful? This volume presents an in-depth reflection of the selected artworks for the Art Exhibition of the 13th International Conference on Interactive Digital Storytelling – ICIDS 2020 – organized at Bournemouth University – UK, during the most memorable year of the XXI century (so far). The title of the book is the homonym of the curatorial theme of the exhibition Texts of Discomfort. In these pages, interactive storytellers explain their work and the ways discomfort – and bliss – is rooted in their art.

Available to read: https://press.etc.cmu.edu/index.php/product/texts-of-discomfort/

Potential Ideas and Other Things that Live in Your Gut.

Author: Alex Saum-Pascual.

Published: Hyperrhiz 24. December 2021.

Abstract: Potential Ideas and Other Things that Live in Your Gut is a survey poem built around a standard "product concept testing" structure, designed and distributed on Qualtrics software. It captures real-time feedback on a selection of eleven new poetic concepts by evaluating readers' emotional and aesthetic response to a set of surprising biological facts about bacteria and human development.

Available to read: http://hyperrhiz.io/hyperrhiz24/gallery/1-saum-potential.html

Potential Ideas and Other Things that Live in Your Gut.

Author: Alex Saum-Pascual.

Published: Refamiliarization. February 2022.

Available to read: https://www.refamiliarization.org/

Behind French election tweets, the far right is hidden in plain sight.

Author: Jen Schradie.

Published: The Conversation. September 2022.

Abstract: During the 2017 French presidential election, Emmanuel Macron was the darling of digital democracy. With his calls for a "startup nation," the future head of state placed technology at the centre not only of his programme but also of his campaign.

The now-president's digital performance in the run-up to this year's election has been much less clear-cut. It's left-wing Jean-Luc Mélenchon who's been trying to push the technological envelope, going so far as to appear in the form of a hologram, while Macron concentrated on shifting his programme to the right. And while he still leads in the polls, his margin is slipping. Indeed, five years after Macron took office, far-right candidates have been more effective than Macron at exploiting the Internet and social networks.

Available to read: https://theconversation.com/behind-french-election-tweets-the-far-right-is-hidden-in-plain-sight-180819

A section of Now: Norms and Rituals as Sites for Architectural Intervention.

Author: Jen Schradie and Giovanna Borasi.

Published: Spector Books. January 2022.

Abstract: Conceived as part of the one-year investigation Catching Up with Life, A Section of Now aims to re-establish a dialogue between architecture and society that would allow for architecture to begin to contend with and address our changed and changing social norms. The publication serves as a meditation on new behaviours, rituals, and values and their spatial implications and seeks to catalyze urban and architectural interventions that accommodate, influence, and, in some cases, pre-empt our new lived realities. Authors address topics ranging from the safety of digital spaces to how normative life trajectories affect the elderly and the many selves each of us puts forward, while architects present frameworks for spaces for blended families, thirty-year-old retirees, and contested monuments, among many others.

Bringing together analytical essays about the contemporary moment and the direction in which society is moving, projective texts that outline new architectural types to address societal needs, alongside television series, photography, and architecture and design projects, A Section of Now outlines a new relationship between the spaces in which we live and the ways we live within them.

Available to read: https://cca-bookstore.com/collections/books/products/a-section-of-now-norms-and-rituals-as-sites-for-architectural-intervention?variant=39349426290769

Ukrainians are rallying global support via social media. But don't call it a TikTok war.

Author: Jen Schradie.

Published: Washington Post. February 2022.

Abstract: Russia's war against Ukraine has predictably been labeled the "TikTok War" — much as pundits dubbed the Arab Spring the Twitter Revolution, or Occupy Wall Street became the Facebook Revolution.

Available to read: https://www.washingtonpost.com/politics/2022/03/24/ukraine-tiktok-social-media-disinformation/

Critical Information Studies: A Roundtable on Sociotechnical Theories, Digital Objects and Institutional Practices.

Author: Ryan Shaw.

Published: 4S. October 2021.

