

John Doe

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EDUCATION

- Doctor of Philosophy, Robotics (in progress)** Aug 2026 - Present
Carnegie Mellon University, Robotics Institute
- Master of Science, Robotics** Aug 2024 - May 2026
Carnegie Mellon University, School of Computer Science
- Bachelor of Science, Mechanical Engineering** Aug 2020 - May 2024
Georgia Institute of Technology, College of Engineering

INDUSTRY EXPERIENCE

- Robotics Software Engineer Intern** • Boston Dynamics • Waltham, MA May 2025 - Aug 2025
- Implemented real-time obstacle avoidance algorithms for quadruped locomotion across uneven terrain, reducing collision events by 34% during field trials in warehouse environments.
 - Designed a ROS2-based sensor fusion pipeline integrating LiDAR, stereo vision, and IMU data to improve localization accuracy from 15cm to under 3cm drift per kilometer.
 - Wrote comprehensive unit and integration tests for the perception stack, increasing code coverage from 52% to 89% and catching three critical race conditions before deployment.
- Mechatronics Engineering Intern** • Rivian • Normal, IL May 2022 - Aug 2022
- Developed automated calibration routines for battery management system sensors across 40 pre-production vehicles, reducing manual calibration time from 6 hours to 45 minutes per unit.
 - Built a Python-based diagnostic dashboard that aggregated CAN bus telemetry in real time, enabling technicians to identify faulty modules 60% faster during assembly line audits.
 - Collaborated with the thermal management team to validate coolant flow sensor readings against simulation models, identifying a systematic 4% bias that led to a revised sensor placement strategy.

RESEARCH EXPERIENCE

- Graduate Research Assistant** • CMU Robotics Institute • Pittsburgh, PA Aug 2024 - Present
- Developing a unified perception framework for legged robots that fuses LiDAR, stereo vision, and tactile sensing to estimate terrain deformability and adapt gait parameters in real time.
 - Designing hierarchical reinforcement learning policies for quadruped locomotion on granular and deformable surfaces, demonstrating 40% reduction in energy expenditure versus baseline gaits.
 - Co-supervising two MS students on subprojects related to multi-modal sensor calibration and online terrain classification.
 - Maintaining lab compute infrastructure across a 12-node GPU cluster, including Slurm scheduling and experiment reproducibility tooling.
- Undergraduate Research Assistant** • Georgia Tech LIDAR Lab • Atlanta, GA Jan 2023 - May 2024
- Built a custom dataset of 12,000 annotated point clouds for outdoor scene segmentation, establishing a benchmark adopted by three partnering institutions.
 - Trained transformer-based 3D object detection models on multi-GPU clusters, achieving a 7% improvement in mean average precision over baseline architectures.
 - Authored internal documentation and reproducible training scripts used by 15 lab members across two research groups, standardizing experiment tracking with Weights & Biases.
 - Presented research progress at two internal lab symposia and one departmental poster session attended by faculty and industry sponsors.

Research Intern • MIT CSAIL • Cambridge, MA

May 2023 - Aug 2023

- Investigated sim-to-real transfer strategies for contact-rich manipulation tasks, reducing the policy performance gap between simulation and physical hardware from 31% to 9%.
- Implemented domain randomization pipelines in Isaac Gym, parameterizing friction, mass, and actuator delay distributions across 200 randomized environment configurations.
- Contributed to an open-source benchmarking suite for dexterous manipulation policies, subsequently used in three published comparisons.

PUBLICATIONS

* denotes equal contribution.

John Doe, Marcus Rivera, Priya Chandrasekaran. **Real-Time Semantic Segmentation of Unstructured Terrain for Legged Robot Navigation.** *IEEE International Conference on Robotics and Automation (ICRA)*, 2026.

Priya Chandrasekaran, John Doe, Wei Zhang. **Lightweight Transformer Architectures for On-Device 3D Object Detection.** *Under review at IEEE Robotics and Automation Letters (RA-L)*, 2026.

Marcus Rivera, Wei Zhang, John Doe. **A Comparative Study of Visual Odometry Methods for GPS-Denied Quadruped Locomotion.** *Submitted to Conference on Robot Learning (CoRL)*, 2026.

Wei Zhang, John Doe, Priya Chandrasekaran, Sarah Kim. **Adaptive Gait Generation for Legged Robots Using Reinforcement Learning on Deformable Surfaces.** *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2025.

