

Tzu-Sheng Kuo

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I design and help others create interactive systems that improve user experience with mobile devices and responsive environments to support people's well-being. My research interest in HCI is at the intersection of digital fabrication, sensing and interaction techniques, and application to human health, behavior change, and assistive technologies.

Education

- 2019 – Jun 2021 **Stanford University.**
Master of Science in Electrical Engineering, GPA: 4.00/4.00
- 2014 – 2019 **National Taiwan University (NTU).**
Bachelor of Science in Electrical Engineering, GPA: 4.25/4.30, **Summa Cum Laude (Top 1%)**

Research Experience

Human-Computer Interaction

- 2019 – Present **Stanford HCI Group, Stanford, CA.**
Advisors: Prof. James Landay, Prof. Elizabeth Murnane
 - Redesigned digital interfaces to support user well-being by adopting nature elements into user interfaces
 - Resulted in one publication in submission to CHI 2021
- 2017 – 2019 **Interactive Graphics Lab, NTU, Taiwan.**
Advisors: Prof. Bing-Yu Robin Chen, Prof. Xing-Dong Yang
 - Designed two pneumatic interfaces that emulate physical objects to provide haptic feedback in VR
 - Designed a software tool with an autocomplete feature to assist makers in building breadboard circuits
 - Resulted in three publications at UIST 2018, UIST 2019, and CHI 2019

Computer Vision & Machine Learning

- 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
 - Resulted in one publication at DeepGlobe Workshop in CVPR 2018

Signal Processing

- 2016 – 2019 **Multimedia Processing and Communications Lab, NTU, Taiwan.**
Advisor: Prof. Homer H. Chen
 - Approximated the temporal variation of gaze fixation to estimate the depth based on eye vergence
 - Resulted in one publication at ICIP 2018

Peer-Reviewed Publications

- CHI 2021 (under review) **Tzu-Sheng Kuo.** Kelsey Wang, Sarah L. Billington, James A. Landay, and Elizabeth L. Murnane. 2021. Biophilic Technology: Exploring the Application of Biophilic Principles to the Design of Digital Interfaces. In Submission to *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (CHI '21). ACM, New York, NY, USA. [under review]
- 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.
Best Paper Honorable Mention [PDF]
- 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.
Best Paper Honorable Mention [PDF]
- 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]
- CVPRW 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* (CVPRW '18). Salt Lake City, UT, pp. 252–256. *The authors contributed equally. [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]

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). [to appear]
Best Poster Award
(a project mentored by Prof. Maneesh Agrawala at Stanford)

Teaching Experience

- 2018 Teaching Assistant, Computer Vision: from Recognition to Geometry – *Instructor: Prof. Yu-Chiang Frank Wang*
- 2018 Teaching Assistant, Deep Learning for Computer Vision – *Instructor: Prof. Yu-Chiang Frank Wang*
- 2017 Teaching Assistant, Machine Learning – *Instructor: Prof. Hung-Yi Lee*
- 2017 Teaching Assistant, Signals and Systems – *Instructor: Prof. Lin-Shan Lee*
- 2016 Teaching Assistant, Electronics I – *Instructor: Prof. Liang-Hung Lu*




Honors and Awards

- 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 Research Grant**
- 2017 **Irving T. Ho Memorial Scholarship** – Given to one senior student in NTU EE Department each year

University Service

- 2020 – Present **HCI Qualifying Exam DEI Proposal Group**
I collaborated with graduate students and faculty members to develop a proposal to add readings that center on diversity, equity, and inclusion (DEI) to the HCI qualifying exam at Stanford.
- 2020 – Present **Graduate Residence Community Associate**
I work 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 and responding to emergencies.

Leadership Experience

- 2016 – 2018 **Founder, Makerspace of NTUEE** 
My team and I founded a makerspace to assist students in doing 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 temperature.
- 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, award ceremonies, NTU university fairs, and NTUEE+ alumni mixers for over 800 students in the EE department.

Work Experience

- 2019 **Mandatory Military Service, Taiwan.**
- 2017 **Software Engineering Intern, Cadence Design Systems, Inc., San Jose, CA.**
o My code for Gate-Level and RTL circuit design automation was checked-in for production and I received a return offer.

Technical Skills

- Technical Skills Python, C++/C#, Matlab, Tensorflow, PyTorch, React, Javascript, CSS, HTML, Unity, OpenCV, Verilog, etc.
- Languages English (fluent), Mandarin (native), Taiwanese (native)