Natalie Freed

natalieafreed@gmail.com

EDUCATION

Ph.D. STEM Education, University of Texas at Austin August 2025
Drawing Code and Remixing Clothes: Designing for Hybrid Ways of Knowing in a Family Workshop Blending Computational Design and Textile Repair
Advisor: Dr. Tia C. Madkins
Committee: Dr. Flávio Azevedo, Dr. Paula Hooper, Dr. Emma Gargroetzi, Dra. Maria González-Howard

M.S. Media Arts and Sciences, Massachusetts Institute of Technology Sept 2012
Advisor: Dr. Cynthia Breazeal

M.S. Computer Science with concentration in **Arts, Media, & Engineering, Arizona State University** May 2010
Advisor: Dr. Winslow Burleson

B.S. Computer Science, Arizona State University May 2009

UNIVERSITY LEVEL TEACHING

Teaching Assistant, University of Texas Austin Aug 2019 - May 2020
UTS 101: UTeach Step 1

California College of the Arts (CCA) Hybrid Lab Nov 2013 & Feb 2014
Guest lecturer for electronics and computer programming workshops

Teaching Assistant, University of California Berkeley July 2009 & July 2010
Center for New Music and Audio Technology Summer E-Textiles Course

RESEARCH

Postdoctoral Scholar, Texas State University School of Art and Design Jan 2026 - present
NSF DRL: Expressive STEM Centers in Central Texas: A Research Collective Learning to Empower Community Imagination and Creative Confidence

Researcher, Chibitronics Inc. (Industry) July 2021 - March 2022
NSF SBIR: Computer Aided Design Toolkit for Desktop Digital Fabrication of Circuits on Paper

Graduate Research Assistant, MIT Media Lab Personal Robots Group Sept 2010 – Sept 2012
Advisor Dr. Cynthia Breazeal
Projects: Robotic Playmates for Second Language Learning in Preschool;
I/O Stickers & Telescrapbook (project advised by Dr. Leah Buechley)

Research Intern, Nokia Research Center I.D.E.A. Team, Palo Alto, California June 2010 - Aug 2010
Contributed to development and user evaluation of a novel online reading tool for families
Prototyped and evaluated independent project about a long-distance communication toolkit

Research Assistant, Arizona State University Fulton Undergraduate Research Initiative Sept 2007 – May 2010
Advisor Dr. Winslow Burleson
Projects: Toys Keeping in Touch: Playful Tangible Interfaces for Remote Interactions,
Active Learning Environment with Robotic Tangibles

Research Assistant, Arizona State University High Performance Computing Initiative Sept 2007 – Aug 2008
Advisor Dr. Dan Stanzione
Project: Paradigms for Parallel Computation

PROFESSIONAL EXPERIENCE

Education Specialist, Chibitronics Inc. June 2017 – March 2022
Published Curriculum: **Freed, N.** & Qi, J. (2022) Paper Circuits STEAM Educator's Guide.

Freelance Teaching and Curriculum Development Sept 2012 - Jan 2026
Venues: Make at Rosie Makerspace, UTeach Maker Program, Griffin School Austin, dadageek Art and Tech school, Austin Book Arts Center, Double Union Hackerspace, San Francisco Center for the Book, Gray Area Foundation for the Arts, Exploratorium, The Center for Poetic Computation, Maker Faire, Contemporary Jewish Museum, San Francisco Public Libraries, Processing Community Day, NEXMAP, San Francisco Children's Creativity Museum, Albuquerque Explora Science Center.

Research Intern, Texas Advanced Computing Center Jan 2018 - March 2019

Technical Arts Teacher, Lick-Wilmerding High School Aug 2013 – June 2017

Electronics Lab Instructor, Autodesk Pier 9 Artists in Residence Program Sept 2016 – July 2017

New Media Fellow & Exhibit Developer, Exploratorium Museum Sept 2012 – June 2013

SERVICE

Program Committee

Pictorial Track Associate Chair, ACM Interaction Design and Children (IDC) Conference	March 2023
Demo Track Co-Chair, FabLearn Conference 2020	Jan 2020

Reviewer

ACM Interaction Design and Children (IDC) Conference	2021, 2014, & 2012
ACM Creativity and Cognition Conference 2021	2021
ACM Designing Interactive Systems (DIS) 2012	2012
ACM Tangible, Embedded and Embodied Interaction (TEI) Conference 2012	2012

UT Austin UTeach Maker Mentor Oct 2018 - May 2021

INVITED TALKS AND GUEST LECTURES

→ Invited Talk at Asilomar Microcomputer Conference (2017): The Paths Inquiry

→ Invited Talk at the Center for Poetic Computation Computing and Stories Summit (2017): Computational Crafts

→ Harvard Project Zero Classroom Conference Presentation (2014): The Vital Role of Process in Maker Activities

→ Exploratorium Teacher Institute: The Spiro Inquiry (2014), The Paths Inquiry (2015)

PEER-REVIEWED PUBLICATIONS

Journals

Madkins, T. C., Howard, N. R., & **Freed, N.** (2020). Engaging Equity Pedagogies in Computer Science Learning Environments. Journal of Computer Science Integration, 3(2), 1-27.

