Leona (Nhi) Nguyen

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Research Interests: Robot Learning, Deep Reinforcement Learning, Semantic Mapping, Dexterous Manipulation, Human-Robot Interaction (HRI).

EDUCATION

Georgia Institute of Technology	Atlanta, GA
M.S. in Robotics, College of Computing; ***GPA: 4.0***	*Aug. 2024 – May 2026*
Worcester Polytechnic Institute (WPI)	Worcester, MA
B.S. in Robotics Engineering & Computer Science; ***GPA: 3.94***	*Aug. 2020 – May 2024*

RESEARCH PROJECTS

FLASH: Flow-Based Language-Annotated Grasp Synthesis for Dexterous Hands
CoRL 2025 Workshop (Spotlight)

- Built a language-conditioned flow-matching model that jointly encodes task intent and physical contact metrics for dexterous grasping.
- Aligned natural-language descriptions with high-DOF hand pose spaces.
- Accepted as a Spotlight at the CoRL 2025 Workshop on Dexterous Manipulation.

StretchMapping: Semantic Mapping for Mobile Manipulators
Hello Robot Newsletter '25

- Integrated ORB-SLAM2, semantic segmentation, and Khronos to generate dynamic, temporally consistent scene graphs.
- Enabled long-term object/human tracking for assistive household robots.
- Featured in Hello Robot's April 2025 Community Newsletter.

Deep Learning for Dexterous Manipulation: Survey & Benchmark
Under Review for Advanced Robotics Research journal

- Co-authored a comprehensive survey of deep-learning frameworks for dexterous manipulation.
- Enabled long-term object/human tracking for assistive household robots.
- Developed a benchmark evaluating 40+ manipulation models across grasp quality and generalization.

"Would you like to use this?" Exploring User Perceptions of Proactive Robot Assistance In-The-Wild
In Review for HRI 2026

- Built an end-to-end proactive assistance pipeline that models user routines and fetches/returns objects.
- Deployed multi-week in-the-wild experiments using Hello Robot Stretch.

EXPERIENCE

Graduate Research Assistant	Aug. 2024 – Present
PAIR Lab (Prof. Animesh Garg) & RAIL Lab (Prof. Sonia Chernova), Georgia Tech	*Atlanta, GA*

- Developing dexterous grasp synthesis methods using flow models (FLASH project).
- Building semantic mapping and dynamic scene graph pipelines (StretchMapping).
- Designing proactive household assistance systems using temporal models of user routines.
- Deployed policies onto LeapHand 2.0, Kinova arms, and Hello Robot Stretch using IsaacLab and ROS2.

Research Intern	May 2025 – Aug. 2025
AI for Social Good Lab, NJIT	*Newark, NJ*

- **SGCode Project (ACM CCS 2024, Co-First Author):** Developed an LLM-based secure code generation system combining prompt optimization and a generative adversarial graph neural network (GAGNN).
- Integrated static analysis + adversarial GNN defenses to detect and mitigate vulnerabilities in code generated by LLMs.

Robotics Software Quality Engineer Co-op	May 2022 – Aug. 2022
SIEMENS — Corindus Vascular Robotics	*Newton, MA*

- Implemented automated system-control test pipelines using Azure DevOps and Helix ALM.
- Configured FortiGate protocols enabling secure communication between distributed robotic units.
- Maintained simulation environments and authored 7+ critical tool validation reports for regulatory documentation.

Volunteer Undergraduate Researcher June 2023 – May 2024
NEST Lab, WPI *Worcester, MA*
- Research assistant to Dr. Khai Yi; advised by Prof. Carlo Pinciroli.
- Engineered a decentralized "Mailman" communication protocol enabling robust range-and-bearing multi-agent communication.
- Developed C++/ROS2 plugins connecting ARGoS with AWS DeepRacer.

TEACHING EXPERIENCE

Graduate Teaching Assistant, CS 3630: Robotics & Perception Jan. 2025 – Present
School of Interactive Computing, Georgia Tech *Atlanta, GA*
- Supported lectures by Prof. Sonia Chernova and Prof. Frank Dellaert.
- Designed quizzes and assignments; held office hours for algorithmic debugging and perception concepts.

Student Assistant, Unified Robotics Mar. 2023 – May 2024
Robotics Engineering Department, WPI *Worcester, MA*
- Led labs and mentored projects for RBE Unified Robotics sequence.
- Supported coursework in sensing, power transmission, kinematics, and robot control.

Teaching Assistant, CS 543: Computer Graphics May 2023 – Aug. 2023
Computer Science Department, WPI *Worcester, MA*
- Graded programming projects and exams; tutored students on rendering pipelines, projection, clipping, and shading.

SELECTED PROJECTS

HINTeract: Hierarchical Interactive Learning
- Designed a hierarchical RL framework enabling robots to request human hints to avoid failure states.

HURON Humanoid & Mumei Middleware
- Engineered humanoid robot hardware architecture; designed modular ankle joints in SOLIDWORKS.
- Developed a clean, open-source middleware connecting CAN motor control to high-level motion controllers.

Multi-Cable Robot Planning
- Implemented RL policies for cable-driven parallel robots for agricultural data-collection tasks.

AWARDS & HONORS

Dean's List (WPI, 2020–2024); Outstanding Junior Award – Robotics Engineering Dept.;
Gold Medal(2019), Silver Medal(2018) – World Robot Olympiad (WRO) National;
First Place – SheCode Hackathon 2020; Upsilon Pi Epsilon (CS Honor Society).

TECHNICAL SKILLS

Robotics & ML: PyTorch, IsaacLab, ROS2, Gazebo, MuJoCo, Khronos, ORB-SLAM2, MoveIt
Developer Tools: Git, Docker, Apptainer, Google Cloud Platform, Azure DevOps, WandB, Linux HPC Systems
Languages: C/C++, Python, Java, JavaScript, SQL, WebGL

ADDITIONAL ACTIVITIES

Activities: BridgeUp 2025, VPWomen - GaTech RoboGrad, Georgia Tech Kendo club, WPI Combat Robotics, WPI Martial Arts Society SOMA, IoT Robotics HCMUS, Trainee – Intel Female Engineer Training Program