
RESEARCH STATEMENT

My research focuses on sustainable HCI and human-nature interaction to address challenges associated with climate change. Specifically, I investigate collaborative making, experimental farming, and environmental sensing—all standing in the intersection of human activity, computing, and the biosphere. Building on my background in design, my research combines qualitative social science methods such as ethnography, interviewing, and observation, as well as arts-and-design approaches, such as research through design and speculative design. As a technology and design researcher, my goal is to develop new theories, methodologies, and applications for sustaining both human and non-human life.

EDUCATION

- 2016 – 2020 (expected)* **Ph.D., Human-Computer Interaction** (Informatics), Indiana University, Bloomington IN, USA
Advisors: Dr. Jeffrey Bardzell and Dr. Shaowen Bardzell
- 2016 – 2018* **M.S., Human-Computer Interaction** (Informatics), Indiana University, Bloomington IN, USA
- 2010 – 2013* **M.Des., Product Design**, Taiwan Tech, Taipei, Taiwan
Advisor: Dr. Jeng-Nang Fan
- 2011 – 2012* Full-Time Endowed Student, Product Design, Art Center College of Design, Pasadena CA, USA
- 2006 – 2010* **B.Des., Product Design** (honors), Taiwan Tech, Taipei, Taiwan
- 2008* Exchange Student, Product Design (honors), College for Creative Studies, Detroit MI, USA

RESEARCH EXPERIENCE

- Jan 2020 – May 2020* **Research Intern, Snap Research**, Seattle, WA, USA
Surveying, designing, and prototyping technologies to enrich and augment in-person interactions; identifying product development opportunities and design strategies for Snap; outlining design guidelines for collocated interactions.
- May 2019 – Aug 2019* **Research Intern, Microsoft Research**, Redmond, WA, USA
Designed and conducted qualitative field research to study the experiences, perceptions, and implicit knowledge people have with the air and air pollution. Proposed actionable design strategies of augmenting environmental measurements to encourage behavior change.
- Aug 2016 – Dec 2018* **Graduate Research Assistant, SICE**, Indiana University, Bloomington IN, USA
Designed and led ethnographic fieldwork (observations, interview, design probes, and digital ethnography) on experimental farming and bottom-up innovation in rural Taiwan and American Midwest. Proposed strategies to design for multispecies collaboration and cohabitation.
- Mar 2015 – May 2016* **User Experience Researcher / Designer, ASUS**, Taipei, Taiwan
Led user studies and cross-functional co-design workshops to identify the user, technology, and business trends that directly influenced ASUS's 3-10 years roadmap. Collaborated closely with project managers, marketers, designers, and engineers to deliver better user experiences.

- Mar 2014 – Mar 2015* **Product Designer, ASUS**, Taipei, Taiwan
Led the design of the award-winning Google On-Hub router and VivoMini PC; involved in the entire product development process from ideation to mass production. Brainstormed use case scenarios and prototyped design proposals on various pioneering products/services.
- Sep 2010 – Dec 2013* **Graduate Research Assistant, College of Design**, Taiwan Tech, Taipei, Taiwan
Assisted in brainstorming and creating 3D prototypes to study load bearing structure using sheet material. Designed and conducted anthropological fieldwork to identify strategies of improving user experiences in product design.
- May 2010 – Dec 2010* **Research Assistant, College of Design**, YunTech, Yunlin, Taiwan
Conducted and analyzed semi-structured interviews with design practitioners to investigate the mechanisms of creativity. Project funded by National Science Council, Taiwan.