Pennington, D., Ebert-Uphoff, I., **Freed, N.**, Martin, J., & Pierce, S. A. (2020). Bridging sustainability science, earth science, and data science through interdisciplinary education. Sustainability Science, 15(2), 647-661.

Burleson, W. S., Harlow, D. B., Nilsen, K. J., Perlin, K., **Freed, N.**, Jensen, C. N., Lahey, B., Lu, P., & Muldner, K. (2017). Active learning environments with robotic tangibles: Children's physical and virtual spatial programming experiences. IEEE Transactions on Learning Technologies, 11(1), 96-106.

Conference Publications

Novelli, M., **Freed, N.**, Sherard, M., Azevedo, F., (2024). Pre-Service Teacher Identity Crucibles and "Good" Teaching. *Proceedings of the 2024 International Conference of the Learning Sciences.*

Qi, J., **Freed, N.**, Tseng, T., Shaw, F. Liedahl, B., Glowacki, B. R., Kawahara, Y. (2021). Exquisite Circuits: Collaborative Electronics Design through Drawing Games. *Proceedings of the 2021 ACM Conference on Creativity and Cognition*.

Best Full Paper Award - Tseng, T., Murai, Y., Gelosi, D., **Freed, N.**, Ta, T.D., Kawahara, Y. (2021). PlushPal: Storytelling with Interactive Plush Toys and Machine Learning. *Proceedings of the 2021 ACM Conference on Interaction Design and Children*.

Hooper, P., & **Freed, N.** (2013). "The Spiro inquiry": Exploring the application of an inquiry structure for learning science content to teaching with a digital design fabrication tool. *Proceedings of the 2013 ACM Conference on Interaction Design and Children.*

Pinto, A. L., Zagalo, N., Sylla, C., **Freed, N.**, Figueiredo, A. C., Qi, J. & Coquet, E. (2013). Bridging books: the printed book as a support for digital experiences. *Proceedings of the 2013 ACM Conference on Interaction Design and Children*.

Freed, N., Qi, J., Sylla, C., Branco, P. Beyond the Binding: Exploring the Future Book. (2011) *Proceedings of the 2011 ACM Conference on Creativity and Cognition*.

Freed, N., Qi, J., Setapen, A., Buechley, L., Breazeal, C., Raffle, H. (2011). Sticking Together: Handcrafting Personalized Communication Interfaces. *Proceedings of the 2011 Conference on Interaction Design and Children*.

Raffle, H., Revelle, G., Mori, K., Ballagas, R., Buza, K., Horii, H., Kaye, J., Cook, K., **Freed, N.**, Go, J., Spasojevic, M. (2011) Hello, Is Grandma There? StoryVisit: Family Video Chat and Connected E-Books. Proceedings of the 2011 *ACM CHI Conference on Human Factors in Computing Systems*

Freed, N., Burleson, W., Raffle, H., Ballagas, T. & Newman, N. (2010) User interfaces for tangible characters: Children connecting remotely through toy perspectives. *Proceedings of the 2010 Conference on Interaction Design and Children*.

Freed, N. Toys Keeping In Touch: Technologies for Distance Play. (2010) *Proceedings of the 2010 International Conference on Tangible, Embedded and Embodied Computing.*

Lahey, B., **Freed, N.**, Lu, P., Jensen, C. N., Muldner, K., & Burleson, W. (2009, June). Human-robot interactions to promote play and learning. *Proceedings of the 2009 ACM Conference on Interaction Design and Children*.

Freed, N. Giles, Z., Jimenez, B. G., Lu, P., Wellington, R.A., (2009). Windows HPC Server 2008 at the SC08 Cluster Challenge. *Proceedings of the 2009 Linux Clusters Institute Conference.*

Lahey, B., Burleson, W., Jensen, C. N., **Freed, N.**, and Lu, P. (2008). Integrating video games and robotic play in physical environments. *Proceedings of the 2008 ACM SIGGRAPH Symposium on Video Games*.

Speyer, G., **Freed, N.**, Akis, R., Stanzione, D., and Mack, E. (2008). Paradigms for Parallel Computation. *Proceedings of the 2008 IEEE DoD HPCMP Users Group Conference*. Computer Society.

FELLOWSHIPS, HONORS, AND AWARDS

→ Best Full Paper Award - ACM International Conference on Interaction Design and Children (IDC) 2021

→ University of Texas at Austin Graduate School Dissertation Writing Fellowship Fall 2024

→ University of Texas at Austin Graduate School Continuing Fellowship 2023 - 2024

→ UT Austin College of Education Graduate School Recruitment Fellowship 2019 - 2020

→ Arizona State University Class of 2010 Outstanding Masters Student in Computer Science

→ 2009 Google Anita Borg Scholar