

THANH VAN TRONG TRAN

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Homepage ◊ Email ◊ LinkedIn ◊ GitHub ◊ Google Scholar

RESEARCH & WORK EXPERIENCE

AI Research Resident

FPT Software — *largest IT services company in Southeast Asia*

Aug 2023 - Present

Hanoi, Vietnam

- Developed an end-to-end speech-to-text summarization pipeline for doctor-patient dialogues, enabling automatic generation of SOAP notes.
- Investigated speech AI and multimodal learning for diverse applications, including multisensory emotion recognition, vision-guided speech and audio synthesis, text-to-speech, and LLM-agent development.
- Developed methods to improve protein characteristics at the sequence level. My research investigated black-box optimization in latent space to effectively guide the optimization trajectory of protein sequences.
- Advisors: Assistant Prof. Truong-Son Hy and Dr. Van Nguyen.

Student Researcher

Institute for Artificial Intelligence

Sep 2022 - May 2023
VNU University of Engineering and Technology, Hanoi

- Engineered and open-sourced an [error analysis toolkit](#) for Multi-Target Multi-Camera tracking (MTMCT) systems.
- Constructed a Graph Neural Network architecture to address the re-identification challenge in MTMCT systems.
- Advisor: Dr. Long Quoc Tran.

Speech Processing Intern

VinBigData — *Conversational AI solutions* (now VinSmart Future)

Oct 2021 - Nov 2022
Hanoi, Vietnam

- Designed a telephony-speech augmentation pipeline in C, achieving a 25% reduction in WER on production benchmarks.
- Developed a neural decoder that outperforms vanilla beam search by 10%.
- Delivered a low-latency streaming ASR ($\approx 70\text{ms}$ end-to-end, 12% WER on in-house dataset) for automotive deployment.
- Implemented and maintained company's in-house speech recognition framework.

EDUCATION

Bachelor of Computer Science, VNU University of Engineering and Technology
GPA: 3.71/4.0 — *Ranked 10th/153 (Top 7%) of the Computer Science Department*

Aug 2019 - Jun 2023

PUBLICATIONS

(*) Equal contribution

Conference Papers

Speech Reconstruction from Silent Videos via Acoustic-Semantic Decomposed Modeling | [Link](#)
Long-Khanh Pham, Thanh V. T. Tran, Minh-Tan Pham, Van Nguyen.
Interspeech 2025.

Effective Context Modeling Framework for Emotion Recognition in Conversations | [Link](#)
Cuong Tran Van*, Thanh V. T. Tran*, Van Nguyen, Truong-Son Hy.
ICASSP 2025.

GROOT: Effective Design of Biological Sequences with Limited Experimental Data | [Link](#)
Thanh V. T. Tran*, Nhat Khang Ngo*, Viet Anh Nguyen, Truong-Son Hy.
KDD 2025.

Journal Papers

Latent-based Directed Evolution accelerated by Gradient Ascent for Protein Sequence Design | [Link](#)
Thanh V. T. Tran, Nhat Khang Ngo, Viet Thanh Duy Nguyen, Truong-Son Hy.
Machine Learning: Science and Technology (Q1, IF: 4.6).

Protein Design by Directed Evolution guided by Large Language Models | [Link](#)
Thanh V. T. Tran, Truong-Son Hy.
IEEE Transactions on Evolutionary Computation (Q1, IF: 12).

Under Submission

Precise Video-to-Audio Generation with Cross-Modal Alignment in Latent Space

Thanh V. T. Tran, Ngoc-Son Nguyen, Luong Tran, Long-Khanh Pham, Paarth Neekhara, Shehzeen Hussain, Van Nguyen.

DiFlowDubber: Discrete Flow Matching for Automated Video Dubbing via Cross-Modal Alignment and Synchronization

Ngoc-Son Nguyen, Thanh V. T. Tran, Jeongsoo Choi, Hieu-Nghia Huynh-Nguyen, Truong-Son Hy, Van Nguyen.

DiFlow-TTS: Compact and Low-Latency Zero-Shot Text-to-Speech with Factorized Discrete Flow Matching

Ngoc-Son Nguyen, Thanh V. T. Tran, Hieu-Nghia Huynh-Nguyen, Truong-Son Hy, Van Nguyen.

AgentSound: A LLM-Driven Multi-Agent Framework for Augmenting Sounds with Semantic Context Guidance

Van Truong Hoang, Viet Pham, Thanh V. T. Tran, Van Nguyen, Harry Nguyen.

PRESENTATIONS

Oral paper presentation, KDD 2025

Toronto, Canada

ACHIEVEMENTS

(*) VLSP is one of Vietnam's most prestigious NLP competitions, recently indexed as an ACL workshop.

- Second Prize in Automatic Speech Recognition - Task 1 of VLSP 2022 competition* ([Certificate](#)).
- Third Prize in Automatic Speech Recognition - Task 2 of VLSP 2022 competition* ([Certificate](#)).
- Third Prize in Scientific Research Contest for College Students ([Certificate](#)).
- UET Merit Scholarship (6 semesters) - VNU University of Engineering and Technology.

TECHNICAL SKILLS

Programming Python, Bash, C/C++, \LaTeX , Java, SQL, JavaScript, HTML/CSS.

Libraries PyTorch, TensorFlow, Scikit-learn, TensorFlow Serving.

Developer Tools Git, Linux, Docker, MongoDB.

LANGUAGES

Vietnamese Native

English Advanced (IELTS 7.5)

ACTIVITIES

Data Science Mentor

Math and Science Summer Program (MaSSP)

Jul 2023 - Aug 2023

Hanoi, Vietnam

- Taught Calculus and Computer Vision to high-school students.
- Supervised a group of 4 students on hand gesture recognition project, covering data processing, modeling, evaluation, and presentation.

REFERENCES

- Prof. Truong-Son Hy, Tenure-Track Assistant Professor, The University of Alabama at Birmingham, United States
Email: thy@uab.edu. Homepage: <https://hytruongson.github.io/HySonLab>
- Dr. Van Nguyen, Head of Research, FPT Software, United States.
Email: vannth19@fpt.com. Homepage: <https://www.linkedin.com/in/vannguyen8/>
- Dr. Long Quoc Tran, Senior Lecturer (eq. Assistant Professor), VNU University of Engineering and Technology, Vietnam
Email: tqlong@vnu.edu.vn. Homepage: <https://scholar.google.com/citations?user=tnDavuYAAAAJ>