Charles Bradley

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Education

California Polytechnic State University San Luis Obispo, CA

Bachelor of Science in Mechanical Engineering - Mechatronics Concentration *Expected May 2028*

- **GPA (Major):** 3.4 / 4.0
- **Relevant Coursework:** Engineering Statics, Engineering Dynamics, Electric Circuit Theory, Programming for Engineering Students, Linear Analysis (Honors), Manufacturing Processes: Material Removal
- **Activities & Societies:** Member, Sigma Phi Delta (Professional Engineering Fraternity)

Projects

Autonomous Locomotion Robot | *Sigma Phi Delta* Jan 2026 – Present

- Leading development of a proof-of-concept autonomous robot using servo-actuated joints
- Implementing voice-command recognition on an ESP32 to decode simple commands and map them to predetermined servo positions
- Designing a scalable mechatronics platform for future expansion into vision-based automation and artificial intelligence

RC Cars | *Sigma Phi Delta* Jan 2026 – Present

- Collaborating on a four-person mechanical team to design and manufacture a fully 3D-printed RC car under a $250 budget for a multi-team race
- Working on mechanical design to ensure seamless integration with other subsystems
- Designing and modeling the steering rack assembly in SolidWorks

Air Motor | *California Polytechnic State University* Nov 2025 – Dec 2025

- Collaborated on a five-person team to machine a functional compressed-air motor
- Manufactured precision components using five-axis CNC mills and manual lathes to meet dimensional tolerances within ± 0.005 in
- Assembled and tested the motor under controlled conditions, achieving speeds of approximately 2900 RPM

Secure Access Lockbox | *California Polytechnic State University* Nov 2024 – Dec 2024

- Collaborated on a three-person team to design an access-control system integrating an Arduino Mega, RFID authentication module, and keypad
- Utalized validation logic to authenticate credentials using RFID UID comparison and or pin validation
- Programmed LED validation behavior with an LCD status display and LED indicators

Vacuum Chamber | *Milwaukee Tool* Jan 2023 – Apr 2023

- Collaborated on a three-person team to design and prototype a vacuum chamber to enable in-house high-altitude testing
- Performed analytical calculations for vacuum pump sizing, pressure differentials, material strength, and factors of safety, improving the reliability and repeatability of testing
- Developed proof-of-concept and detailed CAD models of the chamber, base structure, and component interfaces to guide next-phase development
- Achieved a vacuum capable of simulating altitudes up to 29,500 ft

Certifications

Certified SolidWorks Associate (CSWA) | *Dassault Systèmes*

Autodesk Inventor Certified User | *Certiport*

Lean Six Sigma Fundamentals | *LinkedIn*

Technical Skills

Software: SolidWorks, Autodesk Inventor, MATLAB, Siemens NX
Hardware: Hand Drafting, Soldering, Machining (Manual Lathe & CNC Mill)