Abstract: Critical information studies (CIS) is an empirical, political, and educational project. This CIS roundtable will unite and expand the field through an interactive fishbowl format. It has three goals. First, we will ground recent critical investigations of big data, algorithms, and misinformation in decades of research in library and information science. Second, we will discuss the evolution of iSchools as sociotechnical objects shaping these research problems. Finally, we will make space for the burgeoning cohort of STS scholars working in iSchools. In this way we will create a community for CIS within 4S, and support each other's CIS work in our own institutions.

For CIS, information is not natural, but constructed. We will discuss the common ties between research that addresses, for example, labor in information systems and the information ideologies that construct 'users.'

CIS seeks to remake the power relations produced by and through information. Our roundtable will discuss the political possibilities of our work, how we can, for example, engage in anti-racist and anti-colonial struggles to preserve those institutional records that can support reparations and erase those records that serve as tethers of the carceral state.

Finally, CIS rethinks library and information science pedagogy. Our roundtable will discuss how to move iSchool education beyond training interchangeable information professionals who optimize access to information resources, and how to incorporate more critical dispositions from STS.

In a moment of institutional ferment, we hope to build models for creativity beyond entrepreneurialism, for abolition over inclusion, and for an information ethics that does not formalize power but redistributes it.

Available to read: https://convention2.allacademic.com/one/ssss/ssss21/index.php?cmd=Online+Pro-

 gram+View+Session&selected_session_id=1861002&PHPSESSID=0ko20c5cosh1bvk5a74hljte6u

Green Magic: On Technologies of Enchantment at Apple's Corporate Headquarters.

Author: Christo Sims.

Published: Public Culture. June 2022.

Abstract: Apple's corporate headquarters in Silicon Valley has become an object of public fascination for its technical marvels and green magnificence. However, architectural critics and urbanists have widely critiqued the campus for being socially retrograde and ecologically injurious. This essay queries this divergence in public responses to Apple's headquarters by examining how the campus has been designed to counter a growing disenchantment with neoliberalism, its technologies, and its environmental defilements. In doing so, the essay argues for the analytical potential of adapting anthropological theories of enchantment and magic to the study of contemporary uses of the built environment for branding and public relations purposes.

Available to read: https://read.dukeupress.edu/public-culture/article/doi/10.1215/08992363-9584778/297825/Green-Magic-On-Technologies-of-Enchantment-at?guestAccessKey=55274cd3-1467-4b87-9bf4-f01c68c42fd8

Towards Decomposable Interactive Systems: Design of a Backyard-Degradable Wireless Heating Interface.

Author: Katherine Song, Aditi Maheshwary, Eric M Gallo, Andreea Danielescu, and Eric Paulos*.

Published: CHI 2022. February 2022.

Abstract: Sustainability is critical to our planet and thus our designs. Within HCI, there is a tension between the desire to create interactive electronic systems and sustainability. In this paper, we present the design of an interactive system comprising components that are entirely decomposable. We leverage the inherent material properties of natural materials, such as paper, leaf skeletons, and chitosan, along with silver nanowires to create a new system capable of being electrically controlled as a portable heater. This new decomposable system, capable of wirelessly heating to >70°C, is flexible, lightweight, low-cost, and reusable, and it maintains its functionality over long periods of heating and multiple power cycles. We detail its design and present a series of use cases, from enabling a novel resealable packaging system to acting as a catalyst for shape-changing designs and beyond. Finally, we highlight the important decomposable property of the interactive system when it meets end-of-life.

Available to read: https://programs.sigchi.org/chi/2022/program/content/68834

Not yet another web.

Author: Ioanna Sotiriou.

Published: Other Spaces, Melbourne Design Week 2022, the Victorian Government in collaboration with the National Gallery of Victoria. March 2022.

