Tzu-Sheng Kuo

Curriculum Vitae

Education

2021 - Present Carnegie Mellon University, School of Computer Science.

Ph.D. in Human-Computer Interaction

Advisors: Prof. Kenneth Holstein, Prof. Haiyi Zhu

2019 - 2021 Stanford University.

Master of Science in Electrical Engineering

2014 - 2019 National Taiwan University (NTU).

Bachelor of Science in Electrical Engineering, Summa Cum Laude (Top 1%)

Research Experience

2021 - Present CMU CoALA Lab and Social Al Group, Pittsburgh, PA.

Advisors: Prof. Kenneth Holstein, Prof. Haiyi Zhu

o Developing interactive systems that support participatory and community-driven approaches to responsible Al

2019 – 2021 Stanford HCI Group, Stanford, CA.

Advisors: Prof. James Landay, Prof. Elizabeth Murnane

o Proposed a design framework for interactive systems that adopt natural elements to support user well-being

2017 - 2019 Interactive Graphics Lab, NTU, Taiwan.

Advisors: Prof. Bing-Yu Chen, Prof. Xing-Dong Yang

- o Designed two pneumatic interfaces that emulate physical objects to provide haptic feedback in VR
- o Designed a software tool with an autocomplete feature to assist makers in building breadboard circuits
- o Resulted in three publications at UIST 2018, UIST 2019, and CHI 2019
- 2017 2019 Vision and Learning Lab, NTU, Taiwan.

Advisor: Prof. Yu-Chiang Frank Wang

- Modified DeepLabv3+ and proposed a loss function for semantic segmentation on satellite imagery
- o Resulted in one publication at the DeepGlobe Workshop in CVPR 2018
- 2016 2019 Multimedia Processing and Communications Lab, NTU, Taiwan.

Advisor: Prof. Homer H. Chen

- $\verb|O| Approximated the temporal variation of gaze fixation to estimate the depth map of indoor spaces based on eye vergence \\$
- o Resulted in one publication at ICIP 2018

Peer-Reviewed Publications

UIST 2019 Shan-Yuan Teng, Cheng-Lung Lin, Chi-huan Chiang, Tzu-Sheng Kuo, Liwei Chan, Da-Yuan Huang, and Bing-Yu Chen.

2019. TilePoP: Tile-type Pop-up Prop for Virtual Reality. In *Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology* (UIST '19). ACM, New York, NY, USA, 639–649. [PDF]

Best Paper Honorable Mention

CHI 2019 Jo-Yu Lo, Da-Yuan Huang, **Tzu-Sheng Kuo**, Chen-Kuo Sun, Jun Gong, Teddy Seyed, Xing-Dong Yang, and Bing-Yu Chen.

2019. AutoFritz: Autocomplete for Prototyping Virtual Breadboard Circuits. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (CHI '19). ACM, New York, NY, USA, Paper 403, 1–13. [PDF]

Best Paper Honorable Mention

UIST 2018 Shan-Yuan Teng, **Tzu-Sheng Kuo**, Chi Wang, Chi-huan Chiang, Da-Yuan Huang, Liwei Chan, and Bing-Yu Chen. 2018. PuPoP: Pop-up Prop on Palm for Virtual Reality. In *Proceedings of the 31st Annual ACM Symposium on User Interface Software and Technology* (UIST '18). ACM, New York, NY, USA, 5–17. [PDF]

ICIP 2018 **Tzu-Sheng Kuo**, Kuang-Tsu Shih, Sheng-Lung Chung, and Homer H. Chen. 2018. Depth from Gaze. In 25th IEEE International Conference on Image Processing (ICIP '18). Athens, pp. 2910–2914. [PDF]

Non-Archival Publications

arXiv 2022 Mark Mazumder, Colby Banbury, Xiaozhe Yao, Bojan Karlaš, William Gaviria Rojas, Sudnya Diamos, Greg Diamos, Lynn He, Douwe Kiela, David Jurado, David Kanter, Rafael Mosquera, Juan Ciro, Lora Aroyo, Bilge Acun, Sabri Eyuboglu, Amirata Ghorbani, Emmett Goodman, Tariq Kane, Christine R. Kirkpatrick, **Tzu-Sheng Kuo**, Jonas Mueller, Tristan Thrush, Joaquin Vanschoren, Margaret Warren, Adina Williams, Serena Yeung, Newsha Ardalani, Praveen Paritosh, Ce Zhang, James Zou, Carole-Jean Wu, Cody Coleman, Andrew Ng, Peter Mattson, Vijay Janapa Reddi. 2022. DataPerf: Benchmarks for Data-Centric Al Development. In *arXiv preprint* (arXiv '22). [PDF]

Tutorials and Workshops Organized

ICML 2022 Newsha Ardalani, Lora Aroyo, Colby Banbury, Greg Diamos, **Tzu-Sheng Kuo**, Peter Mattson, Mark Mazumdar, Praveen Paritosh, William Gaviria Rojas, James Zou, Vijay Janapa Reddi, Carole-Jean Wu, Cody Coleman. 2022. DataPerf: Benchmarking Data for Data-Centric Al. Workshop at the 39th International Conference on Machine Learning (ICML '22)

