Noura Howell

Assistant Professor
Digital Media
Georgia Institute of Technology

nourahowell.com
nhowell8@gatech.edu

▷ EDUCATION

School of Information, University of California, Berkeley
Ph.D., 2020, in Information Management & Systems with a Designated Emphasis in New Media.
Physical computing, critical making, design research, qualitative research methods.

Olin College of Engineering
B.S., 2012, in Engineering with a Concentration in Computing. Human centered design, software engineering.

Mississippi State University
Gap year in pure math for fun, 2007 - 2008, graph theory, group theory, topology.

▷ REFEREED PUBLICATIONS

Button Portraits: Embodying Queer History with Interactive Wearable Artifacts. 2022. Allie Riggs, Noura Howell, Anne Sullivan. *International Conference on Interactive Digital Storytelling* (*ICIDS*).

Feeling Air: Exploring Aesthetic and Material Qualities of Architectural Inflatables. 2022. Noura Howell, Shawn Protz, Jasmyn Byrd, Miguel Castellanos, Alexis Elkins, Jessica Hall, Micah Holdsworth, Lalith Mallikeshwaran Rajagopal Sambasivan, Chris Noel, Oluwarotimi Osiberu, Rushabh Patel, Dylan Scallan, Abigail Uhrich, Aditya Anupam, Blaire Bosley, Rachel Donley, Sara Milkes Espinosa, Michelle Ramirez, Sanjeev Nayak, Anh-Ton Tran, Yiyun Jia, and Yunfei Wang. E*xtended Abstracts of NordiCHI* (*Adjunct Proceedings of the 2022 Nordic Human-Computer Interaction Conference*).

Fabulating Biodata Futures for Living and Knowing Together. Vasiliki Tsaknaki, Pedro Sanches, Tom Jenkins, Noura Howell, Laurens Boer, Afroditi Bitzouni. 2022. *Designing Interactive Systems* (*DIS*).
In this year, the acceptance rate for this type of submission at this venue was 30%.

Diffraction-in-Action: Designerly Explorations of Agential Realism Through Lived Data. Pedro Sanches, Noura Howell, Vasiliki Tsaknaki, Tom Jenkins, Karey Helms. 2022. 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.

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. 2022. *Extended Abstracts of Human Factors in Computing Systems* (*alt.chi*).

Cracks in the Success Narrative: Rethinking Failure in Design Research through a Retrospective Trioethnography. Noura Howell, Audrey Desjardins, Sarah Fox. 2021. *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. 2021. Extended Abstracts of Human Factors in Computing Systems (alt.chi).

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. 2020. Extended Abstracts of Human Factors in Computing Systems (CHI).

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

Acceptance rate: 23%

Life-Affirming Biosensing in Public: Sounding Heartbeats on a Red Bench. Noura Howell, Greg Niemeyer, Kimiko Ryokai. 2019. *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%

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. 2018. *Human Factors in Computing Systems* (*CHI*).

Acceptance rate: 26%

Vivewell: Speculating Near-Future Menstrual Tracking through Current Data Practices. Sarah Fox, Noura Howell, Richmond Wong, Franchesca Spektor. 2019. *Designing Interactive Systems* (*DIS*).

Acceptance rate: 25%

Capturing, Representing, and Interacting with Laughter. Kimiko Ryokai, Elena Duran, Noura Howell, Jonathan Gillick, David Bamman. 2018. *Human Factors in Computing Systems* (*CHI*).

Acceptance rate: 26%

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. 2016. *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. 2016. *Human Factors in Computing Systems* (*CHI*). **Best Paper Award**.

The Best Paper Award is reserved for the top 1% of accepted papers.

Celebrating Laughter: Capturing and Sharing Tangible Representations of Laughter. Kimiko Ryokai, Elena Duran, Dina Bseiso, Noura Howell, Ji Won Jun. 2017. *Extended Abstracts of Designing Interactive Systems* (*DIS*).

Acceptance rate: 22%

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. 2018. Proceedings of the Symposium on Spatial User Interaction.

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

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. 2009. *Biomass and Bioenergy*.

