Andy Kong

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EDUCATION

ETH Zurich | Zürich, Switzerland

September 2022 - December 2023 | **M.S Computer Science**, incomplete

Carnegie Mellon University | Pittsburgh, PA, USA

August 2018 - May 2022 | **B.S. Computer Science**, minor in Human-Computer Interaction | GPA: **3.6/4.0**

EXPERIENCE

Open Quantum @ Cambridge, MA | Engineering Lead | June 2024 - now

- ➤ Built a magneto-optical trap setup for rubidium, the starting point for modern quantum physics
- ➤ Designed and evaluated laser control electronics for trapping neutral atoms
- ➤ Shipped educational hardware to university labs

Google @ Seattle, WA | Researcher | June - September 2022

- ➤ Prototyped and evaluated augmented reality experiences on the Daydream team

Hewlett-Packard | Consultant | April - May 2021

- ➤ Built a real-time hand gesture detection model to help evaluate future interaction modalities on personal laptops

Future Interfaces Group @ CMU | Research Assistant | February 2020 ➥ June 2022

- ➤ Project lead for several publications in top HCI conferences (UIST, CHI)
- ➤ Designed hard and software for EMG/EEG, enabling intuitive, gesture-controlled interfaces
- ➤ Trained a SOTA eye-tracking model for mobile devices, and added real-time sensor fusion

Human Computer Integration Lab @ UChicago | Visiting Researcher | June ➥ August 2021

- ➤ Designed custom analog circuits to selectively activate mechanoreceptors in the hand
- ➤ Performed exploratory studies for eliciting pressure sensations in the fingertips

➤ Designed study to explore the effects of waveform, intensity, and polarity on electrically-induced phantom touch sensation

Kura AR | R&D Intern | May ➥ August 2020

➤ Constructed high-resolution AR demos in Unity to showcase custom AR headset's capabilities

➤ Tested lasers and motors against specification using custom analog driver circuits

MIT Lincoln Laboratory | Bioengineering Intern | May ➥ August 2019

➤ Taught data analytics at the BeaverWorks Summer Institute, introducing Python, statistics, and machine learning to 20+ high school students through a medical lens

➤ Analyzed genetic and biological data from the NHANES dataset to predict hereditary and population-level diseases

Cylab | Research Assistant | January ➥ May 2019

➤ Integrated smartphone sensors with a particle filter and ground-truth landmarks to accurately track user location in GPS-restricted indoor environments

PUBLICATIONS

5. **Andy Kong**, Daehwa Kim, and Chris Harrison. 2024. Power-over-Skin: Full-Body Wearables Powered By Intra-Body RF Energy. In Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology (UIST '24). Association for Computing Machinery, New York, NY, USA, Article 3, 1–13. https://doi.org/10.1145/3654777.3676394

4. Yudai Tanaka, Alan Shen, **Andy Kong**, and Pedro Lopes. 2023. Full-hand Electro-Tactile Feedback without Obstructing Palmar Side of Hand. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23). Association for Computing Machinery, New York, NY, USA, Article 80, 1–15. https://doi.org/10.1145/3544548.3581382

3. Karan Ahuja, Cathy Fang, Vivian Shen, Nathan Riopelle, **Andy Kong**, Chris Harrison. ControllerPose: Inside-Out Body Capture with VR Controller Cameras. Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '22). DOI: https://doi.org/10.1145/3491102.3502105

2. **Andy Kong**, Karan Ahuja, Mayank Goel, and Chris Harrison. 2021. EyeMU Interactions: Gaze + IMU Gestures on Mobile Devices. In Proceedings of the 2021 International Conference on Multimodal Interaction (ICMI '21). Association for Computing Machinery, New York, NY, USA, 577–585. DOI: https://doi.org/10.1145/3462244.3479938

1. Karan Ahuja, **Andy Kong**, Mayank Goel and Chris Harrison. 2020. Direction-of-Voice (DoV) Estimation for Intuitive Speech Interaction with Smart Devices Ecosystems. In Proceedings of the 33rd Annual ACM Symposium on User Interface Software and Technology (UIST '20). Association for Computing Machinery, New York, NY, USA. DOI: https://dl.acm.org/doi/10.1145/3379337.3415588

PATENTS

1. K Ahuja, A Kong, M Goel, and C Harrison. Direction-of-Voice (DoV) Estimation for Intuitive Speech Interaction with Smart Devices Ecosystems. Filed June 10, 2020.

PRESS

CNN These researchers came up with a solution for one of VR's biggest issues: tracking your legs	2022
VR Times Researchers Demonstrate Body Tracking via Modded VR Controllers in Meta Quest 2	2022
ACM TechNews A Solution for One of VR's Biggest Issues: Tracking Your Legs	2022
TechCrunch Controlling your phone with your eyes	2022
TechXplore Your eyes can control your smartphone via new gaze-tracking tool	2022
ACM CACM The Eyes Have It	2022
HotHardware Researchers Develop EyeMU Tech That Lets You Control Your Phone With Your Eyes	2022
Engadget AI could tell smart speakers what direction your voice is coming from	2020
Hackaday Robots can finally answer, are you talking to me?	2020

REFERENCES

Chris Harrison	Future Interfaces Group Director, Associate Professor at Carnegie Mellon University
Mark Stehlik	School of Computer Science, Teaching Professor at Carnegie Mellon University

HOBBIES

Folding dumplings, playing Tetris, making TikToks

The Inquisitive sort, aren't you?