Noura Howell

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Digital Media
Georgia Institute of Technology

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▷ EDUCATION

2020 School of Information, University of California, Berkeley
Ph.D. in Information Management & Systems with a Designated Emphasis in New Media.

2012 Olin College of Engineering
B.S. in Engineering with a Concentration in Computing, and the program's emphasis on human-centered design.

2007-8 Mississippi State University
Gap year in pure math for fun—graph theory, group theory, topology—and music theory.

▷ PEER-REVIEWED PUBLICATIONS

2023 Fabulation as an Approach for Design Futuring
Marie Louise Juul Søndergaard, Nadia Campo Woytuk, Noura Howell, Vasiliki Tsaknaki, Karey Helms, Tom Jenkins, Pedro Sanches
Designing Interactive Systems (DIS)
In this year, the acceptance rate for this type of submission at this venue was 24%.

Designing with Biosignals: Challenges, Opportunities, and Future Directions for Integrating Physiological Signals in Human-Computer Interaction
Ekatrina R. Stepanova, John Desnoyers-Stewart, Alexandra Kitson, Bernhard E. Riecke, Alissa N. Antle, Abdallah El Ali, Jeremy Frey, Vasiliki Tsaknaki, Noura Howell
Designing Interactive Systems (DIS) Extended Abstracts

Towards Mutual Benefit: Reflecting on Artist Residencies as a Method for Collaboration in DIS
Laura Devendorf, Leah Buechley, Noura Howell, Jennifer Jacobs, Hsin-Liu (Cindy) Kao, Martin Murer, Daniela Rosner, Nica Ross, Robert Soden, Jared Tso, Clement Zheng
Designing Interactive Systems (DIS) Extended Abstracts

2022 Diffraction-in-Action: Designerly Explorations of Agential Realism Through Lived Data
Pedro Sanches, Noura Howell, Vasiliki Tsaknaki, Tom Jenkins, Karey Helms
Human Factors in Computing Systems (CHI)
Honorable Mention Award.
In this year, the acceptance rate for this type of submission at this venue was 14%. Honorable Mention is reserved for the top 5% of accepted papers.

Fabulating Biodata Futures for Living and Knowing Together
Vasiliki Tsaknaki, Pedro Sanches, Tom Jenkins, Noura Howell, Laurens Boer, Afroditi Bitzouni
Designing Interactive Systems (DIS)
Acceptance rate: 30%

Design Futuring for Love, Friendship, and Kinships: Five Perspectives on Intimacy
Sumita Sharma, Britta F. Schulte, Rocío Fatás Arana, Noura Howell, Amy Twigger Holroyd, Grace Eden
Human Factors in Computing Systems Extended Abstracts (alt.chi)

Button Portraits: Embodying Queer History with Interactive Wearable Artifacts
Allie Riggs, Noura Howell, Anne Sullivan
International Conference on Interactive Digital Storytelling (ICIDS)

Feeling Air: Exploring Aesthetic and Material Qualities of Architectural Inflatables
Noura Howell, Shawn Protz, J. Byrd, M. Castellanos, A. Elkins, J. Hall, M. Holdsworth, L. Mallikeshwaran Rajagopal Sambasivan, C. Noel, O. Osiberu, R. Patel, D. Scallan, A. Uhrich, A. Anupam, B. Bosley, R. Donley, S. Milkes Espinosa, M. Ramirez, S. Nayak, A.-T. Tran, Y. Jia, and Y. Wang
NordiCHI (Nordic Human-Computer Interaction Conference) Extended Abstracts

2021 Cracks in the Success Narrative: Rethinking Failure in Design Research through a Retrospective Trioethnography
Noura Howell, Audrey Desjardins, Sarah Fox
ACM Transactions on Computer-Human Interaction (TOCHI).

