

CALVIN STAHOVIK

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Active DOE L Clearance

Master's graduate in Computer Science with expertise in autonomous robotics, AI, and ROS-based development. Several years of research experience in reinforcement learning for robot control, supervised learning tasks, mobile robot control, robotic manipulator control, computer vision algorithms, robotic simulation tools, and CUDA optimization programming. Strong desire for research or engineering career in robotic manipulation or machine learning development.

EDUCATION

University of New Mexico

Aug. 2023 – Dec. 2025

Master of Science in Computer Science, GPA: 3.83

Albuquerque, NM

- **Thesis (awarded distinction):** *Dynamic Admittance Parameterization for Non-Prehensile Multi-Robot Transport with Optimal Coordinated Planning*
- **Relevant Coursework:** Parallel Processing (A-), Machine Learning (A), Controls (A+), Advanced Machine Learning (A+), Deep Reinforcement Learning, High Performance Computing

University of New Mexico

Aug. 2018 – May 2022

Bachelor of Science in Computer Science

Albuquerque, NM

- **Relevant Coursework:** Calculus III (A), Differential Equations (B), Linear Algebra (B), Data Structures & Algorithms I & II (B+), Design of Large Programs (B), Computer Logic Design (B), Data Organization (A+)
- Studied abroad at Akita International University, Akita, Japan (Fall 2022).

EXPERIENCE

Research and Development Graduate Intern

June 2024 – Present

Sandia National Laboratories

Albuquerque, NM

- Setup an April-Tag and PID-based outdoor experimental testbed to benchmark gesture recognition algorithms on mobile robots, evaluating reliability and accuracy across multiple platforms [2].
- Trained a physics-informed deep neural network and novel localization algorithm to rapidly estimate mechanical constraints of objects for robust autonomous robotic manipulation[3].
- Developed end-to-end multi-behavior policy for quadrotor control using modern reinforcement techniques.
- Developed computer vision pipeline to track small objects across multiple video feeds simultaneously.

Graduate Research Assistant

Aug. 2023 – Dec. 2025

University of New Mexico (with Prof. Melanie Moses)

Albuquerque, NM

- Performed research on autonomous cooperative transport using a mobile robot platforms with fixed manipulator arms. Developed hybrid admittance-impedance control and optimal coordinated planning approaches [1].
- Research involved full-stack robot development, mechanical prototyping and assembly, manipulator integration, SLAM-based localization, and pose-estimation pipelines.
- Managed a team of undergraduate researchers by defining roadmaps, allocating tasks, and presenting weekly progress updates to faculty advisors.
- Maintained the UNM Bio-Computing Lab space by organizing equipment, managing inventory, and tracking the health of hardware such as computers, batteries, etc.

Research and Development Undergraduate Intern

Apr. 2019 – Aug. 2022

Sandia National Laboratories

Albuquerque, NM

- Implemented low-level motor controllers for skid-steer mobile robots using MATLAB, Arduino, Raspberry Pi, and ROS.
- Developed a novel real-time RGBD-based detection, segmentation, and localization ROS package. Pipeline involved custom YOLO models and OpenCV filters, CUDA acceleration, and custom ROS messaging. All together enabled accurate centroid estimation sub-frame inference on a single GPU [4].

TECHNICAL SKILLS

Languages: C++, CUDA, C, Python, Bash, MATLAB, Java, HTML, CSS, Haskell, XML

Robotics: ROS, Isaac Sim/Lab Gazebo, SLAM, Admittance/Impedance Control, Occupancy Mapping, Motion Planning

Machine Learning: PyTorch, TensorFlow, YOLO, scikit-learn, MLFlow, Optuna, Reinforcement Learning

Computer vision: OpenCV, Point Cloud Processing, OpenGL

Hardware: RGBD Sensors, April-Tag, Mobile Robot Platforms, Robotic Manipulators, Low-Level Sensor I/O

Developer Tools: Git, Conda, Linux, VS Code, Simulink, SLURM, Firebase, Flutter, Claude Code

Other: JLPT (~N3)

PERSONAL PROJECTS

Productivity Web Application | *Firebase, Flutter, Dart*

- Full-stack development of a web-based and mobile application. Allows users to track habits and adhere to them in clever ways.
- Also performed project planning, managing tasks, and setting milestones for project collaborators.

AWARDS & HONORS

Thesis Distinction: M.S. thesis *Dynamic Admittance Parameterization for Non-Prehensile Multi-Robot Transport with Optimal Coordinated Planning* awarded distinction by the University of New Mexico Department of Computer Science, Dec. 2025.

Lobo Hackathon (2025): Fourth place for an AI-powered web app that helps consolidate and summarize government legislature.

VOLUNTEER WORK

- Central NM STEM Research Challenge Judge Chair (2025, 2026)
- UNM School of Engineering Open House Computer Science Ambassador (2025)

PUBLICATIONS

- [1] **Stahoviak, C.** et al., “Dynamic Admittance Parametrisation of Non-Prehensile Multi-Robot Transport with Optimal Coordinated Planning,” *MECC*, 2026. (*in preparation*)
- [2] Stocco, P. et al., “Reliability of Mobile Camera-Based Hand Sign Recognition in Outdoor Environments,” *MECC*, 2026. (*in preparation*)
- [3] Kim, R. et al., “Perceived Constraint Identification Using Physics-Informed Deep Neural Networks,” *ASME LDSC*, 2025.
- [4] Young, C. et al., “Rapid Constrained Object Motion Estimation based on Centroid Localization of Semantically Labeled Objects,” *AIM*, 2024.