Nguyen Thai Binh

Machine Learning Researcher

Computers are incredibly fast, accurate and stupid; humans are incredibly slow, inaccurate and brilliant; together they are powerful beyond imagination. (Albert Einstein)

Education

10/2018 - 12/2019 **Master's degree**, *Hanoi University of Science and Technology*,
Major: Computer science,
GPA: *3.81/4*.

2012–2017 **Bachelor's degree**, *Hanoi University of Science and Technology*,
Major: Information Systems,
GPA: *3.44/4*.

2018 **English Certificate**, *TOEIC: 730/990*.

Research Experience

- Building models for recovery the natural state of the text applies to problems like spell correction, restore punctuation, capitalization.
- Building a pre-trained word embedding model for Vietnamese language from RoBERTa architecture using more than 3 billion Vietnamese words crawled from the internet.
- Detect hate speech detection problems for Vietnamese social network by combining multiple word representations to capture multidimensional semantics.
- Interpolate multiple language models to improve accuracy for speech to text system in a downstream domain.
- Extract semantic information applies to chatbot problems including dialog management, intent entity extraction, named entity recognition.
- Master's thesis: Apply language model for handwriting recognition. Combining image feature and natural language feature to improve the accuracy of the Vietnamese handwriting recognition problem.
- Graduate thesis: Apply the dictionary to improve the accuracy of optical character recognition.

Job Experience

12/2018 - present **Lead AI Engineer**, *Vietnam Artificial Intelligent System*, NLP Group.

- Building the architecture of Speech Analytic system that provides information insight the audio data like mentioned entities, topic, keywords and emotions of the speaker.
- Contributing to the Automatic Transcription Solutions 'Origin-STT' in text pre-processing and building a dynamic language model for the vast number of speech domains. This product honored in the highest award category in the information technology field at Vietnam Talent Awards 2019.
- Building Chatbot Framework.

11/2018 - present **Lectures**, *VietAI*.

VietAI is a nonprofit organization, that teach people about machine learning, organize events in AI community. In VietAI, being a lecturer, teaching Deep learning algorithm for students in Ha Noi city.

01/2017 - 11/2018 **Machine Learning Engineer**, *Samsung Vietnam Mobile R&D Center*, Dept. Cloud platform.

- Recommendation system. Galaxy gift is an application of Samsung, that offer promotes code for a user using Samsung mobile. Using some method, for example, content-based, session-base to recommend user some promotes that maybe they like.
- Handwriting Optical Character Recognition. Making a model to do OCR for handwriting text, using CRNN architecture for image extract features and make correct text using a sequence-to-sequence model. This model is got the second prize in Cinammon hackathon with character error rate is 0.1.
- Text search engine. Making a module using word embedding that can search content with semantic, apply for searching promotion code of Samsung Galaxy Gift system
- Big Data analysis. Samsung has two giant factories that produce mobile phone in Vietnam, in Samsung SVMC, I joined build Hadoop system for save log from equipment, do analysis with Spark in this data to monitor, find out anomaly and improve the performance in the production line.

10/2017 - 11/2018 **Co-founder**, *Botdy*.

In Botdy, we build chatbot for Ecommerce.

- Chatbot for sale in a small store like shoe shop, clothes shop. Chatbot has some functions like find, order product, check status delivery,...
- Chatbot for E-commerce website like Chongiadung, Adayroi. Chatbot is embedded on their Facebook page and acting like customer services, it supports some action like make order, check and cancel order,...
- Image searching. Building a system for searching product images. Using Faster RCNN for object detection and Inception pre-trained for feature extraction and search in feature extracted.

06/2014 - 12/2016 **Mobile Developer**, *Bkav Corporation* , Dept. Bkav Anti Malware.