Posters and Demos

UIST 2020 **Tzu-Sheng Kuo** and Eric Rawn. 2020. Let It Rip! Using Velcro for Acoustic Labeling. In *The Adjunct Publication of the 33rd Annual ACM Symposium on User Interface Software and Technology* (UIST '20). [PDF]

(a project mentored by Prof. Michael Bernstein at Stanford)

HCOMP 2020 **Tzu-Sheng Kuo**, McArdle Hankin, Miranda Li, Andrew Ying, and Cathy Wang. 2020. Assessing Political Bias using Crowdsourced Pairwise Comparisons. In *Proceeding of the 8th AAAI Conference on Human Computation and Crowdsourcing* (HCOMP '20). [PDF]

Best Poster Award

(a project mentored by Prof. Maneesh Agrawala at Stanford)

CVPR 2018 **Tzu-Sheng Kuo***, Keng-Sen Tseng*, Jia-Wei Yan*, Yen-Cheng Liu, and Yu-Chiang Frank Wang. 2018. Deep Aggregation Net for Land Cover Classification. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops* (CVPR '18). Salt Lake City, UT, pp. 252–256. *The authors contributed equally. [PDF]

Teaching Experience

Stanford 2021 CS 347: Human-Computer Interaction: Foundations and Frontiers

Instructor: Prof. Danaë Metaxa, Parastoo Abtahi
Outstanding Course Assistant Award (Top 5%)

Stanford 2021 CS 147: Introduction to Human-Computer Interaction

Instructor: Prof. James Landay

NTU 2018 CommE 5052: Deep Learning for Computer Vision

Instructor: Prof. Yu-Chiang Frank Wang

NTU 2017 EE 5184: Machine Learning

Instructor: Prof. Hung-Yi Lee

NTU 2017 **EE 2011: Signals and Systems**

Instructor: Prof. Lin-Shan Lee

Honors and Awards

- 2022 **2Q22 MLCommons Hero Awards** Recognized for co-organizing the DataPerf workshop
- 2022 ICML Conference Funding
- 2022 CMU Graduate Student Conference Funding (Spring 2022)
- 2020 Stanford Graduate Student Research Assistantship
- 2018 Phi Tau Phi Scholastic Honor Society Honorary Membership Graduated top 1% in NTU EECS Department
- 2014 2018 Dean's List (5 times) Top 5% GPA in each semester
 - 2018 Chien Shih-Liang Memorial Scholarship Given to two students in NTU EECS Department each year
 - 2017 Taiwan Ministry of Science and Technology Grant Award
 - 2017 Irving T. Ho Memorial Scholarship Given to one senior student in NTU EE Department each year

Academic Service

Student Volunteer

2022 ACM CHI Student Volunteer

I monitored paper and panel sessions, assisted in town hall meetings, managed registrations, and helped with other miscellaneous requests.

2021 ACM UIST Student Volunteer

I built an online space using Ohyay for three social events throughout the conference, including social hours, social meetups, and ask-me-anything sessions.

Internal Academic Service

2022 CMU HCII REU Admissions Committee

I helped review the application materials for HCII's Summer Undergraduate Research Program (REU).

2021 CMU HCII Preview Weekend Student Host

The preview weekend aims to assist underrepresented students as they apply to CMU HCII's MS and PhD programs. I was responsible for hosting online sessions where we invited applicants to ask questions and faculty to give lab talks.

2020 - 2021 Stanford HCI Qualifying Exam DEI Proposal Group

In light of the Black Lives Matter movement and anti-Asian racism, Danaë Metaxa and I co-led an initiative at Stanford HCI Group to add readings centered on diversity, equity, and inclusion to the Ph.D. qualifying exam.

2020 - 2021 Stanford Graduate Residence Community Associate

I worked with the Stanford Graduate Life Office and other community associates on promoting wellness and a sense of community in graduate residences with 1200+ students by coordinating social events centered on cultural diversity.

Reviewer

- 2022 The ACM Symposium on User Interface Software and Technology (UIST)
- 2022 The ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)
- 2022 The International Conference on Machine Learning (ICML)
- 2022 The ACM Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH)

Leadership Experience

2016 - 2018 Founder, Makerspace of NTUEE &

My team and I founded a makerspace to assist students with their side projects. During COVID-19, our students developed a system that was deployed across the campus to automatically detect and track people's forehead temperatures.

2017 Chair, MakeNTU Makeathon 🔗

My team and I launched the first nationwide makeathon in Taiwan with 200 participants and 70K USD in sponsorship. I led 60 students and cooperated with the Taipei City Government and 22 companies such as Google and Microsoft.

2016 - 2017 Director, Academic Department of NTUEE Student Association &

I led a team of 30 students to organize various university events, including research competitions, university fairs, and NTUEE+ alumni mixers for 800+ students in the EE department.

Work Experience

2017 Software Engineering Intern, Cadence Design Systems, Inc., San Jose, CA.

My code for Gate-Level and RTL circuit design automation and equivalence checking was checked-in for production.