Luat Gia Khoi Nguyen

Enschede, Netherlands
+358 415764920
khoi.nlg1910@gmail.com
LinkedIn
My Portfolio

EDUCATION

Bachelor Degree, Computer Science, Ho Chi Minh City University of Technology, Vietnam   2019 - 2023
Ranking: Excellence - GPA: 9.09/10.

Double Degree Master's in Data Science, Aalto University - University of Twente   2023 - Recent
Deep Learning - Grade 5/5
Statistical Natural Language Processing - Grade 5/5
Methods of Data Mining - Grade 5/5
Computer Vision - Grade 5/5
Reinforcement learning - Grade 5/5

SKILLS

Programming Languages	Python (Advanced), C++ (Intermediate)
Frameworks	PyTorch (Advanced), Tensorflow, Flask, Django etc.
Libraries	NumPy, Pandas, Matplotlib, Seaborn, OpenCV, Pillow, etc.
Operating Systems	Linux (CLI), MacOS, Windows
Cloud	AWS EC2, AWS S3
Others	SQL, Docker, Shell script, RabbitMQ, Kafka, CI/CD pipeline
Language proficiency	C1 English Level

WORK EXPERIENCE

Research Assistant   May 2024 - Sep 2024
Aalto University - System 2 AI   *Helsinki, Finland*

- Optimizing the computational efficiency of LLM training and inference through advanced parallelism techniques.
- Serving LLM models with vLLM.
- Researching and proposing solutions for model training on limited computational resources.

Artificial Intelligence Engineer   Nov 2021 - Jun 2023
Quy Nhon AI Research and Application Center (FPT Software Quy Nhon)   *Quy Nhon, Vietnam*

- Developing core models for an AI platform, namely akaOCR.
- Collecting and pre-processing training data.
- Integrating deep learning models into outsourcing projects.

Artificial Intelligence Engineer (Apprenticeship)   Nov 2020 - Nov 2022
Rever Real Estate Technology Co., Ltd   *Ho Chi Minh City, Vietnam*

- Researching and proposing solutions, especially in computer vision.

- Collecting and pre-processing training data.
- Implementing, integrating and testing deep learning models.
- Dockerizing APIs.

PROJECTS & PRODUCTS

AI Agents @ System 2 AI - Master's Thesis   May 2024 - Sep 2024
Digital assistants capable of handling many daily tasks.

- Optimizing the computational efficiency of LLM training and inference through 2D parallelism techniques, i.e., Tensor Parallelism and Fully Sharded Data Parallel (FSDP).
- Developing a new training paradigm capable of scaling up sequence context length by the total number of GPUs.
- Achievement: Trained a Llama 3.1-70B model on two 32x6GB GPU nodes with a context length of approximately 5200 tokens, which is not possible using any single parallelism technique.

akaOCR @ Quy Nhon AI (FPT Software Quy Nhon)   Nov 2021 - Jun 2023
An Artificial Intelligence (AI) platform for conducting Optical Character Recognition (OCR) on printed and handwritten documents in multiple languages including English, Vietnamese, Japanese, etc.

- Enhancing the performance of core models in both speed and accuracy. The system achieves a speedup of 300% in response time thanks to Triton model serving implementation.
- Collecting and pre-processing Japanese text data from financial documents to retrain deep learning models.
- Dockerizing and integrating core OCR engine into package solutions such as financial analysis application.

Product website: See more.

Table Reconstruction @ Quy Nhon AI (FPT Software Quy Nhon)   Oct 2022 - Jun 2023
An end-to-end pipeline of deep learning models for detecting, recognizing, reconstructing, and transforming tables in documents into spreadsheets.

- Researching, proposing, and developing an end-to-end pipline including table detection/recognition and OCR models.
- Achieve substantial model compression ratio (up to 60%) without too much accuracy compromising (2-4.3% drop in AR and AR) thanks to implementation of pruning method for Transformer-based models.
- Collecting, preparing, and documenting data for retraining and testing.
- Developing a RESTful API for table OCR applications and Dockerizing .

Project information: See more.

Financial Statement Analysis @ Quy Nhon AI (FPT Software Quy Nhon)   Apr 2022 - Aug 2022
An application that extracts necessary information from financial statements and transforms them into spreadsheets.

- Integrating akaOCR engine, Table reconstruction pipeline, and heuristic techniques into the pipeline.
- Achieve 2% character error rate (CER) in Vietnamese financial statement testing dataset.

Sign Language Translation Application   Sep 2021 - Dec 2022
An application to translate sign language directly to text using mobile devices' cameras.

- Researching and developing deep learning models for hand gesture recognition and classification and Transformer-based models for image-to-text translation.

- Designating and coordinating workflow among team members.
- Communicating with other parties for collaboration.

Project information: See more.

Existing Listing Detection @ Rever Real Estate Technology Co., Ltd.   Jun 2021 - Jul 2021
A hierarchical model to detect duplicate or already viewed instances among existing real estate listings in the database

- Constructing an inverse-indexing database for hundreds of thousands of real estate listings.
- Implementing hierarchical K-means algorithm to quickly detect potentially existing listings in the DB, achieving an average response time of 1.2 seconds.

