

SUMMARY

- Researcher/Engineer in AI/ML.
- Experienced in Information Extraction/Retrieval, Language Modelling and Document Image Understanding.
- Published [papers](#) at peer-reviewed conferences, including a Best Paper Award at DIL-ICDAR 2021.
- Bachelor of Computer Science (Honours Programme) - Highest Ranking Graduate (1st/600+).

EXPERIENCE

AI Engineer/Researcher

Nov 2018 — Present

Cinnamon AI

- **Developing RAG-based applications.**
 - Co-creator of [kotaemon](#): An open-source tool for local RAG application built for both end users and developers.
 - Built demos for LLM-powered applications targeting the Insurance domain.
 - Related skills: Natural Language Processing (NLP), Information Retrieval, Prompt Engineering.
 - Technologies used: Local LLMs, Embedding Models, LangChain, Github Actions, Transformers, LlamaIndex.
- **Researched, developed, and implemented AI solutions for Document Image Understanding.**
 - Information Extraction and Cross-lingual adaptive pre-training for a low-resource language (Japanese).
 - Created new technical assets by introducing new Information Extraction models that became the new standard for client projects. Increased the f1-score by 2% - 7%.
 - Publish [papers](#) on Information Extraction at peer-reviewed conferences, 1 Best Paper Award at DIL-ICDAR'21.
 - Related skills: Research, Deep Learning, Image Processing, Computer Vision, Natural Language Processing.
 - Related tools: Pytorch, Tensorflow/Keras, Transformers, OpenCV, Scikit-learn, I^AT_EX, DVC, CircleCI, Docker.
- **Developed data-driven products and processes.**
 - Implement synchronization and local version control for the internal data management system.
 - Initiated data standardization, defined and implemented processes regarding data life cycle and organization.
 - Related skills: Data Management, Data-driven Development, Software Engineering.
- Other tasks: Support cross-department alignment; Conduct/Facilitate technical sharing sessions; Training/Mentoring.

Undergraduate Research Assistant

Aug 2017 — Sep 2019

IOT Lab, UET - Vietnam National University

- **Predictive models for wellbore data using machine learning and statistical methods.**
 - Facies/rock type classification; Time-series Analysis; Permeability Regression; Integrated Prediction Error Filter Analysis (INPEFA) curve calculation; Cumulative and Federated Learning.
 - Related skills: Data Science, Machine Learning, Time-series Analysis.
 - Related tools: Python, Keras/Tensorflow, OpenCV, Scikit-learn, XGBoost, Javascript.

EDUCATION

Bachelor Degree, Computer Science (Honours Programme)

2020

UET - Vietnam National University, Hanoi

GPA: 3.83/4.00 (Rank: 1st/600+)

- Highest Ranking Graduate.

SKILLS

Technical Fields	Information Extraction, Document Understanding, Data Science, Natural Language Processing, Computer Vision.
ML/AI Development	Pytorch, Transformers, RAG, LangChain, LlamaIndex, Tensorflow/Keras, Scikit-learn, OpenCV.
Software Development	Git, Github Action, CircleCI, DVC, Docker.
Programming Languages	Python, C/C++, Java, Shell Script.
Industrial Domains	Insurance, Manufacturing.
Environments	GCP, AWS, Linux, Windows.
Natural Languages	Vietnamese (native), English (IELTS 7.5), Japanese (JLPT N4).
Other	Research (Google Scholar), Problem Solving (Leetcode).

PUBLICATIONS

- 1 Nguyen, Dat, **Hieu M Vu**, Cong-Thanh Le, Bach Le, David Lo, and Corina Pasareanu (2024). “Inferring Properties of Graph Neural Networks”. In: *arXiv preprint arXiv:2401.03790*.
- 2 Nguyen, Bao-Sinh, Dung Tien Le, **Hieu M Vu**, Tuan-Anh D Nguyen, Minh-Tien Nguyen, and Hung Le (2022). “Improving Document Image Understanding with Reinforcement Finetuning”. In: *International Conference on Neural Information Processing*. **Oral presentation**. Springer, pp. 51–63.
- 3 Son, Nguyen Hong, **Hieu M Vu**, Tuan-Anh D Nguyen, and Minh-Tien Nguyen (2022). “Jointly Learning Span Extraction and Sequence Labeling for Information Extraction from Business Documents”. In: *2022 International Joint Conference on Neural Networks (IJCNN)*. **Oral presentation**. IEEE, pp. 1–8.
- 4 Nguyen, Tuan-Anh D, **Hieu M Vu**, Nguyen Hong Son, and Minh-Tien Nguyen (2021). “A Span Extraction Approach for Information Extraction on Visually-Rich Documents”. In: *Document Analysis and Recognition-ICDAR 2021 Workshops: Lausanne, Switzerland, September 5–10, 2021, Proceedings, Part II 16*. **Best Paper Award**. Springer, pp. 353–363.
- 5 **Vu, Hieu M** and Diep Thi-Ngoc Nguyen (2020). “Revising FUNSD dataset for key-value detection in document images”. In: *arXiv preprint arXiv:2010.05322*.

PERSONAL PROJECTS

Kotaemon - An open-source tool for local RAG application. Jan 2024 — Present

Open-source project, Co-creator



- A local RAG-based tool for chatting with your documents. Built with both end users and developers in mind.
- For end users: A local Question Answering UI for RAG-based QA.
- For developers: A framework for building your own RAG-based QA pipeline.

Data Utility Improvement Experiment for DECAF

Oct 2022 — Nov 2022

Personal research



- A personal research on Causal Inference, Algorithmic Fairness and specifically the paper [DECAF: Generating Fair Synthetic Data Using Causally-Aware Generative networks](#).
- Improved data utility of the DECAF method using alternating graph during synthesis while still achieving similar level of fairness.

Gender/Accent Classification for Vietnamese short voice recordings

Aug 2018 — Sep 2018

Zalo AI Challenge 2018



- Classify the speaker’s voice in a recording (typically under 3 seconds) by gender and regional accent.
- **4th place** on the Private Leaderboard, achieved **79.208% accuracy** in 10 days as an individual participant.

Electric Meter OCR

Oct 2019 — Nov 2019

University Coursework Project



- Develop a solution for extracting the value on the dial from images of electric meters. The solution is meant to be used in embedded hardware.
- Achieved **0.08 on edit distance** with total code size **under 10MB** and processing time **under 0.3s/image**.

HONOURS AND AWARDS

Best Paper Award

Sep 2021

ICDAR 2021, Workshop on Document Images and Language

Paper title: [A Span Extraction Approach for Information Extraction on Visually-Rich Documents](#)

Accepted for oral presentation and awarded the Best Paper Award at [Workshop on Document Images and Language, ICDAR 2021](#).

Top 4 Zalo AI Challenge 2018 - Voice Track (Individual participant)

Sep 2018

Zalo, VNG Corporation

Finished at 4th place on the Private Leaderboard of the Voice Gender/Accent Classification challenge.

[Zalo AI Challenge](#) is an annual Kaggle-like competition hosted by Zalo - one of the biggest tech companies in Vietnam. In 2018, the competition attracted over 700 teams competed in 3 challenges.

Certificate of Highest Ranking Graduate

UET - Vietnam National University

Awarded to students who graduated with the highest GPA amongst the graduating class.