An Nguyen

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Education

Northwestern University — Evanston, IL
Master of Science in Robotics — *Dec. 2025*

Oberlin College and Conservatory — Oberlin, OH
Bachelor's Degree in Computer Science — *May 2024*

Skills

Programming: Python (NumPy, pandas), C++, C, Java, Bash, Unit Testing
Robotics: ROS 2, MoveIt, OpenCV, Gazebo, RViz, AprilTags, behavior trees, embedded systems, control systems
Hardware: Onshape, microcontrollers (ESP32, Arduino, PIC32), UART, I2C, quadrupeds, drones
Software Tools: Linux, Git, CMake, Docker, CoppeliaSim, gRPC, Protobuf, Bazel
Machine Learning: PyTorch, CNNs, VAEs, GANs, diffusion models, transformers, multimodal models

Experience

Intrinsic Innovation LLC (Alphabet) — Jun. 2025 – Sep. 2025
Robotics Software Engineering Intern — *Mountain View, CA*
- Incorporated LLMs into Flowstate to automate behavior tree generation and manipulation for robotic workflows (gRPC, Protobuf, Bazel).
- Developed a Python-based pipeline transforming natural-language prompts into executable automation behaviors.
- Streamlined scene alignment and reduced manual programming effort through intelligent behavior synthesis.

VinAI — Apr. 2023 – Jul. 2023
AI Engineering Intern — *Ho Chi Minh City, Vietnam*
- Built a computer vision system to track driver head movements (Python).
- Improved distraction detection and mitigation in VinAI's driver management platform.

Heineken — Aug. 2022 – Feb. 2023
Data Science Intern — *Ho Chi Minh City, Vietnam*
- Optimized the data processing pipeline for 390,000+ store outlet records (Python, pandas).
- Reduced duplication detection time for 17,000+ outlets, improving data quality and efficiency.

Brown University (Google Research's exploreCSR program) — Jan. 2021 – May 2021
Research Assistant — *Providence, RI*
- Implemented a convolutional autoencoder to match 2D queries with 3D characters (Python, PyTorch).
- Streamlined animation workflows by automating rigging task matching between 2D and 3D assets.

Projects

Self-Reconfigurable Quadruped Robot | *C++, Python, ROS 2, OpenCV, YOLO (10 weeks)*
- Designed and built a quadruped capable of switching between crawling and rolling modes.
- Integrated IMU sensing (I^2C) and YOLO with Intel RealSense for tilt estimation and autonomous bowling.

Pool-inator: Vision-Guided Pool Playing with a 7-DoF Arm | *Python, OpenCV, ROS 2, MoveIt*
- Created an image processing pipeline for the Franka arm to localize pool ball coordinates.
- Implemented a motion planning interface in ROS 2 with MoveIt.
- Deployed collision-free planning in both Gazebo and physical environments.

Omnidirectional Mobile Manipulation with KUKA youBot | *Python, CoppeliaSim*
- Applied whole-body kinematics and dynamics for trajectory planning and feedback control on the KUKA youBot.
- Executed pick-and-place tasks in dynamic simulation environments.

Poetic Lens: Multimodal Image-to-Poetry Generator | *Python, PyTorch, OpenCV, BLIP*
- Built an AI pipeline that transforms real-time camera input into poetry.
- Integrated BLIP for image captioning and a custom-trained GPT model for text generation.

Swarm Painting with Quadrotors | *Python, C, OptiTrack*
- Implemented cascaded position-velocity PID controllers for reliable autonomous quadrotor flight.