John Doe, Wei Zhang. **Multi-Resolution Point Cloud Registration for Large-Scale Outdoor Mapping.** *Submitted to Robotics and Autonomous Systems*, 2026.

Sarah Kim, Marcus Rivera, John Doe, Priya Chandrasekaran. **Energy-Efficient Motion Planning for Battery-Constrained Mobile Robots in Dynamic Environments.** *IEEE Transactions on Robotics (T-RO)*, 2025.

John Doe, Sarah Kim. **Terrain-Aware Foothold Planning for Quadrupeds Using Sparse Depth Estimation.** *Workshop on Legged Robots, ICRA*, 2025.

Marcus Rivera, John Doe. **Online Extrinsic Calibration Between LiDAR and Stereo Camera for Mobile Robots.** *IEEE Sensors Letters*, 2024.

TALKS & PRESENTATIONS

John Doe. **Real-Time Terrain Segmentation for Legged Robots.** *Invited talk, CMU RI Seminar Series*, November 2025.

John Doe, Marcus Rivera. **Visual Odometry for GPS-Denied Environments.** *Poster, Georgia Tech Research Symposium*, April 2024.

John Doe. **Sim-to-Real Transfer for Contact-Rich Manipulation.** *Lightning talk, MIT CSAIL Student Symposium*, August 2023.

PROJECTS

Atlas • Autonomous drone navigation system with visual SLAM.

C++, Python

- Engineered a monocular visual SLAM pipeline capable of mapping indoor environments at 30fps on embedded NVIDIA Jetson hardware with sub-5cm positional error.
- Integrated a lightweight path planner that dynamically reroutes around newly detected obstacles within 200ms, tested across 50 unique indoor floorplans.

Forge • Custom 3D printing slicer optimized for multi-material extrusion. *Rust*
• Developed a parallel slicing engine that processes complex multi-body STL files 3× faster than conventional open-source alternatives while maintaining sub-layer accuracy.
• Implemented automatic support structure generation using voxel-based overhang detection, reducing failed prints by 22% across a test suite of 200 models.

Pulse • Wearable biometric dashboard with real-time anomaly detection. *Go, TypeScript*
• Built a streaming data pipeline ingesting heart rate, SpO2, and accelerometer data from BLE devices, surfacing anomalies via a responsive web dashboard within 500ms.
• Designed a rolling-window statistical model that flags irregular cardiac rhythms with 91% sensitivity, validated against 4,000 annotated sessions.

TEACHING

Teaching Assistant, 16-833 Robot Localization and Mapping • CMU • Pittsburgh, PA Spring 2025
• Held weekly office hours for a 60-student graduate course covering SLAM, particle filters, and graph-based optimization.
• Designed two new programming assignments on factor graph SLAM and LiDAR odometry, now part of the permanent course curriculum.

Teaching Assistant, ME 2110 Creative Decisions and Design • Georgia Tech • Atlanta, GA Fall 2023
• Mentored eight student teams in a semester-long mechatronics design competition, providing guidance on mechanical design, embedded systems, and control.
• Evaluated weekly milestone reports and gave structured feedback to improve technical writing and presentation skills.

HONORS & AWARDS

NSF Graduate Research Fellowship 2024 - 2027
National Science Foundation

Best Paper Award, Legged Robots Workshop ICRA 2025
IEEE Robotics and Automation Society

President's Undergraduate Research Award Spring 2023
Georgia Institute of Technology

Dean's List 2020 - 2024
Georgia Institute of Technology

PROFESSIONAL SERVICE

Reviewer: IEEE Transactions on Robotics (T-RO), IEEE RA-L, ICRA 2025, IROS 2025, CoRL 2025
Volunteer: ICRA 2025, IROS 2024
Member: IEEE Robotics and Automation Society, ACM

TECHNICAL SKILLS

Languages: Python, C++, Rust, Go, TypeScript, MATLAB, SQL, Bash, LaTeX
Frameworks: ROS2, PyTorch, TensorFlow, OpenCV, Isaac Gym, React, Docker, Kubernetes
Hardware: NVIDIA Jetson, Raspberry Pi, Arduino, STM32, ZED Stereo Camera, Velodyne LiDAR
Tools: Git, Weights & Biases, Slurm, CMake, GDB, Valgrind