

# Baaqer Farhat

**in** Baaqer Farhat

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## Summary

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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

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**California Institute of Technology**

**Pasadena, CA**

*EE / Robotics Engineering with minor in Control Systems and Dynamics*

*Sept 2023 - Present*

## SKILLS

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|-----------------------------|----------------------------|---------------------------------|
| ○ Python/Java Programming   | ○ Gazebo Robot Simulations | ○ Docker Containers             |
| ○ 3-D printing (gcode)      | ○ PID controller           | ○ 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

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| ○ <b>EE 10:</b> Digital Logic and Embedded Systems   | ○ <b>CS 1:</b> Python and Java Programming     |
| ○ <b>ME 129:</b> Experimental Robotics (ROS)         | ○ <b>Vue.js Certificate:</b> LinkedIn Learning |
| ○ <b>ME 13:</b> Prototyping (Solidworks and CNC)     | ○ <b>Android App Development With Java</b>     |
| ○ <b>EE 13:</b> Electronic Systems Prototyping       | ○ <b>1 Month Robotics Challenge</b>            |
| ○ <b>Altium Training:</b> Caltech Racing (FSAE) Team | ○ <b>Intro to Def/of Hacking Certificate</b>   |

## Internships and Awards

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- **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

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- 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
- Save energy during flight by optimizing tricopter 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