Abstract: One of the most recent and controversial debates in the online community concerns web3: a theoretical, decentralized online ecosystem running on blockchain, promising the disruption of the tech company hegemony. The narrative has been criticized as intellectually incoherent, technically unfounded, environmentally disastrous, and already too dependent on private capital to be promising corporate emancipation. Most importantly, it perpetuates information asymmetry, promising the liberation of a user who is oftentimes

too technically inept to understand and contribute to its architecture. Yet despite this polarization, there is a general consensus about the need for a new model of being in the digital space. This offers a chance to collectively re-think of truly decentralized information systems as spaces where communities can deliver public goods that escape new forms of commodification, embracing scarcity and indeterminacy at the core of their architecture.

"Not yet another web" imagines the birth of such a system, narrating a story of how nomad engineers temporarily occupy abandoned estate internationally, in order to build a novel, bottom-up, decentralized and autonomous web. Their constant moving creates a network of nodes that requires the public's participation to operate. At the local level, this includes landowners offering abandoned assets either as a "donated lease", or in exchange for novel cryptocurrency ledgers. Local users donate obsolete equipment, or offer it in exchange for various assets, thus minimizing e-waste. Energy autonomy is also crucial: when alternative energy is not possible locally, municipalities lease energy while other energy-abundant nodes repay the state by offering clean energy to their local community for free. Finally, every suggested function, such as authorization methods and hate-speech policies, is open to public voting, with communities voting and validating the outcome simultaneously from all nodes.

Parallel to the text, the project deploys visual disorder, scaless-ness and graphic indeterminacy to align this speculative system with the terrain it emerges from, and which essentially wishes to reflect: ever becoming, spaces of the possible built by nomadic science and participatory processes. Ultimately, this is a story of how indeterminate systems oppose formal and established protocols—be the urban realm or the centralized web—by embracing their innate sense of externality and preserving their state of ever-becoming.

Available to read: https://otherspacesexhibition.com/33-Not-yet-another-web

Towards Creative Version Control.

Author: Sarah Sterman, Molly Jane Nicholas, and Eric Paulos.

Published: CSCW 2022. January 2022.

Abstract: An exploration of version control tools and history information management in creative practices. We identify four key considerations for version control in creative work. 1) using versions as a palette of materials, 2) providing confidence and freedom to explore, 3) leveraging low-fidelity version capture, and 4) reflecting on and reusing versions across long time scales. We discuss how these themes can provide insight into future designs and uses of version control systems.

Available to read: https://molecule.github.io/research/

RESEARCH GRANT -- Racializing Risk: The History of Ladera Housing Cooperative.

Author: T.F. Tierney.

Published: Graham Foundation of the Arts, Chicago, IL.

Abstract: The Federal Housing Administration's (FHA) differential lending practices in the 1940s are readily illustrated in the controversial history of Ladera Housing Cooperative. My study builds on previous theories of privatization and racialization to proffer new understanding of the application of credit rationing and its actual implementation in Northern California community planning. Utilizing routine, but obscure risk appraisal guidelines, the FHA played a significant role in the structural institutionalization of segregated sub-

 urbs that surround us today.

Seen for the first time, this research pulls together dispersed archival material into a coherent and illuminating whole. Beginning with the founding of the cooperative, I analyze the innovative and environmentally responsive planning features of the proposed community, followed by an explication of the lending application process. I advance the theory that through its lending practices, Californian cities achieved the same impact as redlining used in Chicago, New York and Philadelphia. For Ladera, implicit rules and policies were just as effective in maintaining racial segregation.

Available to read: http://www.grahamfoundation.org/grantees/6200-racializing-risk-the-history-of-ladera-housing-cooperative

Embr: A Creative Framework for Hand Embroidered Liquid Crystal Textile Displays.

Author: Shreyosi Endow, Mohammad Abu Nasir Raqib, Anvay Srivastava, Sara Rastagarpouyani, and Cesar Torres.

Published: CHI 2022. February 2022.