Calling for a Plurality of Perspectives on Design Futuring: An Un-Manifesto
Noura Howell, Britta F. Schulte, Amy Twigger Holroyd, Rocío Fatás Arana, Sumita Sharma, Grace Eden
Human Factors in Computing Systems Extended Abstracts (alt.chi)

2020 Expanding Modes of Reflection in Design Futuring
Sandjar Kozubaev, Chris Elsden, Noura Howell, Marie Louise Juul Søndergaard, Nick Merrill, Britta Schulte, Richmond Y. Wong
Human Factors in Computing Systems (CHI)
Acceptance rate: 23%

Teachable Machine: Approachable Web-Based Tool for Exploring Machine Learning Classification
Michelle Carney, Barron Webster, Irene Alvarado, Kyle Phillips, Noura Howell, Jordan Griffith, Jonas Jongejan, Amit Pitaru, Alexander Chen
Human Factors in Computing Systems (CHI) Extended Abstracts

Challenges and Opportunities for Designing with Biodata as Material
Vasiliki Tsaknaki, Tom Jenkins, Laurens Boer, Sarah Homewood, Noura Howell, Pedro Sanches
NordiCHI (Nordic Human-Computer Interaction Conference) Extended Abstracts

2019 Life-Affirming Biosensing in Public: Sounding Heartbeats on a Red Bench
Noura Howell, Greg Niemeyer, Kimiko Ryokai
Human Factors in Computing Systems (CHI).
Acceptance rate: 24%

Emotional Biosensing: Exploring Critical Alternatives
Noura Howell, John Chuang, Abigail De Kosnik, Greg Niemeyer, Kimiko Ryokai. 2018
Proceedings of the ACM on Human-Computer Interaction (CSCW)
Acceptance rate: 26%

Vivewell: Speculating Near-Future Menstrual Tracking through Current Data Practices
Sarah Fox, Noura Howell, Richmond Wong, Franchesca Spektor
Designing Interactive Systems (DIS)
Acceptance rate: 25%

2018 Tensions of Data-Driven Reflection: A Case Study of Real-Time Emotional Biosensing
Noura Howell, Laura Devendorf, Tomás Vega Gálvez, Rundong (Kevin) Tian, Kimiko Ryokai
Human Factors in Computing Systems (CHI)
Acceptance rate: 26%

Capturing, Representing, and Interacting with Laughter
Kimiko Ryokai, Elena Duran, Noura Howell, Jonathan Gillick, David Bamman
Human Factors in Computing Systems (CHI)
Acceptance rate: 26%

Doodle Daydream: An Interactive Display to Support Playful and Creative Interactions Between Coworkers
Samitha Elvitigala, Samantha W. T. Chen, Noura Howell, Denys J. C. Matthies, Suranga Nanayakkara
Proceedings of the Symposium on Spatial User Interaction

2017 Interrogating Biosensing in Everyday Life
Nick Merrill, Richmond Wong, Noura Howell, Luke Stark, Lucian Leahu, Dawn Nafus
Designing Interactive Systems (DIS) Extended Abstracts

Celebrating Laughter: Capturing and Sharing Tangible Representations of Laughter
Kimiko Ryokai, Elena Duran, Dina Bseiso, Noura Howell, Ji Won Jun
Designing Interactive Systems (DIS) Extended Abstracts
Acceptance rate: 22%

2016 Biosignals as Social Cues: Ambiguity and Emotional Interpretation in Social Displays of Skin Conductance
Noura Howell, Laura Devendorf, Rundong (Kevin) Tian, Tomás Vega Gálvez, Nan-Wei Gong, Ivan Poupyrev, Eric Paulos, Kimiko Ryokai
Designing Interactive Systems (DIS)
Acceptance rate: 26%

"I don't want to wear a screen": Probing Perceptions of and Possibilities for Dynamic Displays on Clothing
Laura Devendorf, Joanne Lo, Noura Howell, Jung Lin Lee, Nan-Wei Gong, M. Emre Karagozler, Shiho Fukuhara, Ivan Poupyrev, Eric Paulos, Kimiko Ryokai
Human Factors in Computing Systems (CHI)
Best Paper Award
The Best Paper Award is reserved for the top 1% of accepted papers.