PUBLICATIONS

Referred Conference Publications

- 2019* **Szu-Yu (Cyn) Liu**, Shaowen Bardzell, and Jeffrey Bardzell. Symbiotic Encounters: HCI and Sustainable Agriculture. *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems: CHI '19*. ACM: New York. (Acceptance rate: 23.8%). (**Honorable Mention, top 5%**).
- 2019* Guo Freeman, Jeffrey Bardzell, Shaowen Bardzell, **Szu-Yu (Cyn) Liu**, Xi Lu, and Diandian Cao. Smart and Fermented Cities: An Approach to Placemaking in Urban Informatics. *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems: CHI '19*. ACM: New York. (Acceptance rate: 23.8%). (**Honorable Mention, top 5%**).
- 2019* **Szu-Yu (Cyn) Liu**, Jeffrey Bardzell, and Shaowen Bardzell. Decomposition as Design: Co-Creating (with) Natureculture. *Proceedings of the Thirteenth International Conference on Tangible, Embedded, and Embodied Interaction: TEI '19*. ACM: New York. (Acceptance rate: 33%). (**Honorable Mention, top 5%**).
- 2018* **Szu-Yu (Cyn) Liu**, Shaowen Bardzell, and Jeffrey Bardzell. Out of Control: Reframing Sustainable HCI Using Permaculture. *Proceedings of the 2018 Workshop on Computing within Limits: LIMITS '18*. ACM: New York.
- 2018* **Szu-Yu (Cyn) Liu**, Jeffrey Bardzell, and Shaowen Bardzell. Photography as A Design Research Tool into Natureculture. *Proceedings of the 2018 Designing Interactive Systems Conference: DIS '18*. ACM: New York. (Acceptance rate: 25%; Pictorial).

Referred Conference Abstracts and Extended Abstracts

- 2019* **Szu-Yu (Cyn) Liu**. 2019. Designing for Multispecies Collaboration and Cohabitation. *Proceedings of the 2019 ACM Conference on Computer-Supported Cooperative Work and Social Computing: CSCW '19*. ACM: New York. (Doctoral Consortium).
- 2019* **Szu-Yu (Cyn) Liu**, Jen Liu, Kristin Dew, Patrycja Zdziarska, Maya Livio, and Shaowen Bardzell. 2019. Exploring Noticing as Method in Design Research. *Proceedings of the 2019 Designing Interactive Systems Conference: DIS '19*. ACM: New York. (Workshop Proposal).
- 2019* **Szu-Yu (Cyn) Liu**. 2019. Designing with, through, and for Human-Nature Interaction. *Proceedings of the 2019 Designing Interactive Systems Conference: DIS '19*. ACM: New York. (Doctoral Consortium).
- 2017* **Szu-Yu (Cyn) Liu**. 2017. To Decompose Is to Create: Supporting Creativity by Incorporating Nature in Design. *Proceedings of the 2017 ACM SIGCHI Conference on Creativity and Cognition: C&C '17*. ACM: New York. (Graduate Student Symposium Paper).
- 2016* **Szu-Yu (Cyn) Liu**, Tung-Jen Tsai, Daniel Alenquer. 2016. Exploring Computational Composite: An Approach to Sensorial Interaction. *Proceedings of the 19th ACM Conference on Computer Supported Cooperative Work and Social Computing Companion: CSCW '16*. (Extended Abstract and Poster).

- 2013 **Szu-Yu (Cyn) Liu**, Jeng-Neng Fang. 2013. Surrealism Expression in Product Design. The second Global Chinese Industrial Design Conference. (Graduate Student Symposium Paper).

Book Chapters (Editor-Reviewed)

- 2018 Jeffrey Bardzell, Shaowen Bardzell, and **Szu-Yu (Cyn) Liu**. (2018). "Beautifying IoT: The Internet of Things as a Cultural Agenda". *Social Internet of Things*. Alessandro Soro, Margot Brereton, and Paul Roe (ed.). Springer.

TEACHING EXPERIENCE

Research Group Mentorship

- 2018 - 2019 Ethnographic Fieldwork and Research Through Design on Experimental Farming
Cultural Research in Technology (CRIT) group; PI: Shaowen Bardzell and Jeffrey Bardzell

Individual Student Mentorship

- 2019 Dominic Matthys (Undergraduate Research Opportunities in Computing)
2019 Noor Hussein (Undergraduate Research Opportunities in Computing)
2018 Wei Zheng (Undergraduate Research Opportunities in Computing)

Assistant Instructor

- 2018 - 2019 SICE, Indiana University, Bloomington IN, USA
I694: Thesis in Human-Computer Interaction (Spring 2018, Spring 2019)
I544: Experience Design (Fall 2019)
2013 College of Design, Taiwan Tech, Taipei, Taiwan
DT5017701: Anthropological Approach in Design (Spring, 2013)
2011 Department of Product Design, Art Center College of Design, Pasadena CA, USA
PRD252: Visual Communication IV (Winter 2011)

AWARDS

Research Funding

- 2017 - 2019 Ministry of Education, Taiwan
Civic Making: Bottom-Up Innovation and IoT Proposition in Taiwan (\$32,000)