▷ GRANTS & AWARDS

2022	PI	$8.8K	PREMIER: Performance Residencies in Electronic Music for Interdisciplinary Education Research with Co-PI Alex Cohen Georgia Institute of Technology GVU/IPaT Engagement Grant
2022	Co-PI	$50K	Computational Craft Community Team Building with PI Anne Sullivan, Co-PIs Vernelle Noel, Michael Nitsche, Sabetta Matsumoto

2022	PI	$5K	Exploring the Promise and Peril of Emotion AI Georgia Institute of Technology Small Grant for Research
2022	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
2019	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
2019	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
2018	PI*	$2K	BaBench: Exploring Speculative Futures for Biosensing in Public Space Berkeley Jacobs Innovation Center
2018	PI*	-	Berkeley Arts Research Center Fellowship with mentor Greg Niemeyer
2018	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
2018	PI*	$1.5K	The Heart Sounds Bench with mentee Victor Iancu Berkeley New Media Undergraduate Research Mentorship Award
2018	PI*	-	Feeler Crawler Octopoets with mentee Wenny Miao and mentor Greg Niemeyer Berkeley New Media Summer Research Award
2018	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 proposals and papers, did the research, and decided how to allocate funds. These grants came out of my research agenda, while faculty mentors signed off and gave high level advice.*

▷ WORKSHOP PAPERS & OTHER WRITINGS

Fast-Switching Spatial Thermal Display Using Water and Visible Lights. Sosuke Ichihashi, Masahiko Inami, Noura Howell. 2023. Position paper at workshop Smell, Taste, and Temperature Interfaces. *Human Factors in Computing Systems* (*CHI*).

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. 2022. Comment ID FTC-2022-0053-1100.

Reconfiguring Desire & Data. Noura Howell and Greg Niemeyer. 2018. Position paper at workshop "Grand Visions" for Post-Capitalist Human-Computer Interaction. *Human Factors in Computing Systems* (*CHI*).

Personal Reflection as Creative Practice in Collaboration with Biosensing Machines. Noura Howell. 2017. Position paper at workshop Mixed-Initiative Creative Interfaces. *Human Factors in Computing Systems* (*CHI*).

Textiles as On-Body Interactive Surfaces. Noura Howell. 2016. Position paper at workshop Digital Craftsmanship: HCI Takes on Technology as an Expressive Medium. *Designing Interactive Systems* (*DIS*).

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

▷ 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.

▷ 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. 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
- Social Media, TEI 2024
- Workshops, DIS 2023
- Papers, Academic MindTrek, 2023

Associate Chair
- Human Factors in Computing Systems (CHI), 2022 - 2023
- Designing Interactive Systems (DIS), 2019 - 2020
- Tangible, Embedded, and Embodied Interaction (TEI), 2023

Reviewer
- National Science Foundation of the U.S., 2021
- Human Factors in Computing Systems (CHI), 2016 - 2021
- Designing Interactive Systems (DIS), 2017 - 2018, 2021 - 2022
- Computer-Supported Cooperative Work and Social Computing (CSCW), 2019 - 2021
- Design Issues, 2017
- Tangible Embedded Embodied Interactions (TEI), 2018 - 2021
- NordiCHI, 2018, 2022
- ACM Group, 2020
- Transactions on Human-Computer Interaction (ToCHI), 2021
- Journal of Textile Design Research and Practice, 2021
- India HCI, 2022

Executive Committee, Georgia Tech School of Literature, Media, & Communication, 2022 - 2023

Grants Committee, NC State Dept. of Communication, academic year 2020-2021

Peer Teaching Evaluations Standards & Scheduling, NC State Dept. of Communication, academic year 2020-2021

Office Redesign Committee, UC Berkeley School of Information, spring 2019

PhD Student Representative to the Faculty, UC Berkeley School of Information, academic year 2015-16

▷ INVITED TALKS & PANELS

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.

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

▷ ACADEMIC WORKSHOPS HOSTED

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

Challenges and Opportunities for Designing with Biodata as Material. Vasiliki Tsaknaki, Tom Jenkins, Laurens Boer, Sarah Homewood, Noura Howell, Pedro Sanches. 2020. Hosted DIY workshop around NordiCHI.

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