

PIN-SUNG KU

pk537@cornell.edu

Personal Profile | Hybrid Body Lab

ACADEMIC INTERESTS

Human Computer Interaction, On-skin Interface Prototyping, Cognitive Augmentation

EDUCATION

PhD, Information Science 2020 – Present

Hybrid Body Lab, Cornell University

- Thesis Committee: Cindy Hsin-Liu Kao (Chair, HCD), Cheng Zhang (IS), Malte Jung (IS)

Master of Science, Computer Science & Information Technology 2018

National Taiwan University

- Advisor: Mike Y. Chen (CSIE)

Bachelor of Science, Physics 2016

National Taiwan University

PROFESSIONAL HISTORY

PhD student, Cornell University 2020 – Present

Advisor: Cindy Hsin-Liu Kao (HCD)

- Designed SkinKit, the first construction toolkit for on-skin interfaces that enables fast, low-fidelity prototyping of on-skin devices. [C11]
- Designed and crafted shape-changing woven patches for dynamic clothing and on-skin haptics. [C12]

Visting Scholar, Dartmouth College 2018 – 2019

Advisor: Prof. Xing-Dong Yang (CS), Prof. Xia Zhou (CS)

- Prototyped an interactive thread using a model-based impedance sensing technique. [C6]
- Designed, and implemented an interactive zipper that enables touch input, pinch gesture input, user identification, and position tracking. [C7]

Research Assistant, NTU HCI Lab 2016 – 2020

Advisor: Prof. Mike Y. Chen (CSIE)

- Designed air jets systems for haptic feedback in VR. [C9]
- Conducted human factors studies focused on eye-based interactions in AR. [C5]
- Designed debugging tools for circuit prototyping by electric current visualization and auto-detection of circuit components. [C1] [C2]

PUBLICATIONS

- [C13] **Pin-Sung Ku**, Kunpeng Huang, Nancy Wang, Boaz Ng, Alicia Chu, and Hsin-Liu Cindy Kao. 2023. “SkinLink: On-body Construction and Prototyping of Reconfigurable Epidermal Interfaces.” *In Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 7, 2, Article 62 (June 2023).

- [C12] **Pin-Sung Ku**, Kunpeng Huang, and Cindy Hsin-Liu Kao. 2022. “Patch-O: Deformable Woven Patches for On-body Actuation.” *In Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (CHI ’22)*.
- [C11] **Pin-Sung Ku**, Md. Tahmidul Islam Molla, Kunpeng Huang, Priya Kattappurath, Krithik Ranjan, and Hsin-Liu Cindy Kao. 2022. “SkinKit: Construction Kit for On-Skin Interface Prototyping.” *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 5, 4, Article 165 (Dec 2021), 23 pages.
- [C10] Kunpeng Huang, Md. Tahmidul Islam Molla, Kat Roberts, **Pin-Sung Ku**, Aditi Galada, and Cindy Hsin-Liu Kao. 2021. “Delocalizing Strain in Interconnected Joints of On-Skin Interfaces.” *In 2021 International Symposium on Wearable Computers (ISWC ’21)*.
- [C9] Yu-Wei Wang, Yu-Hsin Lin, **Pin-Sung Ku**, Yoko Miyatake, Yi-Hsuan Mao, Po Yu Chen, Chun-Miao Tseng, and Mike Y. Chen. 2021. “JetController: High-speed Ungrounded 3-DoF Force Feedback Controllers using Air Propulsion Jets.” *In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI ’21)*.
- [C8] Yu-Hsin Lin, Yu-Wei Wang, **Pin-Sung Ku**, Yun-Ting Cheng, Yuan-Chih Hsu, Ching-Yi Tsai, Mike Y Chen. 2021. “HapticSeer: A Multi-channel, Black-box, Platform-agnostic Approach to Detecting Video Game Events for Real-time Haptic Feedback.” *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI ’21)*.
- [C7] **Pin-Sung Ku**, Jun Gong, Te-Yen Wu, Shiyu Zhang, Ziyang Zhu, Barrett Ens, Xing-Dong Yang. 2020. “Zippro: The Design and Implementation of An Interactive Zipper.” *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI ’20)*.
- [C6] **Pin-Sung Ku**, Qijia Shao, Jun Gong, Te-Yen Wu, Ziyang Zhu, Xia Zhou, Xing-Dong Yang. 2020. “ThreadSense: Locating Touch on an Extremely Thin Interactive Thread” *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI ’20)*.
- [C5] **Pin-Sung Ku**, Yu-Chih Lin, Yi-Hao Peng, Mike Y. Chen. 2019. “PeriText: Utilizing Peripheral Vision for Reading Text on Augmented Reality Smart Glasses.” *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR). IEEE, 2019*.
- [C4] Yi-Hao Peng, Muh-Tarng Lin, Yi Chen, TzuChuan Chen, **Pin-Sung Ku**, Paul Taele, Chin Guan Lim, Mike Y Chen. 2019. “PersonalTouch: Improving Touchscreen Usability by Personalizing Accessibility Settings based on Individual User’s Touchscreen Interaction.” *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI ’19)*.
- [C3] Yu-Chian Wu, Te-Yen Wu, Paul Taele, Bryan Wang, Jun-You Liu, **Pin-Sung Ku**, Po-En Lai, Mike Y Chen. 2018. “Activeergo: Automatic and personalized ergonomics using self-actuating furniture.” *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI ’18)*.
- [C2] Te-Yen Wu, Hao-Ping Shen, Yu-Chian Wu, Yu-An Chen, **Pin-Sung Ku**, Ming-Wei Hsu, Jun-You Liu, Yu-Chih Lin, Mike Y Chen. 2017. “CurrentViz: Sensing and Visualizing Electric Current Flows of Breadboarded Circuits.” *Proceedings of the 30th Annual ACM Symposium on User Interface Software and Technology (UIST ’17)*.
- [C1] Te-Yen Wu, Bryan Wang, Jiun-Yu Lee, Hao-Ping Shen, Yu-Chian Wu, Yu-An Chen, **Pin-Sung Ku**, Ming-Wei Hsu, Yu-Chih Lin, Mike Y Chen. 2017. “CircuitSense: Automatic Sensing of Physical Circuits and Generation of Virtual Circuits to Support Software Tools.” *Proceedings of the 30th Annual ACM Symposium on User Interface Software and Technology (UIST ’17)*.

