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/manufacturing, EVs, and mechatronics.

EDUCATION

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

SKILLS

- Python/Java Programming
- 3-D printing (gcode)
- Solidworks/Fusion/Onshape
- Robot Arms (FANUC)
- Altium/KiCAD: PCBs
- Gazebo Robot Simulations
- PID controller
- Wiring/Electronics
- Microcontrollers
- Matlab/Simulink
- Docker Containers
- Soldering / Quick Prototyping
- PLC Programming
- CNC Machining
- Communication/Leadership

HIGHLIGHTED COURSE WORK

- **EE 10**: Digital Logic and Embedded Systems
- **ME 129**: Experimental Robotics (ROS)
- **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**
- **1 Month Robotics Challenge**
- **Intro to Def/of Hacking Certificate**

Internships and Awards

- **Avalon Robotics Engineering Internship (Spring 2024)**: Worked on autonomous manufacturing through mechatronics projects and FANUC Robot arm
- **CPS Office of Computer Science Robotics Summer Internship (Summer 2023)**: Group leader for building and programming a mecanum robot chassis
- **Morningstar Summer Internship (Summer 2022)**: Front-End Developer on Institutional products team
- **United by STEM: One Team, Two Continents (Fall 2023)**: 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
- FRC Midwest Regional Judge Award and Inspire Award

Projects

- RFID Invetory System for autonomous manufacturing
- Automatic Coolent/water Pump for CNC automation through PLC NEXTEngineer
- KRYTN and MACI Robot Arm ROS programming and integration
- Spinning Drone Paradox (Save energy during flight by optimizing drone built from scratch)
- Multipurpose probe (Designed Schematic, PCB, and Assembled)
- PID Self Balancing Robot (built + optimized with 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