

Devesh Nath

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EDUCATION

PhD, Robotics - Georgia Institute of Technology

Aug 2024 – May 2029 (Expected)

Third Year

BSE, Electrical Engineering - Arizona State University

Aug 2020 – May 2024

GPA – 4.00

RESEARCH

Graduate Researcher, Trustworthy Robotics Lab – Georgia Tech

Jan 2025 – Present

I believe performant and safe robotics starts with principles from control theory and statistics. Scaling data, compute, and tuning helps, but mostly pushes us toward a local optimum. The real leap is using ML to discover representations that principled methods can exploit, rather than brute-forcing the problem.

PUBLICATIONS

Pixels to Proofs: Probabilistically Safe Latent World Model Control via Parallel Conformal Robust MPC

(RSS 2026, Robot World Model Workshop)

Devesh Nath*, Anutam Srinivasan*, Haoran Yin*, Ruitong Jiang, Jeffrey Fang, Glen Chou

Turning raw pixels into probabilistically safe robot control by combining learned latent world models, calibrated uncertainty, and GPU-parallel robust MPC.

- Pixels to Safe Control
- GPU-Parallel Robust MPC
- Conformalized World Models
- Safe Vision-Based Manipulation

Scalable Data-Driven Reachability Analysis and Control via Koopman Operators with Conformal Coverage Guarantees

(L4DC 2026, **Best Paper Finalist**)

Devesh Nath*, Haoran Yin*, Glen Chou

Scaling probabilistically guaranteed safety verification to high-dimensional nonlinear robotics by combining learned Koopman dynamics, efficient reachability analysis, and conformal prediction.

- Scalable Nonlinear Reachability
- Learned Koopman Linearization
- Conformal Safety Guarantees
- Black Box Dynamics

μ MPC: Safe Nonlinear and World Model Control in Microseconds via Koopman-Linearized Pre-Compilation

(ICRA 2027, In Submission)

Devesh Nath, Glen Chou

Enabling microsecond scale nonlinear robotic planning. Applied for sub-millisecond vision-based planning with linear world models and fast, efficient high-dimensional robot control.

- Scalable Nonlinear Optimal Control
- Real-time control with World Models
- Fast Unitree Go2 Control
- Highly Scalable Multi-Agent Planning

Formal Safety Verification and Refinement for Generative Motion Planners via Certified Local Stabilization

(ICRA 2026)

Devesh Nath*, Haoran Yin*, Glen Chou

Bringing formal safety guarantees to diffusion, flow-matching, and vision-language motion planners through certified local stabilization, preserving multimodal behavior without retraining the generative models.

- Formally Verified Generative Planning
- Certified Local Stabilization
- Safe Multimodal Planning
- Retraining-Free Safety Refinement

Adaptive Conformal Prediction Via Learned Residual-Law Retrieval

(ICLR 2027, In Submission)

Devesh Nath, Glen Chou

Scaling conformal prediction to high-dimensional statistical inference, with applications to multimodal trajectory uncertainty in autonomous driving and long horizon robot reachability.

- Scalable Conformal Prediction
- Conformal Multi Modal Autonomous Driving

- Learned Uncertainty Representation
- High Dimensional Reachability

INDUSTRY EXPERIENCE -----

Automation Engineering Intern - Rehrig Pacific Company

May 2023 – Aug 2023

- Designed and built an automated test unit for robot end effectors with application of Programmable Logic Controllers, Human Machine Interface, Industrial Sensors and Pneumatic Control Valves.
- Saved over ~ \$30k per annum on Arm Tool related downtime costs.
- Programmed and deployed UR5e Cobots for repetitive pick-and-place tasks on production lines, optimizing workflows to significantly reduce manufacturing time and lower the overall cost per part produced. Used industrial sensors for part detection and synchronized UR5e for stacking using pneumatic grippers.

SKILLS-----

ML: World Models, Activation Steering, Generative Modeling

Controls: Nonlinear Robust Optimal Control, Reinforcement Learning, Safe Control via Statistical Reachability Analysis

Programming: Python, Jax, PyTorch, C++

LEADERSHIP -----

GTA – Robotics and AI Techniques

Jan 2026 – Present

Undergraduate Research Mentor – Opportunity Research Scholars

Jan 2026 – Present

Head TA - Feedback Control Systems

May 2025 – Dec 2025

President - ASU Sun Devil Robotics Club

July 2023 – May 2024

Within a semester's worth of time, I led the team to complete the mechanical design of the rover with the development of a comprehensive software stack for autonomy and control.