Yuecheng Peng

PhD Student, University of Washington | Human-Computer Interaction, Personal Fabrication, Human–AI Interaction

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Education

University of Washington Seattle, WA
Ph.D. in Human Centered Design & Engineering. Advisor: Nadya Peek *Sept 2025 – 2030 (expected)*

University of Washington Seattle, WA
Master of Science in Technology Innovation. GPA [3.98/4.0] *Sept 2023 - Mar 2025*

Zhejiang University Hangzhou, China
Bachelor of Engineering, Industrial Design. GPA [3.98/4.0] Rank [1/45] *Sept 2019 - Jun 2023*

Research Experience

AI-assisted Platform for Connecting HCI Research with Makers **Tsinghua University**
Lead Researcher, team of 4 | Advisor: Haipeng Mi, Liang He *Mar - Sept 2025*

- Built a full-stack web app using Python (Django) and React.js to support exploration of HCI fabrication research.
- Implemented AI features, including RAG-based semantic search and LLM-powered personalized paper summarization.
- Conducted 21 semi-structured interviews and thematic analysis to reveal barriers and design opportunities for bridging research–practice gaps.

Biodegradable Hydrogel Sensor & Actuator Fabrication **University of California, Berkeley**
Lead Researcher, team of 6 | Advisor: Lining Yao *Apr - Sept 2024*

- Engineered a low-cost ($0.0256/m) tubular hydrogel fabrication pipeline for biodegradable sensors and actuators.
- Fabricated tubular hydrogel sensors and actuators demonstrating high sensitivity and durable multi-mode actuation.
- Prototyped applications, including interactive wearables, edible shape-changing interfaces, and soft robotic grippers.

Fabrication for Accessibility **University of Washington**
Research Assistant | Advisor: Jennifer Mankoff *Feb 2024 - Mar 2025*

- Applied 3D printing and hardware prototyping to develop assistive devices, such as modular canes and eyedrop aids.
- Created an OpenCV pipeline that detects and confirms successful eyedrop administration.
- Developed a Three.js 3D printing toolpath planner for pressure sensors and ergonomic improvement of daily objects.

Knitted Sensor Fabrication **University of Washington**
Research Assistant | Advisor: Nadya Peek *Oct 2023 - Apr 2024*

- Used machine knitting to fabricate multi-modal textile swatches sensing touch, humidity, pressure, and stretch.
- Fabricated gesture- and pressure-sensing wearables to explore embodied interaction in textile-based interfaces.

Functional Textiles Fabrication **Zhejiang University**
Lead Researcher, team of 8 | Advisor: Guanyun Wang *Sept 2022 - Jan 2024*

- Developed a low-cost ($4.7/$m^2$) fabrication pipeline for washable (600+ min laundry endurance) functional textiles.
- Developed wearable prototypes such as multi-sensor garments for monitoring pressure, humidity, and temperature.
- Built a full-stack caregiver application using Node.js and D3.js to stream and visualize real-time sensor data.
- Developed Unity games integrating sensor data to explore playful embodied interactions.

Knowledge Graph Tool for Sustainability Education **Zhejiang University**
Research Assistant | Advisor: Lingyun Sun, Xuanhui Liu *Oct 2021 - Apr 2022*

- Developed a full-stack Flask–Neo4j–D3.js platform visualizing sustainability knowledge graphs for interactive learning.
- Conducted user studies demonstrating improved transfer of sustainability concepts to real-world problem solving.

Publications

[1] **Fab2Make: Exploring Challenges and Opportunities in Connecting HCI Personal Fabrication Research with Makers**
Yuecheng Peng, Yutong Liu, Liang He, Haipeng Mi
Under review for CHI '26

[2] **SensiPrint: 3D-Printed Soft Foams for Physical Augmentation and Sensing**
Jerry Cao, **Yuecheng Peng**, Hongrui Wu, Yuxuan Miao, Sanjana Satagopan, Runxin Shi, Brier Hehmeyer, Brett Emery, Jeffrey Ian Lipton, Jennifer Mankoff, Shwetak Patel
Under review for CHI '26

[3] **Material-Driven Design and Fabrication of Devices for Direct Ecological Interventions: Practices, Challenges, and Opportunities**
Yaning Li, Yuexi Chen, Bob Tianqi Wei, Ziqian Yu, Chengjun Li, Yue Yang, Tingyu Cheng, Eldy S. Lazaro Vasquez, Di Wu, Zeyu Yan, Tianyu Yu, **Yuecheng Peng**, Dinesh K Patel, Huaishu Peng, Nivedita Arora, Aditi Maheshwari, Josiah Hester, Jean-Baptiste Labrune, Vikram Iyer, Guanyun Wang, Meng Li, Andreea Danielescu, Hiroshi Ishii, Fiona Bell, Pedro Lopes, Lining Yao, Qiuyu Lu
Under review for CHI '26

[4] **BioTube: Designing and Fabricating Biodegradable Hollow Tubular Devices Through Progressive Crosslinking Alginate**
Yuecheng Peng*, Mako Miyatake*, Tyler L Peng, Qiuyu Lu, Yue Yang, Lining Yao (* equal contribution)
CHI '25

[5] **"A Tool for Freedom": Co-Designing Mobility Aid Improvements Using Personal Fabrication and Physical Interface Modules**
Jerry Cao, Krish Jain, Julie Zhang, **Yuecheng Peng**, Shwetak Patel, Jennifer Mankoff
*CHI '25, **Best Paper Honorable Mention** (Top 5%)*

[6] **What's in a cable? Abstracting Knitting Design Elements with Blended Raster/Vector Primitives**
Hannah Twigg-Smith, **Yuecheng Peng**, Emily Whiting, Nadya Peek
UIST '24

[7] **IntelliTex: Fabricating Low-cost and Washable Functional Textiles using A Double-coating Process**
Yuecheng Peng, Danchang Yan, Haotian Chen, Yue Yang, Ye Tao, Weitao Song, Lingyun Sun, Guanyun Wang
*CHI '24, **Best Paper Honorable Mention** (Top 5%)*

Awards

Best Paper Honorable Mention, CHI (Top 5%)	*2024, 2025*
Honorable Mention Award, Design Intelligence Award	*2024*
Outstanding Undergraduate Thesis Project, Zhejiang University	*2023*
Excellent Academic Model, Zhejiang University	*2020, 2021, 2022, 2023*

Community Services

Conference Reviewer, CHI	*2024, 2025, 2026*
Volunteer organizer, Ecological HCI: Reflection and Future, Special Interest Group, CHI	*2024*
Volunteer, The 5th China College Students' "Internet Plus" Innovation and Entrepreneurship Competition	*2019*