



# Nguyen Van Thang

AI Engineer

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## PROFILE

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Highly skilled and results-oriented AI Engineer with a track record of developing and implementing cutting-edge AI models to solve complex problems across various domains from computer vision to NLP and speech processing. Demonstrated expertise in improving accuracy and efficiency, resulting in significant cost savings and increased customer satisfaction. Adept at implementing state-of-the-art AI technologies to drive business growth and optimize operations. Interested in Mathematics, especially Probability & Statistics and Linear Algebra. Deep knowledge of machine learning algorithms, statistical modeling and data structures. Ability to quickly adapt to new environments, technologies and turning knowledge into something of value.

## EDUCATION

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2016 - 2021 **Bachelor of Computer Science at Posts and Telecommunications Institute of Technology, Hanoi, Vietnam**  
- Ranking: Very good  
- GPA: 3.41/4

## WORK EXPERIENCE

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9/2020 - Present **Innovation Center - VNPT Information Technology Company**  
AI Engineer:  
**1. Speech Synthesis**

- Developed and fine-tuned Speech Synthesis models to generate high-quality, natural-sounding voices for virtual assistant applications.
- Conducted research and training of speech models using NVIDIA NeMo, optimizing pipelines for accuracy and scalability.
- Integrated and optimized speech AI models within the NVIDIA Riva framework, improving performance, reducing latency, and ensuring robust deployment.
- Optimized inference time to 15ms per sentence, achieving a 35% increase in processing speed compared to prior implementations.
- Enhanced voice quality with a 25% improvement in Mean Opinion Score (MOS) by applying advanced training and fine-tuning techniques.
- Reduced GPU resource consumption by up to 40%, enabling efficient deployment in real-time applications.

## **2. Speaker Recognition**

- Designed and implemented an end-to-end deep learning solution for Speaker Recognition using NVIDIA NeMo and Riva Framework, capable of identifying speakers from audio signals.
- Developed a system to classify speakers (40 classes) from speech waveforms, achieving 99.3% test accuracy.
- Leveraged MFCC (Mel-Frequency Cepstral Coefficients) as the primary feature extraction method and integrated it with a CNN-based model.
- Deployed the model into production using NVIDIA Riva, achieving efficient and scalable deployment for real-world applications

## **3. Speaker diarization.**

- Researched existing methodologies, techniques, and technologies relevant to the speaker diarization problem, including reviewing relevant literature, exploring existing solutions, experimenting with different techniques, analyzing findings, and synthesizing insights.
- Conducted extensive training sessions to develop a speaker embedding model, focusing on refining its accuracy and performance. Actively engaged in experimenting with various parameters and techniques to optimize the model's capabilities.
- Fine-tuned the Voice Activity Detection (VAD) model to enable the system to adapt to various types of noises.
- Generated detailed reports documenting the training/ fine-tuning process, model evaluations, and performance metrics.
- Implemented spectral clustering for speaker diarization pipeline.
- Customized code for the pipeline, resulting 4 times increase in speed.
- The speaker embedding model has achieved an EER metric of approximately 3.7% on test dataset.
- The VAD model has achieved an accuracy of more than 98% on the test set.

## **4. Conversation content-based speaker classification.**

- Developed a text classification project aimed at automatically categorizing text data into predefined categories, distinguishing between operators and customers in call transcripts.
- Explored a variety of methodologies, techniques, and technologies relevant to the text classification issue, which involved delving into existing literature and investigating available solutions.
- Reviewed and processed text classification data.
- Conducted experiments to train a model based on BERT.
- Achieved an accuracy rate of approximately 98.7% on test dataset.

## **5. NLP Projects**

- Developed a joint learning model for error detection and correction in text data.
  - Built an NLU model to detect user intent and extract entities from input questions.
  - Designed and implemented an NLP controller model based on the JointBERT architecture for detecting intent and extracting command content in medical contexts (e.g., doctor instructions).
  - Created a joint learning model to recover text capitalization and punctuation for improving text formatting.
  - Developed a sentence representation model leveraging the SimCSE framework for enhanced semantic understanding and similarity measurement.
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**Research at the Lab School**

Research about models in deep learning:

- Research at school with lecturers and group of friends about Natural Language Processing (NLP) with problems such as text classification, intent detection, Named Entity Recognition using some machine learning and neural network models: SVM, CNN, LSTM and Transformers models (BERT, PhoBERT), Machine Translation.
- Research and develop neural network architecture to extract information from legal text.

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**CERTIFICATIONS**

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|      |                                                                              |
|------|------------------------------------------------------------------------------|
| 2023 | Machine Learning Engineering for Production (MLOps) Specialization, Coursera |
| 2023 | Deep Learning Specialization , Coursera                                      |
| 2019 | TOEIC Certificate with score 715                                             |
| 2018 | Algorithm Certificate issued by SVMC.                                        |

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**HONORS & AWARDS**

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| 2023      | Received a certificate of merit from the General Director of VNPT for outstanding performance in fulfilling work duties in 2023 |
| 2022      | Second rank of VLSP Speech Synthesis task                                                                                       |
| 2021      | VNPT-IT star award.                                                                                                             |
| 2018/2019 | - Got a Scholarship in 1st semester 2018-2019 and 2st semester 2018-2019, PTIT                                                  |
| 2016/2017 | - Got a Scholarship in 1st semester 2016-2017 and 2st semester 2016-2017, PTIT                                                  |

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**SKILLS**

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|------------------------------|---------------------------------------------------------------------------|
| <b>Creativity</b>            | Ability to find creative solutions and be flexible in solving problems.   |
| <b>Teamwork</b>              | Strong teamwork skills, ability to share knowledge and support teammates. |
| <b>Analytical Thinking</b>   | Ability to analyze complex information and make data-based decisions      |
| <b>Programming Languages</b> | Python, C/C++, Java, JavaScript                                           |
| <b>Database</b>              | Mysql, SQL Server, Oracle, SQLite                                         |
| <b>SoftwareDevelopment</b>   | Programming Pradigms, GIT, Docker                                         |
| <b>Operating System</b>      | Linux, Windows                                                            |

## PUBLICATIONS

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- 2024: Huu Tuong Tu, Luong Thanh Long, Vu Huan, Nguyen Thi Phuong Thao , **Nguyen Van Thang**, Nguyen Tien Cuong, Nguyen Thi Thu Trang. Voice Conversion for Low-Resource Languages via Knowledge Transfer and Domain-Adversarial Training. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2025).
- 2023: **Van Thang Nguyen**, Thanh Long Luong, Huan Vu – The VNPT-IT emotion transplantation approach for VLSP 2022, Journal of Computer Science and Cybernetics 39 (4), 2023, pp. 369-379
- 2022: Oanh Thi Tran, **Thang Van Nguyen**, Tu Anh Nguyen, Ngo Xuan Bach. Learning Student Intents and Named Entities in the Education Domain. International Journal on Artificial Intelligence Tools. Accepted. (SCIE, Q3, IF 1.208)

## INTERESTS

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- Keen interest in natural science subjects such as Physics and Math, particularly linear algebra, mathematical analysis, and probability & statistics.
- Passionate about finance.
- Reading self-help books in my spare time.