

TRONG-DOAN NGUYEN

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SUMMARY

- Respected as technician and researcher in machine learning, optimization and control in robotics.
- 5+ year experience in programming using Python, C/C++ and Matlab.
- Team oriented with multiple project experiences in robotics and machine learning.
- Demonstrated the ability to problem solve and troubleshoot in both academic and industry settings.

EDUCATION

NORTHERN ARIZONA UNIVERSITY

August 2019 - May 2021

Master of Science in Informatics

Accumulated GPA: 3.84/4.00

- **Emphasis:** Machine Learning, Control Theory, and Optimization to control Nonlinear Dynamical Systems (Advisor: Prof. Truong X. Nghiem)
- **Fast Pitch Award** - AzSEC - 8th Arizona Student Energy Conference (<https://energy.arizona.edu/azsec-2019-fast-pitch-awardees>) 2019

NATIONAL CHIAO TUNG UNIVERSITY

September 2016 - August 2018

Master of Science in Mechanical Engineering

GPA: 4.0/4.0

- **Emphasis:** Control Theory, Machine Learning (Advisor: Prof. An-Chen Lee)
- Thesis: *Data-driven Model Approach Method in Control Selective Laser Melting process*
- **Academic Achievement Award** of National Chiao Tung University 2017
- **Full Scholarship** of Ministry of Science and Technology Taiwan for Master students 2016

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

September 2011 - June 2016

Mechatronics Engineering

GPA: 3.22/4.0

- **Emphasis:** Robot's Mechanics & Dynamics, Control Theory (Advisor: Prof. Quang-Hoang Nguyen)
- Thesis: *Evolution algorithms on tuning controller's parameters*
- **TOKAI GOKYO Scholarship** (TOKAI company) for excellent students of Hanoi University of Science and Technology 2014
- **Bronze medal**, National Mechanics Olympiad Contest, subject: Engineering mechanics 2013

WORKING EXPERIENCE

ROSTek

Remote

Embedded engineer

Feb 2020 - now

- Developed a navigation stack for the autonomous system of Automated Guided Vehicle (AGV).
- In the beta testing phase at our customer's warehouse for tuning and improvement. (Demo: <https://youtu.be/UboG2f4byXs> or <https://youtu.be/FXpE94tJOD4>)
- Consulted architecture of a fleet management software that can manage multiple AVGs working together in a warehouse.
- Trained Robot Operating System (ROS) to the engineering team consisting of 9 robotics engineers.
- Participated in weekly meetings with the engineering team to discuss the development and troubleshoot.

ICONS Lab., NAU

Flagstaff, AZ, USA

Graduate Research Assistant

Aug 2019 - now

- Developed nonlinear model predictive control (NMPC) and Linearized MPC controllers for bicycle model of cars to implement on the Flagstaff's F1/10 Robo-Racing Project platform (<http://ff1rr.nxtlab.org>).

- Used deep neural network to approximate the solutions of Linear MPC, NMPC, and Linearized MPC and benchmark its performance.
- Developed a distributed human detection and localization stack using multiple CO_2 sensors and cameras for occupancy density estimation and social distancing prevention.
- **Principal Investigator** (PI) of a Student Research Grant (~\$2500), "Data-Driven Analytics of Building Utility Demand", where I investigated different ML algorithms in short-term forecasting energy usage of buildings on the NAU campus.
- Teaching assistant of EE 499 - Introduction to Autonomous Driving, where I prepared lecture materials, sample code and document for project assignments, grading, ...
- Co-PI of two capstone projects: Connected Autonomous Vehicles and Autonomous F1/10 Racing for Everyone.
- Published paper:

- [1] T. X. Nghiem, T. Nguyen, and V. Le. "Fast Gaussian Process based Model Predictive Control with Uncertainty Propagation". In: *2019 57th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*. Sept. 2019, pp. 1052–1059. DOI: [10.1109/ALLERTON.2019.8919857](https://doi.org/10.1109/ALLERTON.2019.8919857).

VINSMART

Hanoi, Vietnam

Embedded engineer

March 2019 - July 2019

- Participated in developing an architecture for layer 3 of Vinsmart's 5G NR base station.
- Implemented components of the layer 3 software using C/C++.
- Participated in layer 3 team and the whole project meetings (only key members - about 25 out of more than 100 people) to develop the architecture of the NR base station.

VINFAST

Haiphong, Vietnam

Project Management Officer - PMO

December 2018 - March 2019

- Interior junior-PMO: Cooperated with vendors and engineering team of Interior module to solve problems (engineering change, supply chain, development, ...) occurred during the PTO phase.
- Kept track of the progress of the Interior module and report to Vinfast's Chairwomen in the daily summary and weekly meetings.

VIETTEL AEROSPACE INSTITUTE

Hanoi, Vietnam

Control systems engineer

November 2018 - December 2018

- Developed and implemented an algorithm to forecast trajectories of unmanned aerial flying systems using Gaussian Processes.

Automation Control Lab.

Hsinchu, Taiwan

Graduate Research Assistant

Aug 2016 - Aug 2018

- Developed a symbolic regression-based method to improve the quality product of the Selective Laser Melting (SLM) process.
- Implemented the method on industrial SLM machines of ITRI's Laser and Additive Manufacturing Technology Center (Taiwan).

LANGUAGE & TECHNICAL SKILLS

- **Languages:** Vietnamese (Native), English (Professional proficient)
- **Programming languages:** Python (proficient), C/C++ (proficient), Matlab (proficient)
- **Experienced tools:** ROS, Git, numpy, opencv, tensorflow, pytorch, tensorRT, gpflow, scikit-learn, matplotlib, Simulink, Anova, Eureka, GPTIP...
- **Platforms:** Windows, Linux, MacOS, embedded computer (Nvidia Jetson, Raspberry Pi)
- **Certificates:**
 - Control of Mobile Robots – Georgia Institute of Technology and Coursera July 2016
 - Machine Learning – Stanford ONLINE and Coursera June 2016
 - CSE1309x: Python Programming – The University of Texas System and EdX March 2016
- **Writing:** Microsoft Words, Excel, Power Point, L^AT_EX