Yuecheng Peng

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Education

University of Washington
Master of Science in Technology Innovation *23.9 - 25.3*

Zhejiang University
Bachelor of Engineering, Industrial Design. GPA [3.98/4.0(91.93/100)] Rank [1/45] *19.9 - 23.6*

- **Relevant Coursework:** Information Product Design, Information & Interaction Design Technology, Ergonomics
- **Awards:** Four times Excellent Academic Model, two times Second Class Scholarship, one time Third Class Scholarship

Publications

- Hannah Twigg-Smith, **Yuecheng Peng**, Emily Whiting, and Nadya Peek. 2024. What's in a cable? Abstracting Knitting Design Elements with Blended Raster/Vector Primitives. In The 37th Annual ACM Symposium on User Interface Software and Technology (UIST '24). ACM. https://doi.org/10.1145/3654777. 3676351
- **Yuecheng Peng**, Danchang Yan, Haotian Chen, Yue Yang, Ye Tao, Weitao Song, Lingyun Sun, and Guanyun Wang. 2024. IntelliTex: Fabricating Low-cost and Washable Functional Textiles using A Double-coating Process. In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24). ACM. https://doi.org/10.1145/3613904.3642759

Research Experience

Biodegradable Hydrogel Device Fabrication **University of California, Berkeley, Research Lead**
Advisor: Lining Yao, Morphing Matter Lab *24.05 - 24.09*

- Developed an accessible and DIY-friendly fabrication method utilizing a biodegradable hydrogel, expanding the form factors of such material.
- Conducted material characterization, sensing performance, and mechanical evaluation experiments, including data analysis and summarization of key findings.
- Explored sustainable and transient functional primitives, including high-sensitivity resistive stretch and capacitive pressure sensors, as well as optical pressure sensors, capacitive touch sensors, morphing interfaces, and actuators.
- Designed and fabricated six applications to showcase the potential of this approach.
- Led a multidisciplinary research team and served as the first author on a paper under review for CHI25.

3D Print Foams | GitHub **University of Washington, Researcher**
Advisor: Jennifer Mankoff, Jerry Cao, Make4All Group *24.04 - ongoing*

- Utilized viscous instability printing to augment off-the-shelf objects for improved ergonomics, embedding electronics and printing with conductive TPU to create integrated sensors for touch and resistive pressure sensing.
- Developed a web-based slicer software to generate optimized toolpaths for foam printing over existing objects.

Mobility Device Modification | GitHub **University of Washington, Researcher**
Advisor: Jennifer Mankoff, Jerry Cao, Make4All Group *24.02 - 24.04*

- Prototyped hot-swappable electronic add-on modules for mobility devices. Users praised the multifunctionality and modularity, allowing them to reconfigure and customize the setup based on different use cases.
- Fabricated modular cane prototypes with interchangeable handles and tips using resin casting and FDM/resin 3D printing. Users praised the isolated feature customization and ease of swapping in the community.
- Work submitted to CHI25 as a coauthor.

Knitted Sensors | WebPage **University of Washington, Researcher**
Advisor: Nadya Peek, Hannah Twigg-Smith, Machine Agency *23.10 - 24.04*

- Applied various machine knitting techniques (e.g., intarsia, short rows) to fabricate wearable textile sensors, including touch, humidity, pressure, and bend sensors, on the Silver Reed SK840. Work accepted to UIST24 as second author.

Washable Functional Textiles Fabrication | Paper | GitHub **Zhejiang University, Research Lead**
Advisor: Guanyun Wang, International Design Institute of Zhejiang University *22.9 - 24.4*

- Proposed a low-cost ($4.7/m^2) and highly accessible double-coating process to fabricate washable (at least 600 min daily laundry) and reusable functional textiles with customized input functionalities.

- Conducted extensive material experiments and evaluations, improving the resistance stability of functional textiles over wash cycles by 680%.
- Prototyped and open-sourced various wearable applications of the washable functional textiles.
- Research leader for the project, independently authored the paper accepted by CHI24 (Best Paper Honorable Mention) as the first author.

Designing Knowledge Graph Tool for Sustainability Education **Zhejiang University, Research Intern**

Advisor: Xuanhui Liu, International Design Institute of Zhejiang University *21.10 - 22.4*

- Designed and developed Sustain-KG, a knowledge graph tool integrating interdisciplinary knowledge and Sustainable Development Goals (SDGs).
- Conducted a user study, which revealed how Sustain-KG enabled students to effectively apply structured knowledge in sustainability problem-solving processes, leading to improved competence in analyzing sustainability challenges and fostering deeper connections between knowledge and solutions.
- Collected, organized, and analyzed related works. Authored and submitted a paper to the Journal of Cleaner Production.

HoloLens2 Expander Interaction **Zhejiang University, Research Intern**

Advisor: Liuqing Chen, International Design Institute of Zhejiang University *21.8 - 21.12*

- Led the design team, and came up with design guidelines and standardized workflow, which increased the inter-team work efficiency by approximately 60%.
- Optimized user interaction experience with the Hololens2 interface and improved comfort level as well as immersiveness.
- Our design team was selected to cooperate with Zhejiang Provincial Energy Group Company Ltd. in the bidding.

Music Emotion Visualization **Zhejiang University, Research Assistant**

Advisor: Kejun Zhang, International Design Institute of Zhejiang University *20.6 - 21.6*

- Conducted comprehensive literature research and functional design, supporting the development of an emotion-based music visualization app.
- Designed and experimented to collect people's valence-arousal sentiment value on music as well as different graphic and color expressions, which constitute the supporting database of our mobile App.
- This project was selected as a provincial research project (top 6%).

Academic Services

- Reviewer, The ACM CHI Conference on Human Factors in Computing Systems (CHI), 2024

Skills & Interests

- **Electrical Engineering**: PCB Design (KiCAD), Wireless (WiFi, BLE), Wearable Electronics, ESP32, Arduino, Raspberry Pi.
- **Programming**: JavaScript, Python, C, C#, Processing, full-stack development.
- **Design & Research**: Rhino, Figma, Adobe CC, Design Thinking, Semi-Structured Interviews, Focus Groups, Surveys, Statistical Analysis (SPSS).
- **Fabrication**: PCB Fabrication, 3D Printing, Laser Cutting, CNC, Machine Knitting, Embroidery, Silicone Casting, Woodshop, Sewing.
- **Languages**: Chinese (native), English (Fluent: TOEFL 109, GRE 325).
- **Interest**: Personal Fabrication Research in HCI.