Abstract: Conductive thread is a common material in e-textile toolkits that allows practitioners to create connections between electronic components sewn on fabric. When powered, conductive threads are used as resistive heaters to activate thermochromic dyes or pigments on textiles to create interactive, aesthetic, and ambient textile displays. In this work, we introduce Embr, a creative framework for supporting hand-embroidered liquid crystal textile displays (LCTDs). This framework includes a characterization of conductive embroidery stitches, an expanded repertoire of thermal formgiving techniques, and a thread modeling tool used to simulate mechanical, thermal, and electrical behaviors of LCTDs. Through exemplar artifacts, we annotate a morphological design space of LCTDs and discuss the tensions and opportunities of satisfying the wider range of electrical, craft, cultural, aesthetic, and functional concerns inherent to e-textile practices.

Available to read: https://programs.sigchi.org/chi/2022/program/content/68811

"I'm Better Off on my Own": Understanding How a Tutorial's Medium Affects Physical Skill Development.

Author: Shreyosi Endow and Cesar Torres.

Published: DIS '21: Designing Interactive Systems Conference 2021. June 2021.

Abstract: The shift towards distance learning brought forth by the pandemic has highlighted the shortcomings of teaching physical skills at a distance. With the emergence of new augmented and connected mediums, new opportunities arise for transferring physical skills that have resisted traditional documentation methods. However, there lacks a framework that allows tutorial authors to capitalize on a new medium's unique affordances rather than remediating existing tutorial conventions. Our work analyzes a body of tutorials rendered in various mediums for centering clay on a pottery wheel — a foundational skill that exemplifies the difficulties of physical skill transfer. Through the lens of McLuhan's "The Medium is the Message" we synthesize a taxonomy of medium conventions and themes derived from analyzing a body of centering tutorials and observation of how a tutorial's medium affects how learners develop physical skills. We leverage our findings to motivate design recommendations to inform how new mediums can support material practices.

Available to read: https://dl.acm.org/doi/10.1145/3461778.3462066

Crank, Shake, and Tilt: Transforming Social Media Interfaces with Embodied Constraints.

Author: Janaki Vivrekar.

Published: EECS Masters Thesis. June 2021.

Abstract: Using social media is engaging, enthralling, and stimulating but simultaneously routine and habitual. In this thesis, I explore a series of critical designs that transform digital social media experiences into physically interactive experiences, to provoke users to interrogate their motivations for using social media. I present four social media intervention systems with embodied constraints requiring continuous physical participation: the Crank Box, the Cranker, the Shaker, and the Tilter. In a study with twelve social media users, I identify that exclusively accessing social media through these critical designs caused temporary or persistent decreases in social media usage for all participants. Through analysis of daily diary studies, qualitative interviews, and social media usage metrics, I uncovered how users changed their behaviors and values around social media as a result of the interventions. Users devoted their time to different social media content and activities, demonstrated novel collaborative ways to operate social media, and increased their awareness about the role of social media in their lives. Based on the intervention designs that produced these outcomes, I present seven design factors to consider for future social media interventions. I further propose design speculations about sensory, spatial, and distorted interactions for future critical exploration of social media interfaces beyond digital surfaces.

Available to read: https://www2.eecs.berkeley.edu/Pubs/TechRpts/2021/EECS-2021-160.pdf

A New AI Lexicon.

Author: Xiaowei Wang.

Published: AI Now Institute. August 2021.

Abstract: A New AI Lexicon: Care. In search of a cure, we lose out on care. AI systems are more than the algorithms themselves. Behind these systems are a host of political and economic forces, as well as a complex mosaic of hidden labor. This essay explores the logic of care and the logic of cure that underlie the creation of AI and machine learning systems. In particular, I look at Software as A Medical Device (SaMD) — the use of AI within the healthcare industry, to understand entry points into intervention and advocacy on AI systems. The tensions between cure and care in the care industry are a reminder that tackling the inequity proliferated by AI systems is not just about changing Silicon Valley, but rethinking care and shifting broader, situated circuits of power across different scales and geographies. I argue that the AI and the software medical industry's promises of cure replicate a technological solutionism, resulting in an inability to truly care for people.