Watermark Removal @ Rever Real Estate Technology Co., Ltd.   Jan 2021 - May 2021
A Deep Learning model to generate watermark-free version of watermarked input images.

- Researching and developing generative Autoencoder model to generate watermark-free version of images.
- Augmenting and generating training data for training and evaluation.
- Developing a RESTful API and dockerizing the application.

Project information: See more.

RECOMMENDATIONS

Prof. Alexander Ilin   Professor at Aalto University, Finland
Email: alexander.ilin@aalto.fi **LinkedIn:** https://www.linkedin.com/in/alexanderilin/

- Dr. Alexander Ilin is a professor at Aalto University. He received his doctoral degree in Engineering and Technology from the Helsinki University of Technology in 2006. He is a co-founder of System 2 AI, where they build software agents powered by state-of-the-art language models.

Assoc. Prof. Quan Thanh Tho   Vice Dean of the Faculty of Computer Science and Engineering, HCMUT
Email: qttho@hcmut.edu.vn **LinkedIn:** https://www.linkedin.com/in/qttho/

- Dr. Quan Thanh Tho is an Associate Professor in the Faculty of Computer Science and Engineering, at Ho Chi Minh City University of Technology (HCMUT), Vietnam. He graduated with a B.Eng. in information technology from HCMUT in 1998 and a Ph.D. from Nanyang Technological University in Singapore in 2006. His current research interests include formal methods, program analysis/verification, the Semantic Web, machine learning/data mining, and intelligent systems. He currently serves as the Faculty's Vice Dean for Academic Affairs.

Dr. Nguyen Chi Hoang   AI R&D Team Leader, FPT Software Da Nang
Email: hoangnc3@fpt.com **LinkedIn:** https://www.linkedin.com/in/hoang-nguyen-chi-b31860123/

- Dr. Nguyen Chi Hoang is the AI R&D Team Leader at FPT Software Da Nang, Vietnam. Dr. Hoang received a B.Eng. degree in Information Technology at VNU Hanoi-University of Engineering and Technology (VNU Hanoi-UET). He got his Ph.D. degree from Claude Bernard University Lyon 1, France, and completed his "Postdoctoral Researcher" program at French Institute for Research in Computer Science and Automation (INRIA) in 2016. Over the past 9 years, Hoang has been participating in more than 20 projects, providing insightful consultancy for enterprises across sectors and countries on AI adoption strategy.

Mr. Vu Hong Chien   Director of Quy Nhon AI Research and Application Center (FPT Software Quy Nhon)
Email: chienvh1@fpt.com **LinkedIn:** https://www.linkedin.com/in/chienvh1/

- Mr. Vu Hong Chien, born in 1983, became FPT Under 35 in 2017 when he held the position of Head of FQC Department, Quality Assurance Department of FPT Software. After that, he took on the title of

Chief Technology Officer (CTO) of FPT Digital Processing Services Company Limited (FPT DPS) before being appointed Director of Quy Nhon Artificial Intelligence Research and Application Center.

TEACHING & TALKS

Google Developer Student Club - How-to-AI Series   Oct 2022 - Dec 2022
Technical Speaker, Academic Team Leader

- Preparing topics and content for a five-day series about Artificial Intelligence and career path in the field of AI.
- Collaborating with AI Experts to provide a fireside chat with HCMUT students.

Google Developer Student Club - Machine Learning Workshop   Feb 2022 - Mar 2022
Technical Speaker, Academic Team Leader

- Providing basic knowledge of fundamental concepts and some simple algorithms in Machine Learning for students in HCMUT.
- Collaborating with CoderSchool to convey more in-depth knowledge about Deep Learning.

HONORS & AWARDS

Top 2 Computer Science Graduates, 2019-2023, with Highest GPA   Aug 2023
for ranking as one of the top 2 Computer Science students with the highest overall GPA (9.09/10) among the graduating class of 2019-2023.

Student with Excellent Achievements in Scientific Research, Academic Competition, and Arts & Culture 2022   Jan 2023
by winning the Consolation Prize in the competition to design and create technology products for people with disabilities held by the Vietnamese Students' Association in 2022.

Encouragement Scholarship in the semesters 191, 192, 201, 202, 211, 221   2020-2022
with semester GPAs of 4.0 for all of these semesters

EXTRACURRICULAR ACTIVITIES

EIT Digital Summer School 2024, Madrid   Jul 2024
EIT Master's Student

- Selected as one of three thematic challenges in TechFin for the summer school.
- Developed TechFin solutions powered by Generative AI for stock market change notifications and predictions.
- Created virtual startup and financial planning for market roll-out.

Temasek Foundation Specialist' Community Action and Leadership Exchange (TF-SCALE 2022) at Nanyang Polytechnic Singapore (NYP)   Sep 2022
Vietnamese Student Ambassador

- Being one of 15 chosen students to represent Vietnamese students participating in the program.
- Practicing leadership and teamwork skills with Singaporean students by participating in team projects and outdoor activities.
- Learning Singaporean cultures and the government's master plan.
- Supporting people with disabilities in Bizlink Centre Singapore Ltd.