POSTERS AND DEMOS

- [D2] Yu-Wei Wang, Yu-Hsin Lin, **Pin-Sung Ku**, Yoko Miyatake, Po-Yu Chen, Chun-Miao Tseng, Ching-Yi Tsai, Mike Y Chen. 2021. “Demonstration of JetController: High-speed Ungrounded Force Feedback

Controllers Using Air Propulsion Jets” *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI ’21)*.

- [P1] **Pin-Sung Ku**, Te-Yen Wu, and Mike Y. Chen. 2018 “EyeExpress: Expanding Hands-free Input Vocabulary using Eye Expressions.” *The 31st Annual ACM Symposium on User Interface Software and Technology Adjunct Proceedings(UIST ’18)*.
- [D1] Ming-Wei Hsu, Te-Yen Wu, Yu-Chian Wu, Yu-An Chen, Yu-Chih Lin, **Pin-Sung Ku**. 2017. “Party animals: Creating immersive gaming experience for physically co-present vr and non-vr players.” *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI ’17)*.

TEACHING EXPERIENCE

NYS 4-H	Youth Development Career Explorations Workshop for Middle and Highschooler, New York State 4-H Cornell Cooperative Extension, Workshop Leader, 2022
Cornell	INFO 4340, App Design and Prototyping, Teaching Assistant, 2022
Cornell	DEA 6040, Future Body Craft, Teaching Assistant, 2021
Cornell	INFO 3450, Human-Computer Interaction Design, Teaching Assistant, 2021
NTU CSIE	Advanced Human Computer Interaction, Teaching Assistant, 2018
NTU CSIE	Advanced Human Computer Interaction, Teaching Assistant, 2017
OpenHCI	8th Workshop On Human Computer Interaction, Lecturer, 2017

ACADEMIC SERVICE

IMWUT ’23	Papers, Reviewer
UIST ’23	Papers, Reviewer
CHI ’23	Papers, Reviewer
UIST ’22	Papers, Reviewer
CHI ’21	Late-Breaking Work, Reviewer
ISWC ’21	Notes & Briefs, Reviewer
DIS ’21	PC meeting, Student Volunteer
CHI ’20	Late-Breaking Work, Reviewer
UIST ’20	Papers, Reviewer

PRESS

Patch-O	<i>Cornell Bowers CIS Information Science News</i>
JetController	<i>ITmedia News, Innovative Tech</i>

SKILLS

Electronics	Circuits Design, Embedded Programming.
Programming	C Language, C++, C#, Python, Javascript, R.
Software	Eagle, Fusion360, Unity, Arduino, Processing, Rhinoceros 3D
Textiles	Floor Loom Weaving
Fabrication	3D Printing, Laser Cutting
Languages	Mandarin, English