NAM PHONG DUONG
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SUMMARY

Second-year Ph.D. candidate at Kyoto Institute of Technology. My research focuses on medical image processing through the integration of machine learning techniques to enhance diagnosis and treatment optimization.

With diligence and consistency, I am determined to make progress every day regardless how small it is. I am seeking opportunities in, but not limited to, AI/ML, data science, software engineering, and technology and innovation, with expertise in both technical development and human-centric design. I am eager to apply my skills across diverse domains.

EDUCATION

Kyoto Institute of Technology *04/2023 - 04/2026 (Expected)*

- DEng Engineering Design
- Laboratory: Image Processing
- Research theme: Medical Image Processing

Lancaster University *10/2018 - 06/2022*

- MEng Hons Mechatronic Engineering
- Degree grade: First Class Honours
- Best Student graduating from the cohort of 2021/2022

TECHNICAL SKILLS

Coding Languages

- Python: Advance
- C: Intermediate
- C++: Beginner

Technical

- Data Analysis: NumPy, Pandas, SciPy
- Data Visualization: Matplotlib
- Deep Learning: PyTorch, TensorFlow, Keras
- Machine Learning: Scikit-Learn
- Image Processing: OpenCV, Pillow
- Version Control: Git
- Operating Systems: Window, Linux

PERSONAL PROJECTS

Tiny Scale Google Image Search - Utilizing pre-trained DL model and classification algorithm k-nearest neighbours to perform Google-like image search for an input image.

2D Convolutional Layer from NumPy - Implementation of a Conv2D from scratch using NumPy to serve as my personal learning and to satisfy my curiosity.

EXPERIENCES

Medical Image Processing **(Kyoto) – Researcher** *04/2023 - Now*

Project: 3D Medical Image Processing

- **Description:** Exploring computer-aided-diagnosis ML-based evaluation methods for breast reconstruction outcomes.
- **Responsibility:**
    - Process 3D mesh data and developing algorithms for ROI extraction.
    - Statistical analysis and feature engineering, including evaluation of extracted features and inter-rater reliability assessments.
    - Investigation on transforming complex mesh data into ML-compatible formats.
    - Collaborate with medical professionals to validate and develop new strategies to improve annotation quality for such psychophysical tasks.

ME310/SUGAR **(Kyoto, Europe) - Design Thinking Consultant** *10/2023 - 06/2024*

Project: Improving digital and online collaboration with AI

- **Description:** A design thinking program at the Kyoto Institute of Technology in collaboration with students from Hasso Plattner Institute in dedicated to developing innovative products and services on a challenge given by Takeda Pharmaceutical.
- **Responsibility:**
    - Applying design thinking methodology to discover unmet user needs, conduct rapid prototyping and testing, and deliver a detailed concept.
    - Led the development of the final solution which is an LLM-based real-time meeting assistant.

MEng Group Project (United Kingdom) - Mechatronic Engineer *10/2021 - 06/2022*

Project: Development of a concentrated solar cell characterization system

- **Description:** A multi-discipline group project to design, build and test an optical concentrator characterisation system to characterise solar cell performance.
- **Responsibility:**
    - Oversee engineering principles and consult in all sections of the project to evaluate, optimise, and finalise all designs in preparation for manufacturing.
    - Design and construct a shield to fit the system inside to prevent eye contact as part of health and safety requirements.
    - Develop software allowing users to verify the characterisation results instantly with characterized values and graphs using Python.

PUBLICATION

Peer-Reviewed Journal Articles

1. My N. Nguyen, Kotori Harada, Takahiro Yoshimoto, **Nam Phong Duong**, Yoshihiro Sowa, Koji Sakai & Masayuki Fukuzawa, "Integrated Dataset-Preparation System for ML-Based Medical Image Diagnosis with High Clinical Applicability in Various Modalities and Diagnoses," SN Computer Science, Vol. 5, No. 676, 2024. (DOI:10.1007/s42979-024-03025-7)

Peer-Reviewed International Conference Papers

1. Kotori Harada, Takahiro Yoshimoto, **Nam Phong Duong**, My N. Nguyen, Yoshihiro Sowa & Masayuki Fukuzawa, "A New Integrated Medical-Image Processing System with High Clinical Applicability for Effective Dataset Preparation in ML-Based Diagnosis," in Intelligent Systems and Data Science (ISDS 2023), Thai-Nghe, N., Do, T.N., and Haddawy, P., Eds., Communications in Computer and Information Science, Vol. 1950, Springer, Singapore, 2024. (DOI:10.1007/978-981-99-7666-9_4)

PROFESSIONAL DEVELOPMENTS

Machine Learning

- Issued by: Coursera
- Issue date: 01/2024

CS50: Introduction to Artificial Intelligence with Python

- Issued by: CS50
- Issue date: 09/2023

CS50: Introduction to Computer Science

- Issued by: CS50
- Issue date: 10/2022

Kyoto Startup Summer School

- Issued by: KYOTO Design Lab, Kyoto Institute of Technology
- Issue date: 09/2019