

Donavan Borges

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Pasadena, CA, USA

EDUCATION

• California Institute of Technology (Caltech)

Expected WI 2026

B.S. in Computer Science with a focus in Robotics

Pasadena, CA

- **Relevant Coursework:** ME/CS/EE 129 Experimental Robotics; CS 133a Robotics; CS 156a Learning Systems; EE/ME 7 Mechatronics; EE 11 Signal Processing; CS 133b Robotics (planned); CS 155 Machine Learning (planned); CS 38 Algorithms (planned)

PROJECTS

• Autonomous Multi-Robot Systems

Mar 2025 – Jun 2025

ME/CS/EE 129: Experimental Robotics

- Programmed mobile robots in **Python** for exploration, mapping, navigation, and reactive obstacle avoidance
- Implemented motor control with continuous **sensor feedback loops** (IR, ultrasound); polling & interrupt-driven I/O
- Designed **multi-threaded** architectures for real-time sensing, planning, and actuation
- Developed planning/exploration algorithms via graph data structures; final multi-robot autonomous challenge demo

• Autonomous Combat Robot (Ongoing)

Sep 2025 – Present

Caltech Robotics Team

- Leading CRT's first autonomous combat robotics project, inspired by Cornell and Waterloo designs
- Developing perception and autonomy stack: object tracking, embedded control, decision-making for competitive robotics
- Coordinating with controls and hardware subteams to integrate autonomy into combat-ready platform

SKILLS

- **Programming & Simulation:** Python, C++, MATLAB, ROS; multi-threaded programming
- **Robotics & Systems:** Motor control; sensor integration (IR, ultrasound); feedback control; planning & navigation
- **Hardware Platforms:** Embedded systems, Arduino, Raspberry Pi; autonomous mobile robots; mechatronics
- **Other:** Team leadership; project planning; fast-learning, communication

LEADERSHIP EXPERIENCE

• Treasurer & Software Team Lead

Apr 2025 – Present

Caltech Robotics Team

- Managed finances and resources for multi-project initiatives coordinated across ME/EE/CS subteams
- Guided software direction across projects: open-source quadruped (CCBR), combat robots, RoboSub, and team website

ACHIEVEMENTS

• Elected Treasurer & Software Lead

Apr 2025 – Present

Caltech Robotics Team

- Selected by peers to lead budgeting and software initiatives across multiple autonomous systems projects

• Questbridge National College Match Scholarship

Dec 2020

Questbridge

- Full four-year scholarship awarded for outstanding academic achievement and leadership potential among high-achieving, low-income students nationwide