Quang Nhat Nguyen

Doctor of Philosophy Student in Engineering & Information Technology
The University of Melbourne

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

Research Topic

Deep Learning and AI in Sequence Modelling and Multi-modal Time Series Prediction: Research & develop next-generation AI models with novel byte-sequence state-space-centred architecture for universal sequence modelling – Towards more accurate & cost-effective forecast for time series of multiple modalities (e.g., financial market values, weather, traffic flow, 2D images sequence, 3D point cloud evolution)

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 and Information Technology
Nagoya University, Japan, First-class Honours (4.0/4)

10/2017 – 9/2021
Bachelor of Engineering in Electrical Engineering, Electronics, and Information Engineering
Nagoya University, Japan, First-class Honours (3.94/4), Valedictorian

8/2014 – 5/2017
High School Diploma with specialisation in Mathematics
Le Quy Don High School for Gifted Students, Da Nang City, Vietnam

Research Group

2/2024 – present
Australian Integrated Multimodal EcoSystem (AIMES) Laboratory
Deep Learning & AI Research Group
Faculty of Engineering and Information Technology, The University of Melbourne

4/2020 – 9/2023
Takeda Laboratory
Driving Behaviour and Perceptive Intelligence Research Group
Department of Intelligent Systems, Graduate School of Informatics, Nagoya University

Research experiences:

Sequence Modelling & Timeseries Prediction *(State Space Models, Transformers, LLMs, GNNs),*
Hyper-large-scale AI models *(Distributed training on HPC Linux GPU clusters, Distillation, Transfer Learning),*
Advanced Mathematical Analysis & Data Assimilation *(Probability theories, Ensemble Kalman methods),*
Intelligent Perception of Autonomous Vehicles *(Semantic segmentation, Object detection, CV deep learning)*,
Perception Sensors AI & Signal Processing *(Optimisation, 3D fusion & mapping, 3D hyperspectral digital-twin)*,

Professional Experience

5/2024 – present, part-time

The University of Melbourne, AIMES Lab – Research & Development Software Engineer

Experiences: AI (Deep Learning, Computer Vision), DevOps (AWS, Google Cloud).

6/2023 – 2/2024, part-time

Map IV, Inc., Sensing and Perception Team – Research & Development Software Engineer

Experiences: Perception Intelligence, 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

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

Experiences: Autonomous driving simulators, Unreal Engine C++ API.

4/2022 – 3/2023, part-time

NEDO (New Energy & Industrial Technology Dev. Org., Japan Government) – Research Assistant

Experiences: 3D design, CAD structural analysis & assembly of sensors vehicle, Autoware for sensors control.

9/2022, internship

RIKEN Centre for Computational Science (Japan Government) – Research Intern

Experiences: Data assimilation, Kalman filter theories, High-performance & parallel programming.

10/2018 – 3/2021, part-time

Nagoya University – Tutor

Courses: Mathematics for Machine Learning, Graph Theory, Calculus I, Differential Geometry.

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

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.

IBM Quantum Computing Challenge Completion

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

Second Prize in Vietnam National Computer Science Olympiad

8/2012, awarded for the Creative Software Development sub-competition

First Prize in Da Nang Mathematics Olympiad for High School Students

3/2017, score: 10.0/10

Scholarships

Melbourne Graduate Research Scholarship

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

Japan Government's MEXT Scholarships

10/2017 – 9/2021 & 10/2021 – 9/2023, total award: JPY ¥12.6 million, awarded by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) – Government of Japan.