Best Paper and Honorable Mention Awards

- 2019 ACM CHI 2019 Honorable Mention Award (2 awards)
2019 ACM TEI 2019 Honorable Mention Award

Research and Travel Awards

- 2019 ACM Graduate Student Travel Award. NSF. \$1500
2019 GISA Spring 2019 Travel Award, Indiana University. \$950
2019 SICE HCI/d Travel Award. Indiana University. \$950
2019 Department Nominee of the Wells Graduate Fellowship, Indiana University. \$42,000
2019 GPSG Travel Award. Graduate Professional Student Government, Indiana University. \$500
2017 ACM Graduate Student Travel Award. NSF. \$2,000
2016 Government Fellowship for Overseas Study. Ministry of Education, Taiwan. \$51,000
2010 Graduate Student Fellowship. College of Design, Taiwan Tech, Scholar Grant. \$2,400
2010 Valedictorian, School of Design, Class of 2010, Taiwan Tech

Design Awards

- 2015 Winner, Good Design Award, "ASUS VivoMini (UN62)"
- 2013 Finalist, Taiwan International Design Competition, "Turn: pencil extender"
- 2012 Winner, iF Concept Award, "Go Dutch: bill redesign"
- 2010 Honorable Mention, Nagoya Design Do! Competition, "Save Energy, Save Me: wind slot sticker"
- 2010 Sponsor Award, Taipei Industrial Design Award, "Under The Tree: bus stop redesign"
- 2009 Honorable Mention, Universal Design Award, "Wave: universal cutting board"

EXHIBITIONS

- 2015 Good Design Exhibition, Tokyo, Japan
- 2013 The Art & Design Elite Scholarship Program Press Conference, Taipei, Taiwan
- 2012 Student Gallery, Art Center College of Design, Pasadena CA, USA
- 2012 Dwell Design Exhibition, Los Angeles CA, USA
- 2011 Taiwan Designers' Week, Taipei, Taiwan
- 2010 Taiwan Designers' Week, Taipei, Taiwan
- 2010 Young Designers' Exhibition (YODEX), Taipei, Taiwan

INVITED TALKS

- 2019 Qualitative Methods for Social Science Studies. S110 Understanding Social Data. Indiana University Department of Sociology. Guest Lecture
- 2019 Mapping Air: Hyper-Local Perceptions of Pollution. Microsoft Research Redmond Lab HCI Intern Talk
- 2013 The Art & Design Elite Scholarship Program Press, Taipei, Taiwan
- 2011 School of Design Admission Seminar, Taiwan Tech, Taipei, Taiwan

PROFESSIONAL ACTIVITIES AND SERVICES

Conference Program Committee

- 2020 ACM CHI Late Breaking Works (LBWs) Associate Chair: Honolulu HI, USA
- 2019 ACM DIS Pictorial Associate Chair: San Diego, CA, USA

Conference Organizing Committee

- 2019 ACM DIS Student Volunteer Co-Chair: San Diego, CA, USA
- 2019 ACM TEI Social Media Chair: Tempe, Arizona, USA

Conference Student Volunteer

- 2020 ACM CHI (ACM Conference on Human Factors in Computing Systems, Honolulu HI, USA)
- 2019 ACM CHI (ACM Conference on Human Factors in Computing Systems, Glasgow, UK)
- 2019 ACM DIS (ACM Conference on Designing Interactive Systems, San Diego CA, USA)

Conference Peer Reviewer

- 2018 - 2019 CHI2020 (Paper, LBW), DIS2020 (Paper), CHI2019 (Paper, LBW), DIS2019 (Paper, Pictorial, Provocation and WIP), C&C2019 (Pictorial), CHI2018 (Paper)

Community Services

- 2018 - Present Ambassador, Informatics Graduate Studies Office, Indiana University, Bloomington IN, USA
- 2017 - Present Student Volunteer, Prospective Student Visit, SICE, Indiana University, Bloomington IN, USA
- 2016 Mentor, GU2IU Prospective Student Program, SICE, Indiana University, Bloomington IN, USA
- 2016 Coordinator, Industry-University Collaboration, ASUS Design Center, Taipei, Taiwan
- 2005 - 2016 Mentor, ASUS Foundation Community Service, ASUS, Taipei, Taiwan
- 2009 - 2010 Co-Director, Graduation Show, Taiwan Tech, Taipei, Taiwan