

PRANAV GOYAL

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EDUCATION

University of Michigan, Ann Arbor

Ph.D. in Robotics, Advisor: [Dr. Christoforos Mavrogiannis](#)

Aug 2024 - Aug 2029

GPA 4.12/4.00

BITS Pilani, K.K. Birla Goa Campus

B.E. in Electronics and Instrumentation Engineering

Aug 2019 - Mar 2023

GPA 8.58/10

RESEARCH EXPERIENCE

Fluent Robotics Lab, University of Michigan

Graduate Research Assistant

Ann Arbor, USA

Aug 2024 - Present

- Built MPPI-based intent-expression planners in PyTorch and ran a study on a Hello Robot Stretch 2 showing that distraction changes what makes robot motion legible (HRI 2026; under review at THRI).
- Co-led Bi3 and ACME, social navigation datasets spanning two platforms and two cultures, for benchmarking foundational navigation models (ICRA 2026; under review at IJRR).
- Developing Alpaca, an open-source platform for reproducible human-aware planning (under review, HRI 2027).

CLeAR Lab, National University of Singapore

Research Assistant, Advisor: [Dr. Harold Soh](#)

Singapore

Aug 2023 - Aug 2024

- Formulated LTLDoG, a diffusion-based global planner satisfying temporal-logic constraints, deployed on a Unitree Go2 (RA-L 2024).
- Designed SocRATES, an LLM-powered tool turning natural-language scenarios into executable ROS2/Gazebo benchmarks for social navigation (RA-L 2026; Runner-up Best Paper, RSS 2024 workshop).

Biorobotics Lab, Robotics Institute, CMU

Research Intern, Advisor: [Dr. Howie Choset](#)

Pittsburgh, USA

Jun 2022 - Jan 2023

- Implemented convex MPC and geometric control for a legged-wheeled robot and built its prototype from HEBI modules (DARPA VeRT; Bachelor's thesis).
- Built an automated void detection pipeline from point cloud registration and SfM reconstruction of drone footage of the Surfside collapse (IROS 2023, SSRR 2022).

SELECTED PUBLICATIONS

- **Rethinking Legibility in Social Robot Navigation.** [Goyal](#), Stratton, Mavrogiannis. *HRI 2026 LBR*.
- **How Human Motion Prediction Quality Shapes Social Navigation.** Stratton et al. *HRI 2026*.
- **Bi3: A Biplatform, Bicultural, Biperson Social Navigation Dataset.** Stratton et al. *ICRA 2026*.
- **SocRATES: Scenario-based Testing of Social Navigation.** Marpally, [Goyal](#), Soh. *RA-L 2026*.
- **ACME: Multi-Cultural, Multi-Embodiment Navigation Dataset.** Marpally et al. *Under review, IJRR*.
- **LTLDoG: Symbolic Constraints for Safe Diffusion Planning.** Feng, Luan, [Goyal](#), Soh. *RA-L 2024*.
- **Void Detection for Search and Rescue with 3D Perception.** Bal, [Goyal](#), et al. *IROS 2023*.

SKILLS

Languages & Tools: Python, C/C++, MATLAB, R, Bash; PyTorch, ROS 1/2, Gazebo, OpenCV, Open3D

Methods: Optimal and sampling-based control (MPPI, convex MPC), diffusion planning, reinforcement learning, human motion prediction, 3D reconstruction (SfM, point cloud registration), human detection and tracking

Robot Platforms: Hello Robot Stretch 2, Unitree Go2, Universal Robots and WidowX arms, AgileX Ranger Mini 3.0, OptiTrack

AWARDS & SERVICE

Awards: Robotics PhD Departmental Fellowship | Rackham Travel Grant | Runner-up Best Paper, RSS 2024 Social Navigation Workshop

Reviewer: THRI, RA-L, ICRA, IROS, HRI, Autonomous Robots, RO-MAN

Teaching: Graduate Student Instructor, ROB 204: Introduction to Human-Robot Systems (Fall 2026)