Jeffrey Bratman

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SUMMARY

Multidisciplinary engineer with hands-on autonomy experience in robotics and embedded systems. Experienced with ROS2 and Python for sensor integration, perception, and system-level simulation workflows. Designed and validated autonomy components for scale autonomous racecars, improving sensor mounting, benchmarking system performance, and refining hardware-software integration. Skilled in rapid prototyping, CAD-driven design, field testing, and collaborating across perception, planning, and control domains to deliver robust autonomous systems in real-world environments.

EDUCATION

University of California-San Diego
Bachelor of Science in Aerospace Engineering **Sept. 2022 – June 2025**

SKILLS

- **CAD Software:** Siemens NX, SolidWorks, Autodesk Fusion, AutoCAD, Creo
- **Prototyping & Electronics:** 3D Printing (FDM, SLS, SLA), Microcontrollers (Arduino), NVIDIA Jetson Nano, Raspberry Pi
- **Embedded Systems & DevOps:** ROS2, Docker, VMware, Embedded Linux Systems
- **Programming Languages:** MATLAB, Python
- **Simulation & Data Analysis:** ChassisSim, MoTeC i2
- **Lab & Diagnostic Equipment:** Oscilloscopes, Function Generators, DMM, Automotive Diagnostic Tools (OBD-II scanners, pressure/vacuum gauges)

EXPERIENCE

UC San Diego Autonomous Vehicles Racing Team (UCSD) **Aug. 2025 – Current**
Research Assistant

- Redesigned and fabricated updated sensor mounting systems for 1/10th and 1/5th scale autonomous race cars, enabling retention of body shell for realistic vehicle appearance.
- Improved sensor accessibility, adjustment, and serviceability. Reducing downtime, enabling adaptability across different vehicle setups, and retaining realistic appearance.

Triton AI – Indy Autonomous Challenge (UCSD) **Nov. 2024 – Aug. 2025**
Vehicle Dynamics Engineer

- Developing a vehicle chassis simulation model with ChassisSim and MoTeC i2 to predict vehicle dynamics and optimize on-track performance.
- Analyzing telemetry data in MoTeC i2 to validate simulation, refine vehicle parameters, and enhance chassis handling, stability and predictability.

Triton AI – Autonomous Karting Series (UCSD) **Nov. 2024 – Aug. 2025**
Head of Mechanical Development

- Developed CAD models for electrical and battery mounting, enhancing thermal management, airflow efficiency, and spatial optimization.
- Developed and implemented battery mounting solutions to enhance structural integrity and ease of maintenance.
- Coordinated with project management to define deliverables and ensure alignment with development timelines.

N.A.S.A L'Space Proposal Writing & Evaluation Professional Development Program **May. 2024 – Aug. 2024**
Head of Programmatic Team

- Co-authored a proposal addressing a NASA mission pain point, including development of supporting intellectual property.
- Led coordination of logistics, budgeting, and team communications between the PI and project stakeholders
- Managed timelines and deliverables to ensure successful submission of technically and financially feasible proposal.

Void Putters (San Diego) **Aug. 2022**
Engineering Consultant

- Designed testing procedures to evaluate prototype performance and validate new product technology.
- Proposed and implemented materials integration strategies to improve product function and manufacturability.