

Quang Nhat Nguyen

Doctor of Philosophy Student in Engineering & IT
The University of Melbourne

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Languages: Vietnamese (native), English (proficient),
Japanese (fluent – JLPT N2)

Research Topic

Deep Learning in Transportation Science: develop and enhance Large Language Models, Graph Neural Networks, and Perception Transformers for the analysis of sequential multi-modal driving datasets towards a safe and sustainable intelligent transportation system.

Education

2/2024 – present

Doctor of Philosophy in Engineering and Information Technology
The University of Melbourne, Australia

10/2021 – 9/2023

Master of Engineering in Electrical Engineering
Nagoya University, Japan, First-class Honours

10/2017 – 9/2021

Bachelor of Engineering in Electrical Engineering, Electronics, and Information Engineering
Nagoya University, Japan, First-class Honours, Valedictorian

8/2014 – 5/2017

High School Diploma with specialisation in Mathematics
Le Quy Don High School for Gifted Students, Da Nang City, Vietnam

Affiliated Research Group

2/2024 – present

Australian Integrated Multimodal EcoSystem (AIMES) Laboratory
Faculty of Engineering and Information Technology, The University of Melbourne

4/2020 – 9/2023

Takeda Laboratory

Driving Behaviour and Perception Research Group
Department of Intelligent Systems, Graduate School of Informatics, Nagoya University

Research experiences:

Deep Learning (*Large Language Models, Transformers, State Space Models, Graph Neural Networks*)
Intelligent Perception of Autonomous Vehicles (*Semantic segmentation, Object detection, CV deep learning*),
Sensors Calibration & Fusion (*Optimisation, 3D mapping, 3D digital-twin reconstruction*),
Physics-based Simulation for Autonomous Driving (*LiDAR intensity simulation, Hyperspectral digital twin*)

Professional Experience

6/2023 – 2/2024, part-time

Research and Development Engineer at the Sensing and Perception Team at Map IV, Inc.

Experiences: Perceptive Intelligence with AI & ML, Sensors Calibration & Fusion, Optimisation with C++ and Python, Containerised GUI app development, Git & other team collaboration tools.

4/2023 – 9/2023, 11/2021 – 3/2022, part-time

Research Assistant at JARI (Japan Automobile Research Institute – Japan Government)

Experiences: Autonomous Driving Simulators (CARLA, SVL, Autoware), LiDAR intensity simulation implementation with Unreal Engine C++ API.

4/2022 – 3/2023, part-time

Research Assistant at NEDO (Japan Government)

Experiences: Vehicle Electronics and Mechanics (from designing and assembling the sensors array for our instrumented vehicle), Autoware (from setting up the onboard computer on our instrumented vehicle).

9/2022, internship

Research Intern at RIKEN Centre for Computational Science, Data Assimilation Research Group

Experiences: Data Assimilation, Kalman Filter Techniques, High-Performance & Parallel Programming.

Publications

Physics-based LiDAR waveform simulation method for realism improvement of driving simulators

Quang Nhat Nguyen, Alexander Carballo, and Kazuya Takeda

International Symposium on Future Active Safety Technology toward zero-traffic-accident (FAST-zero), September 2021

On radial Schrödinger operators with a Coulomb potential: general boundary conditions

Jan Dereziński, Jérémy Faupin, Quang Nhat Nguyen, and Serge Richard

Advances in Operator Theory 5, pp. 1132 – 1192, July 2020

DOI: [10.1007/s43036-020-00082-6](https://doi.org/10.1007/s43036-020-00082-6)

Honours & Awards

Valedictorian of Nagoya University School of Engineering

9/2021, honoured by Nagoya University.

Outstanding Presentation Award

7/2022, awarded by Nagoya University for master's research presentation.

Scholarships

Melbourne Graduate Research Scholarship

2/2024 – present, total award (projected): AUD \$370,000, awarded by the University of Melbourne.

Japan Government's MEXT Scholarship

10/2017 – 9/2023, total award: JPY ¥12.6 million, awarded by the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT).

Certificates

Quantum Computing

IBM Quantum Challenge Certificate of Achievement

Issued by IBM, credential ID: https://www.credly.com/badges/918c0976-1f83-4f02-9b88-a5f5afd02e87/public_url