Baaqer Farhat

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Summary

Passionate about robotics engineering, with a track record of leadership in international competitions and prestigious awards. Particularly interested in robots (humanoid), drones, EVs, and mechatronics.

EDUCATION

California Institute of Technology **Pasadena, CA**
Robotics Engineering with minor in Control Systems and Dynamics *September 2023 - Present*

SKILLS

- Python/Java Programming
- 3-D printing (gcode)
- Solidworks/Fusion/Onshape
- Design mass optimization
- Altium/Diptrace/KiCAD
- Gearbox Assembly
- Motor Encoders
- PID controller
- Wiring/Electronics
- Microcontrollers
- Matlab/Simulink
- Parts Chasing
- PCB Design
- JMOL Protein Modeling
- Soldering
- Power tools
- CNC Machining
- Communication/Leadership

HIGHLIGHTED COURSE WORK

- **EE 10**: Digital Logic and Embedded Systems
- **ME 14**: Design and Fabrication
- **ME 13**: Prototyping (Solidworks and CNC)
- **EE 13**: Electronic Systems Prototyping
- **Altium Training**: Caltech Racing (FSAE) Team
- **CS 1**: Python and Java Programming
- **Vue.js Certificate**: LinkedIn Learning
- **Android App Development With Java**
- **Intro to Offensive Hacking Certificate**
- **Intro to Defensive Hacking Certificate**

Internships and Awards

- Morningstar Summer Internship: Front-End Developer on Institutional products team
- CPS Office of Computer Science Robotics Summer Internship: Group leader for building and programming a mecanum robot chassis
- United by STEM: One Team, Two Continents (Robotics mentoring in South Africa)
- FIRST Robotics Deans List Award (Midwest): First place in State for student leaders
- 2x FTC Chicago City Championship (robotics): Best FTC team in City
- FTC Chicago City Control Award: Most advanced robot design
- FTC Chicago City Inspire Award
- FRC Midwest Regional Judge Award

Projects

- Tesla Charger (for FSAE Caltech racing team)
- Spinning Drone paradox (built drone from scratch to save energy consumption)
- Various Sensor programming (lidar, temp, ultrasonic, imu, gyro, color, OpenCV, etc)
- Multipurpose probe (Designed Schematic, PCB, and Assembled)
- PID Self Balancing Robot (ran Simulink simulations)
- Odometry localization
- FRC Chassis (gearbox assembly, wire harness, etc) and Ball Shooter Actuator
- FTC Cone Delivery Robot
- International Robotics Mentor Through One Team, Two Continents Project
- Rapid development of 3D printed face shields for front line workers during the pandemic (3D printerd at home over 200 face shields)