Available to read: https://medium.com/a-new-ai-lexicon/a-new-ai-lexicon-care-82c9031c98c4

Shadow Visions.

Author: Xiaowei Wang.

Published: Ding Ding. November 2021.

Abstract: The eye doctor shined a bright light into my left eye as I realized, I have stopped thinking of the future. The day was hot, the air dry. I was slowly and surely going blind, from a progressive, incurable eye disease. On my way home, I could smell wildfire smoke. Shadows trailed the edges of my vision. I could sense the echo of a painting, the searing red of rosehips left to rot in memory.

Available to read: https://dingdingding.org/issue-4/shadow-visions/

Proximities.

Author: Debarati Sanyal, Mario Telò, and Damon Ross Young.

Published: Representations 158. January 2022.

Abstract: TO READ JUDITH BUTLER IS to read in community, joining what are now generations of readers around the world. It is to court the experience of disorientation, exhilaration, alienation, or uncanny recognition that entering (however incompletely) into the thought of another variously affords. To read Butler is also to read Butler reading and thus to encounter both the example and the challenge of reading well. In creating this special issue, we invited a number of Butler's readers to think and write alongside Butler, unfolding lines of flight from a passage of their choice that has served, as the idiom has it, as "food for thought." Food, which is to say nourishment: just as the mattering of the body depends on an ever-renewed incorporation of the world's material (through processes of ingestion, transmutation, absorption, metabolization, and elimination), so the mattering of thought—as Butler's work demonstrates at every turn—is never sui generis. It emerges from the encounter, involving analogous processes of listening, distinguishing, affirming, questioning, mirroring, or negating. We invited our authors, from their different geographical and disciplinary locations, to select a passage that has generated an alchemy of thinking. In the responses collected here, Butler's readers read Butler, accompanying Butler's thought, where this accompaniment takes the form, by turns, of inhabitation, paraphrase, questioning; leaning into or away from; moving in parallel, entwined, or at a magnetic distance. The title of the special issue, Proximities, designates these various modes of intellectual accompaniment, of "eating well," as Jacques Derrida once put it, since thinking is always an enactment of proximity.

Available to read: https://bit.ly/3zjt4cH

Behind Closed Doors: America's Couples Therapy Entertainment Complex.

Author: Hannah Zeavin.

Published: Los Angeles Review of Books. June 2021.

Abstract: A CENTRAL PROBLEM for therapy is that it is practiced at the individual level and doesn't neatly scale, even if it improves the lives of those close to the patient. The therapy shortage is more complicated than simple body math. Insurance, lack of insurance, medical racism and redlining, and persistent stigma have made it extremely difficult to reach those most vulnerable and most in need of care. Mental health care professionals have generated many modes to batch process patients at a greater rate than one-to-one and one-to-two, developing short-term modalities (like the dominant therapeutic paradigm of Cognitive Behavioral Therapy) and prescribing psychopharmacological drugs. And, of course, they've also turned to technology.

Available to read: https://www.lareviewofbooks.org/article/behind-closed-doors-americas-couple-therapy-entertainment-complex/

Glasses for the Voice.

Author: Hannah Zeavin.

Published: Boundary 2. December 2021.

Abstract: A review of Jonathan Sterne, Diminished Faculties: A Political Phenomenology of Impairment (Duke UP, 2022)

Available to read: http://www.boundary2.org/2021/12/hannah-zeavin-sounds-studies-without-voices-review-of-jonathan-sterne-diminished-faculties-a-political-phenomenology-of-impairment/

Hot and Cool Mothers.

Author: Hannah Zeavin.

Published: differences. December 2021.