2013 On the L(2,1)-Labelings of Amalgamations of Graphs
Sarah Spence Adams, Noura Howell, Nathaniel Karst, Denise Sakai Troxell, Junjie Zhu
Discrete Applied Mathematics

2009 Effect of Microbial Pretreatment on Enzymatic Hydrolysis and Fermentation of Cotton Stalks for Ethanol Production
Jian Shi, Ratna R. Sharma-Shivappa, Mari Chinn, Noura Howell
Biomass and Bioenergy

▷ OTHER WRITINGS

2023 Fast-Switching Spatial Thermal Display Using Water and Visible Lights
Sosuke Ichihashi, Masahiko Inami, Noura Howell
Position paper at workshop Smell, Taste, and Temperature Interfaces, CHI

2022 Comments in response to the Federal Trade Commission's Advance Notice of Proposed Rulemaking (ANPR) on a Trade Regulation Rule on Commercial Surveillance and Data Security
Richmond Wong, Watson Hartsoe, Noura Howell
Comment ID FTC-2022-0053-1100

Children are the Future of Emotion AI
Noura Howell
Position paper at workshop Age Against the Machine: Designing Ethical AI for and with Children, NordiCHI

Years, Illness, Wildfires, Pandemic: Time and 'External Factors' in Design Ideation Processes
Noura Howell
Position paper at workshop Time and Its Study in Design Ideation Processes, NordiCHI

Exploring Architectural Inflatables and Emotion AI to Activate Affective Public Space
Noura Howell
Position paper at workshop Workshop on Tangible Interaction for Wellbeing, CHI

2020 Opacity as Stubborn, Resistant Uncertainty
Noura Howell
Position paper at workshop Embracing Uncertainty in HCI, CHI

2019 Heart Sounds as a Means of Giving Form to Critical Alternatives with Biosensory Data
Noura Howell
Position paper at workshop Doing Things with Research through Design, CHI

2018 Reconfiguring Desire & Data
Noura Howell, Greg Niemeyer
Position paper at workshop Grand Visions" for Post-Capitalist Human-Computer Interaction, CHI

2017 Personal Reflection as Creative Practice in Collaboration with Biosensing Machines
Noura Howell
Position paper at workshop Mixed-Initiative Creative Interfaces, CHI

2016 Textiles as On-Body Interactive Surfaces
Noura Howell
Position paper at workshop Digital Craftsmanship: HCI Takes on Technology as an Expressive Medium, DIS

2015 Connecting Two Oakland Neighborhoods: Surveillance and Self-Representation
Noura Howell
Position paper at workshop Inviting Participation through IoT: Experiments and Performances in Public Spaces, Critical Alternatives

▷ ART EXHIBITIONS & PERFORMANCES

Heart Sounds Bench, 2022. *Georgia Tech Library Art Gallery*, Atlanta, U.S.

Embodied Transductions, 2022. New Interfaces for Musical Expression music and performances track.

Infrastructural Membranes, 2022. Ferst Arts Center, Atlanta, U.S.

Feeling Air: A Psycho-Speculative Inflatable Happening, 2021. *Black Mountain College Museum + Arts Center Annual Conference*, Asheville, U.S., with Shawn Protz and students at Georgia Tech and N.C. State University.

Heart Sounds Buckets, 2019. *Worth Ryder Art Gallery*, Berkeley, U.S., with Stephanie Tang, Kimiko Ryokai.

Salaam Participatory Peace Sculpture, 2018. Figment Arts Festival, Oakland, U.S., with Stan Clark, Sahil Mohan.

Ebb Color-Changing Fabric, 2018. *Tech Museum of the Center for Information Technology Research in the Interest of Society*, Berkeley, U.S., with Laura Devendorf et al.

Salaam Participatory Peace Sculpture, 2017. *Islamophobia Conference*, Berkeley, U.S., with Stan Clark, Sahil Mohan.

