

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 | ○ Gazebo Robot Simulations | ○ ROS |
| ○ 3-D printing (gcode) | ○ PID controllers | ○ Soldering / Quick Prototyping |
| ○ Solidworks/Fusion/Onshape | ○ Wiring/Electronics | ○ PLC Programming |
| ○ Robot Arms (FANUC) | ○ Microcontrollers | ○ CNC Machining |
| ○ Altium/KiCAD: PCBs | ○ Matlab/Simulink | ○ Communication/Leadership |

HIGHLIGHTED COURSE WORK

- | | |
|-------------------------------------------------------|----------------------------------------------|
| ○ ME/EE/CS 133: Kinematics and Dynamics | ○ CS 1/2: Python and Java Programming |
| ○ ME 169: Mobile Robot Localization/Navigation | ○ EE 150: Deep Learning |
| ○ ME 13: Prototyping (Solidworks and CNC) | ○ Android App Development: Java |
| ○ EE 13/23: Electronic Systems Prototyping | ○ EE 44/55: Advanced Circuit Analysis |
| ○ Altium Training: Caltech Racing (FSAE) Team | ○ CS 156: Machine Learning |

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

- ROS2 Autonomous Robot Explorer and Navigator
- ROS2 Fly Swatter Robot Arm
- Developed a Micro-Stompy Humanoid Robot from scratch as part of a startup initiative with K-scale, designed for a low-cost humanoid and ReelSteel-inspired boxing competition.
- RFID Inventory System for autonomous manufacturing
- Automatic Coolant/water Pump for CNC automation through PLC NEXTEngineer
- KRYTN and MACI Robot Arm ROS programming and integration
- Multipurpose probe (Designed Schematic, PCB, and Assembled)
- PID Self Balancing Robot (built + optimized with simulations)
- FTC Cone Delivery Robot: Odometry localization
- International Robotics Mentor Through One Team, Two Continents Project