- Bkav Mobile Security. Developing the scan feature, that smart detects malware in the smartphone depends on the behavior of the application.
- Bkav Mobile Firewall. This feature is appended in BPhone to help user block ads. Developing this feature using VPN mechanism that builds in Android OS.
- BKAV Image Management. Developing this application for purposes auto synchronize images between the local device with Bkav server.
- Analyze android application. Learning to analyze apk file with some technique like apk reverse, monitor the behavior of application (asset access, internet access,...).

Languages/Frameworks

Android	Intermediate	*Building three application android and publish to Google play with total 200.000 users. I also open source some project in Android like chat app, read document app,... that used by many developers.*
Python	Intermediate	*Building a lot of service for my Chatbot product as Vietnamese Corrector web service, a Message Interface web service work as webhook for Facebook messenger server, that can serve hundreds to thousands of people at the same time.*
Java	Basic	*Experience similar to the Android experience, from 2013*
Tensorflow	Basic	*Building some awesome project with Tensorflow like Image searching system, Vietnamese Spell Correction, Handwriting Optical Character Recognition,...*
Pytorch	Intermediate	*Got and finished Pytorch scholarship program from Facebook, which fully training about Pytorch*
Spark	Basic	*Doing some analysis with big data collected from thousands of devices in Samsung factories in Vietnam*
Hadoop	Basic	*Building a hadoop system to store huge data collected from factories of Samsung Vietnam*

Awards

VLSP 2019 **First Award**, *by Vietnamese Language and Speech Processing Conference*, 10-2019, Automatic Speech Recognition [4].

VLSP 2019 **Third Award**, *by Vietnamese Language and Speech Processing Conference*, 10-2019, Hate Speech Detection [3].

Cinnamon Hackathon **Second Award**, *by Cinnamon*, 11-2018, Handwriting optical character recognition.

Zalo Hackathon **Technology Award**, *by Zalo Corporation*, 01-2018, Chat-bot sale in E-commerce.

Vietnam AI Hackathon **E-commerce Application Award**, *by FPT Corporation*, 06-2017, Chat-bot auto sales, The program answer customer inquiries about product information.

UET Hackathon **Idea Award**, *by University of Engineering and Technology*, 03-2017, React-chat, The program identifies and reflects human feelings.

Samsung **Samsung talent program**, *by Samsung Vietnam*, 05-2016, Samsung talent program certificate for excellent student.

Tokai Kogyou **Tokai Kogyou scholarship**, *by Tokai Kogyou*, 01-2016, Tokai Kogyou scholarship for excellent student.

Publications

1. Binh Thai Nguyen, Hung Nguyen, Nguyen Thi Thu Hien, Phuong Ngoc Pham, The-Loc Nguyen, Truong Do, and Mai Luong. Fast and accurate capitalization and punctuation for automatic speech recognition using transformer and chunk merging. In *2019 22nd Conference of the Oriental COCOSDA International Committee for the Co-ordination and Standardisation of Speech Databases and Assessment Techniques (O-COCOSDA) (O-COCOSDA 2019)*, Cebu, Philippines, October 2019
2. Nguyen Thi Thu Hien, Binh Thai Nguyen, Hung Nguyen, Truong Do, Mai Luong, and Nguyen Thi Minh Huyen. Recovering capitalization for automatic speech recognition of vietnamese using transformer and chunk merging. In *2019 11th International Conference on Knowledge and Systems Engineering (KSE) (KSE'19)*, Da Nang, Vietnam, October 2019
3. Thai Binh Nguyen, Quang Minh Nguyen, Thu Hien Nguyen, Ngoc Phuong Pham, The Loc Nguyen, and Quoc Truong Do. Vais hate speech detection system: A deep learning based approach for system combination. In *The sixth international workshop on Vietnamese Language and Speech Processing VLSP 2019*, Ha Noi, Vietnam, 2019
4. Quang Minh Nguyen, Thai Binh Nguyen, Ngoc Phuong Pham, and The Loc Nguyen. Vais asr: Building a conversational speech recognition system using language model combination. In *The sixth international workshop on Vietnamese Language and Speech Processing VLSP 2019*, Ha Noi, Vietnam, 2019