

# (SCOTT) MINGHUI ZHAO

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## EDUCATION

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University of California San Diego – *La Jolla, CA*

Expected June 2021

**B.S. Electrical Engineering (Junior)**

**Minor: Mathematics, Cognitive Science**

Cumulative GPA: 3.63

*Relevant Coursework: C, C++, Python for Data Analysis, Data Networks, Computer Architecture, Embedded Systems, Fast Prototyping, Analog Design, Digital Design, Linear System Fundamentals*

## RELEVANT EXPERIENCE

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**Bharadia Lab UCSD – *La Jolla, CA***

April 2019 – Present

Research Assistant

- Developed an accurate indoor tracking system using an array of Ultra-Wideband RF transceivers to improve VR system tracking in non line of sight situations.
- Worked on embedded system that controls the UWB transceivers and PCB for the transceiver array.
- Processed the RF signal data and analyzed the performance and limit of the system. Compared various methods and algorithms in signal processing to achieve the best localization result.

**Talke Lab UCSD – *La Jolla, CA***

April 2017 – June 2019

Research Assistant

- Developed a wireless embedded *Hand & Ergonomic Motion Tracking System* to help medical students and doctors on surgical operation training and ergonomic health monitoring.
- Designed and fabricated PCB for the system and fit into a 3D printed soft watch case.
- Compared and analyzed the performance and data fidelity on TCP/UDP transmitting protocols, and implemented buffering and data recovery algorithms to transmit data more efficiently with better integrity.

**UCSD Electrical and Computer Engineering Department – *La Jolla, CA***

September 2016 – Present

Undergraduate Teaching Assistant

- Work as a TA for ECE 5 (Intro to ECE) and ECE 16 (Rapid Software & Hardware Design) since freshman year, and acquired 99.5% student recommend rate in a total of 9 quarters worked.
- Lead lab section meetings and announcements in addition to other duties including coordinate tutors on material preparation, organize class project competition, develop lab instructions and assignments.
- Train student on hands on skills including *3D CAD & Printing, PCB design, laser cutting and soldering*.
- Interact with students including answer technical questions, debug circuits & programs, inspire and assist on developing their own project, and as a result successfully bring more than 450 students essential skill sets into creating cool projects and interest in ECE besides all the theories.

## PROJECTS (more showcased at [scottz.net/projects](https://www.scottz.net/projects))

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**Tubular Robot ([scottz.net/tr](https://www.scottz.net/tr))**

April 2018 – June 2018

- Developed an autonomous terrain exploring & mapping robot with wireless controls and camera streaming.
- Assembled the robot from scratch including laser cut tubular chassis/wheels and 3D printed sensor holders.
- Programmed the microcontroller to read sensors, transmit data and react to command from PC wirelessly.
- Developed algorithms for obstacles avoiding autonomous driving and terrain mapping.

**Real-time Traffic Monitoring and Analysis ([scottz.net/traffic](https://www.scottz.net/traffic))**

December 2017 – Present

- Programmed a script to pull out and plot traffic information from AMap API in real time.
- Compared the traffic data with weather data and analyzed the weather's cause on traffic jam.

## SKILLS

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- **Software:** Familiar to Solidworks, EagleCAD. Proficient in Microsoft Word, Excel, PowerPoint.
- **Programming:** Proficient in Python, MATLAB, C/C++. Familiar with Flutter, Java.
- **Other:** Internet of Things, Embedded System, Unix.
- **Language:** Bilingual (English, Mandarin Chinese)