▷ GRANTS & AWARDS

2023	PI	$6K	Novel Thermal Interfaces Georgia Institute of Technology COVID Faculty Relief Fund
	PI	$4.7K	Towards Ethical, Inclusive Emotion AI Futures Georgia Institute of Technology Small Grant for Research
2022	PI	$8.8K	PREMIER: Performance Residencies in Electronic Music for Interdisciplinary Education Research Georgia Institute of Technology GVU/IPaT Community Engagement Grant with Co-PI Alex Cohen
	Co-PI	$50K	Computational Craft Community Team Building Georgia Institute of Technology Provost Funding with PI Anne Sullivan, Co-PIs Vernelle Noel, Michael Nitsche, Sabetta Matsumoto
	PI	$5K	Exploring the Promise and Peril of Emotion AI Georgia Institute of Technology Small Grant for Research
	PI	$6.5K	Emotion AI - Novel Facial Recognition Tech that Predicts Emotions - Investigating Sociotechnical Implications of Emotion AI Georgia Institute of Technology COVID Faculty Relief Fund
2021	PI	$10K	Engaging Diverse Students and Public Audiences with TensorFlow Emotion ML and Inflatable Architectural Immersive Environments with Co-PI Shawn Protz
2020	Co-PI*	$4K	An Alternate Lexicon for AI with collaborators Noopur Raval and Co-PI Morgan Ames Berkeley Center for Technology, Society, & Policy and Algorithmic Fairness & Opacity Group
2019	PI*	$25K	Speculating 'Smart City' Cybersecurity with the Heart Sounds Bench: Détourning Data and Surveillance in Public Space

			with mentor Kimiko Ryokai Berkeley Center for Long Term Cybersecurity
	Co-PI*	$5K	Engaging Expert Stakeholders about the Future of Menstrual Biosensing Technology with collaborators Sarah Fox, Richmond Wong, and Franchesca Spektor Berkeley Center for Technology, Society, & Policy and Center for Long Term Cybersecurity
	PI*	$1.5K	The Heart Sounds Bench with mentee Stephanie Tang Berkeley New Media Undergraduate Research Mentorship Award
2018	PI*	$4K	Re-Centering the Body in Technological Utopias with mentee Franchesca Spektor and mentor John Chuang Berkeley Tech for Social Good
	PI*	$2K	BaBench: Exploring Speculative Futures for Biosensing in Public Space Berkeley Jacobs Innovation Center
	PI*	-	Berkeley Arts Research Center Fellowship with mentor Greg Niemeyer
	Co-PI*	$5K	Menstrual Biosensing Survival Guide with collaborators Richmond Wong and Sarah Fox Berkeley Center for Technology, Society, & Policy and Center for Long Term Cybersecurity
	PI*	$1.5K	The Heart Sounds Bench with mentee Victor Iancu Berkeley New Media Undergraduate Research Mentorship Award
	PI*	-	Feeler Crawler Octopoets with mentee Wenny Miao and mentor Greg Niemeyer Berkeley New Media Summer Research Award
	PI*	$4K	Berkeley Graduate Division Summer Grant
2017		-	Berkeley Outstanding Student Instructor Award
2014		$21K	Berkeley Cota Robles Fellowship

*As a PhD student at the time, I could not officially PI grants, but I planned the research, wrote the grant proposals, decided how to allocate funds, did the research, and wrote the research publications. These grants came out of my research agenda, while faculty mentors signed off and gave high level advice.

▷ TEACHING

Computer as Expressive Medium
Lead instructor, Georgia Tech, 2022. Creative coding in p5.js for interactive media art, plus critical analysis of digital art.

Principles of Interaction Design
Lead instructor, Georgia Tech, 2022-3. Designing and evaluating screen-based interfaces. Contextual inquiry, task analysis, accessibility audit, heuristic evaluations.

Critical Making with Emotion AI
Lead instructor, Georgia Tech, 2021. Designing and building interactive art installations that use emotion AI to analyze

facial imagery to classify emotion, to prompt critical reflect on social impacts of emotion AI.

Creative Programming & Electronics
Teaching assistant, UC Berkeley, 2018. Hands-on Arduino, p5.js, circuits, and soldering.

