Andy Kong

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RESEARCH FOCUS

My interests include intuitive interactions, biosensing interfaces, perceptual augmentation, and enhancing the speed of human-computer communications.

EDUCATION

Carnegie Mellon University | Pittsburgh, PA, USA

August 2018 - May 2022 | **B.S. Computer Science**, minor in Human-Computer Interaction

GPA: **3.6/4.0**

ETH Zurich | Zürich, Switzerland

September 2022 - ?? | **M.S Computer Science** in Interactive Computing, Direct Doctorate '24 Batch

EXPERIENCE

Google @ Seattle, WA | Student 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
- ➤ Wrote Java applet for processing 6 audio channels from a microphone array simultaneously
- ➤ Created a novel, multimodal interaction technique on smartphones harnessing one-shot eye tracking and IMU gesture recognition
- ➤ Initiated biosensing project using live detection of brainwaves to trigger interactions with binary beacons placed around a home environment

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

- ➤ Designed custom analog circuits to selectively activate mechanoreceptors
- ➤ 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 with 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

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

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

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

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

Mark Stehlik   School of Computer Science, Teaching Professor at Carnegie Mellon University

Chris Harrison   Future Interfaces Group Director, Associate Professor at Carnegie Mellon University

HOBBIES

Folding dumplings, playing Tetris, doing science.