

## EDUCATION

<b>Harvey Mudd College (HMC)</b> <ul style="list-style-type: none"><li>B.S. in Computer Science</li></ul>	<b>Claremont, CA</b>	<b>Aug 2022 – May 2026</b>
<b>Seattle Academy High School (SAAS)</b> <ul style="list-style-type: none"><li>High School Diploma, High Honor Roll</li></ul>	<b>Seattle, WA</b>	<b>Jan 2019 – June 2022</b>

## EMPLOYMENT

<b>Summer 2023</b>	<b>Audio Information Retrieval</b>	<b>Prof. Tsai, MIR Lab, Harvey Mudd College</b>
<b>Goal:</b> To train large language models to understand and classify music data; Audio tampering detection <ul style="list-style-type: none"><li>Developed novel online alignment algorithms for 3 way audio alignment of piano concertos</li><li>Lead data collection and created new audio tampering detection systems</li><li>Two publications in preparation</li></ul>		
<b>2020-2022</b>	<b>Robotic Tele-Operation</b>	<b>Prof. Cakmak, HCR Lab, University of Washington</b>
<b>Goal:</b> To develop accessible robot tele-operation interfaces <ul style="list-style-type: none"><li>Performed data analysis of user studies [IEEE RO'MAN 2021 Paper].</li><li>Led interface design and studies of interface alternatives. Co-first authored [IEEE IROS 2021 Co-First Authored Paper].</li><li>Led research in programming by demonstration &amp; human-in-the-loop object grasping and manipulation approach</li><li>Mentored 5 undergraduates across 3 different projects</li></ul>		

## OTHER INTERNSHIPS AND RESEARCH

<b>2023</b>	<b>Embedded Programming</b>	<b>Prof. Spencer, ACE Lab, HMC</b>
<b>Goal:</b> Revise and test ultrasonic beam forming sonar sensor. Led low level embedded development on SAM-4 MCU. Implemented embedded communication protocol for talking to an Ethernet chip using SPI		
<b>2022</b>	<b>Zero-shot Image Classification</b>	<b>Prof. Carr-Markell, Bee Lab, HMC</b>
<b>Goal:</b> Pollen detection and classification (translational ML work with biologists) <ul style="list-style-type: none"><li>Trained zero shot classifier using Siamese Net &amp; ResNet transfer learning.</li><li>Developed public website to share the model and blog post explaining the basics of siamese nets and auto encoders.</li></ul>		
<b>2020-2021</b>	<b>Full Stack Web Development</b>	<b>WA State Hospital Association</b>
<b>Goal:</b> Develop custom Personal Protective Equipment exchange website to help address COVID shortages. Engineered custom PPE-Distribution algorithm with input from MultiCare Hospital.		
<b>2019</b>	<b>Deep Learning</b>	<b>Prof. Froehlich, Makeability Lab, UW</b>
<b>Goal:</b> Integrate deep learning into curb-ramp detection to improve temporal tracking of sidewalk quality to improve transparency about sidewalk accessibility [ACM ASSETS 2021 Poster]		
<b>2018</b>	<b>Voice Activity Detection</b>	<b>Adobe</b>
<b>Goal:</b> Develop ultra-lightweight ML speech detection classifier for Character Animator. Added to developer credits		

## PUBLICATIONS

Ather Sharif, Paari Gopal, Michael Saugstad, Shiven Bhatt, Raymond Fok, Galen Weld, **Kavi Dey**, and Jon E. Froehlich. Experimental crowd+ai approaches to track accessibility features in sidewalk intersections over time. In Jonathan Lazar, Jinjuan Heidi Feng, and Faustina Hwang, editors, *ASSETS Adjunct Proceedings*, pages 65:1–65:5. ACM, '21. doi: 10.1145/3441852.3476549. URL <https://doi.org/10.1145/3441852.3476549>

Maria E. Cabrera\*, **Kavi Dey\***, Kavita Krishnaswamy, Tapomayukh Bhattacharjee, and Maya Cakmak. Cursor-based robot tele-manipulation through 2d-to-se2 interfaces. In *IEEE/RSJ IROS*, pages 4230–4237. IEEE, '21. doi: 10.1109/IROS51168.2021.9636008. URL <https://doi.org/10.1109/IROS51168.2021.9636008>. \***Co First Authors**

Maria E. Cabrera, Tapomayukh Bhattacharjee, **Kavi Dey**, and Maya Cakmak. An exploration of accessible remote tele-operation for assistive mobile manipulators in the home. In *30th IEEE RO-MAN*, pages 1202–1209. IEEE, '21. doi: 10.1109/RO-MAN50785.2021.9515511. URL <https://doi.org/10.1109/RO-MAN50785.2021.9515511>

## SIGNIFICANT PROJECTS

---

**2020-2023** **Electronic Speed Control (ESC) Design** **SAAS**  
**Goal:** Design and manufacture custom brushless motor ESC. Led team (3 high school students); Taught college level electrical engineering and brushless motor control theory, schematic design, PCB design, microcontroller programming

**2019-2022** **Team Lead; ECE Lead** **MATE & FRC Robotics, SAAS**  
**Goal:** Build for and compete in national robotics competitions

- Led 30+ person team in remote and in person settings with focus on culture, education and diversity
- Developed multi-node realtime communication system and UI, enhanced documentation and process, led team effort to build underwater robot.

**2022-2023** **Compiler & Silicon Design** **HMC**  
**Goal:** Design and implement a C to assembly compiler and associated processor in Verilog

- Designed and implemented a compiler for a subset of C. Compiler supports control flow, recursion, register allocation, and stack allocation.
- Designed a processor in Verilog with support for the compiler's assembly language

## LANGUAGES AND TECHNOLOGIES

---

- **Expert:** Python, Typescript, Svelte, Pytorch, Pandas/Matplotlib
- **Intermediate:** THREE.js, C++, ROS, Unix, Compiler Design, LaTeX, Verilog
- **Engineering:** Schematic Capture, Board Layout, Altium, I2C, Trapezoidal and Field-Oriented ESC Design, PIC Programming, MOSFETs, Solidworks
- **Advanced studies including:** Proof Based Real Analysis; Linear Algebra; Multivariable Calculus; Quantum Theory; Inverse Kinematics; Optimization; Machine Learning

## ADDITIONAL EXPERIENCE AND AWARDS

---

2022 **Harvey S. Mudd Merit Award**  
2021 **World Championship Top 10** MATE Telepresence Competition  
2020 **Rookie All Star Award**, FRC: Redshift 8032  
2020 **FRC Dean's List Semi-Finalist**  
2018 **Regional Competition Top 5** MATE Pacific Northwest Region