NGUYEN "MATT" NGUYEN

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EDUCATION

University of North Carolina at Charlotte

- BSc in Mechanical Engineering GPA: 3.97/4.0 **| Aug 2023 - Dec 2025**
- Minor in Mathematics and Computer Science AI/ML concentrated GPA: 4.0/4.0 **| Aug 2023 - Dec 2025**

WORK EXPERIENCE

FANUC America | Automation Engineers Intern | Huntersville, NC| May 2025 – Aug 2025

- Worked under the mentorship of the automation solutions team to design custom end-of-arm tooling and robot fixtures to meet project specifications, producing engineering drawings and BOMs in SolidWorks and coordinating with manufacturers for precise fabrication.
- Coordinated between engineering and sales teams to deliver prototypes in ROBOGUIDE simulations and perform performance assessments for new proof-of-concept applications.
- Assisting customers with system troubleshooting via email, calls, site visits, and in-person training to enhance automation adoption.
- Developed a Python-based GUI with TKinter and socket communication for remote robot control, applying OpenCV to demonstrate single-path portrait drawing to showcase FANUC's Remote Motion Control option and provide instruction materials.
- Applied advanced filtering with FANUC 3DV-IR Vision for bin-picking applications, enhancing robot guidance and contributing to automation innovation; completed training in Codesys programming option for FANUC's newly supported controller.

FANUC America | Robotics Engineer Intern | Huntersville, NC| May 2024 – Aug 2024

- Assisted the engineering team in transforming initial concepts into collaborative robot demo cells, enhancing product visibility and human–robot interaction to showcase the company's automation solutions.
- Built and deployed 10 demo cells showcased at company booths during the International Manufacturing Technology Show (IMTS) 2024, supporting the team in delivering successful demonstrations to customers.
- Applied manufacturing safety protocols and authored setup, operation, and training documentation to ensure safe operation, knowledge transfer, and maintainability.

RESEARCH EXPERIENCE

Wind Sensing Research | UNC Charlotte | Jan 2025 – May 2025

- Designed and implemented an experimental testing station to analyze wind behavior using high-speed computer vision tracking in MATLAB to quantify airflow dynamics from ping pong ball motion.
- Developed calibration methods and systematically generated trial datasets, applied statistical analysis to validate model accuracy and experimental repeatability.

High-Speed Obstacle Avoidance with Multi-Modal Sensors | UNC Charlotte | Sep 2023 - May 2024

- Developed predictive models from multi-modal sensor data streams to improve obstacle detection and mapping accuracy, applying statistical filtering to optimize data quality and increase performance.
- Implemented and optimized SLAM algorithms, gaining proficiency in large-scale data processing.
- Presented at the AIAA Conference in Greensboro, NC, 2025.

PUBLICATIONS

M. Nguyen. **"3D Off-road Terrain Mapping for Autonomous Ground Vehicle Energy-Optimal Path Planning,"** 2025 AIAA Regional Student Conferences.

VOLUNTEER EXPERIENCE

VEYM youth leader at Saint Joseph Vietnamese Catholic Church | Charlotte, NC | Jan 2020 – *Present*

- Provide weekly lessons and activities that promote engagement and teamwork for a class of 40 students.
- Participating in organizing training camps around the years for the organization.

REWARDS

Doosan Bobcat STEM Scholarship | Jun 2025

PROJECTS AND COMPETITIONS

Contactless Food Delivering Prototype - STEM TANK Competition **Mar 2023 - Apr 2023**

- Addressed the high demand for campus food services within limited real estate by conceptualizing and implementing an effective catering solution.
- Project role: Designed a compact prototype for an intelligent, autonomous, secure contactless food distribution system catering to students. Constructed using a 3D printed model, Arduino sensors, and assorted components. Project code on GitHub.

Robotics arm design and build **Aug 2024 – Nov 2024**

- Collaborated with a team of six to design, develop, and build a 4-axis robotic arm from the ground up, including conceptual design, constraint calculations, kinematics analysis, and final construction.
- Project Role: Control Engineer – Designed control circuits and Arduino programs for manual and autonomous pick-and-place operations with optimized runtime.

SEIMENS ALIGN **Jan 2025 – Current**

- Worked with a team of five students to design and implement an automated alignment process for large nuclear reactor turbines prior to milling, integrating custom sensors and a control system to collect data, and applying the bending analysis for misalignment correction.
- Contribution: Conducted data collection and analysis from noisy sensor data and developed a Python-based GUI for real-time visualization, actionable guidance, and PWM-driven actuation, achieving specs alignment process with high accuracy and repeatability.

SKILLS

- Programming: Python, C++, Java, MATLAB, Fanuc robot (TP, ROBOGUIDE), sensors, and microcontroller integration.
- Technical tools: SolidWorks, Operating Systems: Windows, Linux (command line, system integration), HMI design, and 3D printing.
- Data Analysis, Statistical Modeling, and Machine Learning with experience in regression, classification, and Reinforcement Learning.