Biosensing Technologies in Everyday Life
Lead instructor, NC State University, 2021. Readings, discussion, and student-driven projects on sociotechnical implications of biosensing technologies such as algorithmic oppression, surveillance, and emotional biosensing.

Critical Making & Design Futuring
Lead instructor, NC State University, 2020, 2021. Readings, discussion, and student-driven critical making and critical design futuring projects on topics such as algorithmic oppression, facial recognition, biometric surveillance, content moderation, etc.

Theory & Practice of Tangible User Interfaces
Teaching assistant, UC Berkeley, 2016, 2017, 2018**.** Curriculum development, leading labs on embodied interaction, design theory, Arduino, circuits, soldering. Design critique and project mentorship.

Creative Code Immersive
Teaching assistant, Gray Area Foundation for the Arts, 2014. Night class for artists. Arduino, Processing, circuits, and JavaScript.

Deconstructing Data Science
Teaching assistant, UC Berkeley, 2016. Machine learning methods with critical social analysis of assumptions and bias embedded in algorithms and how these can reinforce inequality. Python tutoring, project advising.

▷ WORK EXPERIENCE & INDUSTRY COLLABORATIONS

North Carolina State University
Assistant professor, Communication Dept., 2020 - 2021

Google ATAP Project Jacquard
Research collaborator, e-textile data display, 2016

Intel Labs
Software developer for Galileo IoT programming kit UI design and code, multi client sync protocol, 2014

Augmented Human Lab
Visiting researcher with Suranga Nanayakkara at Singapore University of Technology & Design, 2017

The Echo Nest & SiriusXM
Software developer. Data viz, full stack web, dashboard, parallelization for SiriusXM, 2012 - 2013

Army Corps of Engineers
Parallelized 10K+ line FORTRAN model with OpenMP, 2007

▷ ACADEMIC SERVICE

Track Chair

2024	TEI Social Media
2023	DIS Workshops
2023	Academic MindTrek Papers

Associate Chair

2022-23	Human Factors in Computing Systems (CHI)
2023	Tangible, Embedded, and Embodied Interaction (TEI)
2019-20	Designing Interactive Systems (DIS)

Reviewer

2017-23	Designing Interactive Systems (DIS)
2016-22	Human Factors in Computing Systems (CHI)
2021-22	Transactions on Human-Computer Interaction (ToCHI)
2018-22	Tangible Embedded Embodied Interactions (TEI)
2018-22	NordiCHI
2022	India HCI
2019-21	Computer-Supported Cooperative Work and Social Computing (CSCW)

2021 National Science Foundation of the US (NSF)
2021 Journal of Textile Design Research and Practice
2020 ACM Group
2017 Design Issues

University Committees

2022-23 Executive Committee, Georgia Tech School of Literature, Media, & Communication
2020-21 Grants Committee, NC State Dept. of Communication
2020-21 Peer Teaching Evaluations Standards & Scheduling
2019 Office Redesign Committee, UC Berkeley School of Information
2015-16 PhD Student Representative to the Faculty, UC Berkeley School of Information

▷ INVITED TALKS, PANELS, & WORKSHOPS

Emotion AI and Fabulation: Seeking Biopolitical Futures of Respectful Care. Keynote speaker at workshop by Nordic Fabulation Network. Umeå, Sweden, 2023.

Fabulating Futures for Flourishing and Vibrant Worlds. Workshop hosted at Nordic Design Research Society (Nordes) Conference. Linköping University, Sweden, 2023. With Tom Jenkins, Marie-Louise Juul Søndergaard, Pedro Sanches, Vasiliki Tsaknaki, Nadia Campo Woytuk, Karey Helms, Laurens Boer, and Jason Tucker.

Invited speaker on Retrospective Trioethnography at workshop Querying Experience for NIME at the conference Novel Interfaces for Musical Expression (NIME). Online and in Mexico City, 2023.