Abstract: "Hot and Cool Mothers" moves toward a media theory of mothering and parental "fitness." The article begins with an investigation into midcentury pediatric psychological studies on Bad Mothers and their impacts on their children. The most famous, if not persistent, of these diagnoses is that of the so-called refrigerator mother. The refrigerator mother is not the only bad model of maternality that midcentury psychiatry discovered, however; overstimulating mothers, called in this study "hot mothers," were identified as equally problematic. From the mid-1940s until the 1960s and beyond, class, race, and maternal function were linked in metaphors of temperature. Whereas autism and autistic states have been extensively elaborated in their relationship to digital media, this article attends to attributed maternal causes of "emotionally disturbed," queer, and neurodivergent children. The author argues that these newly codified diagnoses were inseparable from midcentury conceptions of stimulation, mediation, domesticity, and race, including Marshall McLuhan's theory of hot and cool media, as well as maternal absence and (over)presence, echoes of which continue in the present in terms like "helicopter parent."

Available to read: https://read.dukeupress.edu/differences/article-abstract/32/3/53/293534/Hot-and-Cool-Mothers?redirectedFrom=fulltext

The Immune Sequence.

Author: Hannah Zeavin.

Published: Logic Magazine. September 2021.

Abstract: On the dangers of chasing childhood purity.

Available to read: https://logicmag.io/kids/

A New AI Lexicon: Empathy.

Author: Hannah Zeavin.

Published: AI Now Institute. September 2021.

Abstract: Debates around empathy in AI are everywhere: should we feel for our machines? Do they feel for us? How can we build, code, and design machines towards the empathetic? But whether or not empathy is the goal is rarely up for discussion.

Available to read: https://medium.com/a-new-ai-lexicon/a-new-ai-lexicon-empathy-4da12b82e280

Screening Mother, Coding Baby: Videography & the Pre-History of Emotion Recognition in the Clinic.

Author: Hannah Zeavin.

Published: 4S. October 2021.

Abstract: For over a century, the tradition of psychologists and pediatricians performing infant observation has generated norms for diagnosis and screening of a variety of maternal and infant pathologies, along with corollary advice for parents on how to raise emotionally healthy babies. This art of "baby watching" changed radically with the advent of videotaping. Starting in the 1970s, this new medium and new evidential regime greatly enhanced the data-gathering capabilities of clinical psychologists' clinics without removing bias. The detail-oriented practice of coding the faces and behaviors of videotaped mothers and children did more than just render so-called invisible disabilities visible: new diagnostic categories and their criteria were developed out of this closer, pausable, and reviewable form of looking. Videography in the clinic allowed for the eventual coding and typing and pathologizing of "bad" mothers and "good" mothers, "sick" mothers and "well" mothers, "secure" infants and "anxious" infants (as in the studies of Ainsworth & Bell, Bebe, and Tronick).

"Screening Mother, Coding Baby" offers a pre-history of facial recognition, data coding, and diagnostic algorithms in the relationship between mother and child. I argue that the new diagnostic categories and screening capabilities resulting from clinical videography work in two ways. At their best, they still preserve definitional problems and offer diagnostic criteria so that caregivers can receive help—either for themselves or their babies. At their worst, they create the ideal image—literally—of mothering or infant states as well as stigmatized distances from that ideal. While beneficial for screening large numbers of mothers for, as just one example, postpartum depression, this way of looking at and recording mothers also creates an atmosphere of surveillance—mothers, once under care, are also at risk for social and state intervention, and unevenly so across intersectional lines. Even after the actual video equipment is put away, a visual comparative framework instructs that a good mother looks like x, not y. The sample populations of these videos are narrow: nearly always white, middle or upper class, neurotypical (a "normal" mother). As this surveillance paradigm has given way to the training of algorithms on mass facial recognition datasets, neuroimaging, and other high-tech solutions to the problem of screening mothers and their children, these formalized diagnostic criteria, and their pathological norming, have extended their reach, becoming a dragnet that further encodes racial and classed biases elaborated nearly fifty years ago.

Available to read: https://convention2.allacademic.com/one/ssss/ssss21/index.php?cmd=Online+Program+View+Paper&selected_paper_id=1859115&PHPSESSID=0ko20oc5cosh1bvk5a74hljte6u

The Therapist Will See You Now But Where?

Author: Hannah Zeavin.

Published: Future.a16z. September 2021.

Abstract: For a century, when we've thought of therapy, many of us have thought of the places where it happens: the clinic, the ward, the institution. Most prominent among these spatial associations may be the so-called consulting room and its accoutrements: a box of tissues, a covert clock, chairs and perhaps a couch, the waiting room, buzzers, a white noise machine humming, out-of-date magazines. Beyond the iconicity of the container itself, the office has also offered patient and therapist alike a reflective space seemingly apart from their experience of the world. The office allowed patient and therapist to meet in a confidential, secure location, one ostensibly free from the distractions or sounds of work and family.

Available to read: https://future.a16z.com/virtual-therapy-distanced-intimacy/

Therapy via Zoom should make mental healthcare available for all - it hasn't.

Author: Hannah Zeavin.

Published: The Guardian. August 2021.

Abstract: Good quality remote treatment is still proving to be expensive and in short supply.

Available to read: https://www.theguardian.com/commentisfree/2021/aug/03/therapy-zoom-mental-healthcare-remote-treatment

Therapy with a Human Face.

Author: Hannah Zeavin.

Published: Dissent. January 2022.

Abstract: The feminization of therapy is crucial to understanding how it became both devalued and out of reach.

Available to read: https://www.dissentmagazine.org/article/therapy-with-a-human-face ttps://thefutureofmemory.online/

Unfree Associations Parasitic Whiteness on and off the couch.

Author: Hannah Zeavin.

Published: n+1 Magazine. December 2022.

Abstract: ON MAY 27, 2021, Donald Moss, a New York psychoanalyst, published an article titled "On Having Whiteness" in the Journal of the American Psychoanalytic Association to little immediate fanfare. Rarely, anyway, is a psychoanalytic publication much anticipated these days, even one by a prominent analyst such as Moss, even on such a potentially provocative subject. Barely a week later, Moss began receiving some unusual messages.

The first came from the Federalist, seeking comment for a story by the young right-wing journalist Spencer Lindquist, set to publish June 7. Lindquist had somehow gotten hold of the abstract for "On Having Whiteness." Moss, hoping to correct some misinterpretations in the commentary Lindquist previewed for him, spoke on the record before anyone could advise him not to engage. By June 8, the Federalist's hot take on Moss's article began to go viral. I was made aware of this like everyone else: by screenshot after screenshot of the abstract appearing on my Twitter feed. I scrolled with my phone under the table at dinner.

Available to read: https://www.nplusonemag.com/issue-42/essays/unfree-associations/

The U.S. has never tried a comprehensive approach to mental health care.

Author: Hannah Zeavin.

Published: The Washington Post. July 2021.

Abstract: The pandemic worsened mental health problems, but solutions have long been elusive.

Available to read: https://slate.com/technology/2020/09/wechat-tencent-trump-ban-free-speech.html

74 **Who's Listening When You Call a Crisis Hotline.**

Author: Yana Calou and Hannah Zeavin.

Published: Slate. January 2022.

Abstract: State of Mind is a partnership of Slate and Arizona State University that offers a practical look at our mental health system—and how to make it better.

Earlier this year, an operator at Trans Lifeline picked up the phone. On the line was a caller who needed support following a traumatic experience they had had after calling another hotline for LGBTQ youth. The caller shared with the operator that at some point during their other call, they got disconnected due to cell reception issues. Soon after, police officers with a K-9 unit arrived at their location. This understandably deeply unsettled the caller. What's more, the caller did not know how to prove that they did not need what is euphemistically called "active rescue," or police intervention. Operators at Trans Lifeline (where one of us, Yana, is the director of advocacy) say that they often get calls like this one, where callers reach out to deal with the aftermath of nonconsensual intervention.

Available to read: https://slate.com/technology/2022/04/crisis-lifelines-surveillance-geolocation-algorithms.html