Panelist for Full Radius Dance film screening of *Extension of Self: a dance between human and digital*. Georgia Tech University, 2023.

Respondent for Jennifer Robertson's talk Emotional Robots and Digital Hormones: Japanese Perspectives on Human-Robot Coexistence, part of the talk series Emerging Technologies and the Future of the Humanities. Emory University, US, 2023.

Toward an Affirmative Biopolitics: Reimagining Biodata with Feeling and Fabulation. Invited talk with Women in Music Technology. Georgia Tech, US, 2023.

Panel facilitator for Artists-in-Residence Panel for artists of PREMIER, Media Arts, and Library Artists-in-Residence programs. Georgia Tech, US, 2023.

Exploring Emotion AI Ethics by Designing Tangible, Embodied, Social, Emotional Experiences with Biodata. Ethics & Coffee talk series. Georgia Tech, US, 2023.

Speaker at Meet the Artists: Reception for Georgia Tech Artists-in-Residence of PREMIER, Media Arts, and Library Artists-in-Residence programs. Georgia Tech, US, 2023.

Panel facilitator for IPaT Tuesday Think Tank on Artist Residencies. Georgia Tech, US, 2022.

Design Futuring. Leading a two-day invited workshop at University of Oulu, Finland. 2022.

Towards an Affirmative Biopolitics: Reimagining biodata with Feeling and Fabulation. Invited lecture at Aalto University, as part of the Critical AI & Crisis Interrogatives Seminar. Aalto University, Finland, 2022.

Women in AI Finland invited talk with middle schoolers on AI and AI careers. International School in Oulu, Finland.

Radio interview with NPR City Lights with Lois Retzes, with Birney Robert, about the Heart Sounds Bench (my work) being in the exhibit Extension of Self (curated by Birney Robert), 2022.

Community Conversation: Impact, Arts, and Technology. Invited panelist alongside Gabriel Kahane and Felipe Barral. Hosted by the Atlanta Opera and Georgia Tech Arts. Atlanta, U.S., 2022

Designing for Emotional Meaning-Making with Data. Invited lecture at The Scholars' Lab, University of Virginia, U.S., 2022

Exploring the Promise and Peril of Emotion AI, Designing for Emotional Meaning-Making with Data, and Imagining an Affirmative Biopolitics with Data. Invited lecture at the GVU Seminar Series, Georgia Tech, U.S., 2021

Designing for Emotional Meaning-Making with Data: Imagining an Affirmative Biopolitics. Invited lecture at the Coffee & Viz Research Exchange, North Carolina State University, U.S., 2021

Beyond Big Tech: Careers in Social Impact, Tech for Good, and Research. Invited panelist, UC Berkeley, 2021

Diversity Admissions Panel, UC Berkeley, 2020

Reimagining Cybersecurity through the Design of the Heart Sounds Bench, talk at Center for Long-Term Cybersecurity Research Exchange, Berkeley, U.S., 2019

Emotional Biosensing, talk at InfoCamp Conference, Berkeley, U.S., 2019

Emotional Biosensing, talk at Bay Area Signal Hackers, Pandora, Oakland, U.S., 2019

A Case Study of Emotional Biosensing: Tensions of Data-Driven Reflection, for the Society for the Social Studies of Science (4S), Boston, U.S., 2017

Design Thinking: From Idea to Innovation, workshop facilitator for tech industry executives with the Augmented Human Lab, Colombo, Sri Lanka, 2017

Emotional Biosensing, guest lecture for the class Mind-Reading and Telepathy for Beginners and Intermediates at UC Berkeley, 2017

Machine Learning Introduction, guest lecture for the class City Planning 101 at UC Berkeley, 2017

Information vs. Interaction: A Case Study of Affective Computing, lecture for the class Deconstructing Data Science at UC Berkeley, 2016

Rethinking Data with Emotion and Materiality, guest lecture for the class Sensors, Humans, Data, Apps at UC Berkeley, 2016

Rethinking Data with Emotion and Materiality, lecture for the class Tangible User Interfaces at UC Berkeley, 2016