

# TUAN-CUONG VUONG

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## OBJECTIVE

Aspiring **AI researcher** with a strong background in Generative AI, multimodal learning, and multi-agent systems. Seeking a **PhD position** to advance predictive representation learning (e.g., JEPA), agentic LLM systems, and healthcare/business applications with efficient and secure deployment.

## RESEARCH INTERESTS

- **Generative AI & Multimodal Learning:** Modeling across text–image–signal–structured data; multimodal fusion and VLMs; predictive representation learning (JEPA-style) for robust, compact, and transferable features.
- **Agentic AI & Multi-Agent Systems:** Designing LLM-driven multi-agent frameworks (coordination, tool-use, planning, self-reflection) to collaboratively solve complex tasks such as multi-document summarization and knowledge-intensive reasoning.
- **Efficient & Trustworthy LLMs:** RAG and graph-augmented RAG, quantization/distillation (e.g., QLoRA/AWQ), inference optimization (KV-cache, batching), privacy/security for self-hosted deployments.
- **Applied AI:** Healthcare (clinical NLP, EHR/text–image fusion, decision support) and Business (analytics, knowledge management, operations) with measurable impact.

## EDUCATION

- **Phenikaa University** Sep 2021 - June 2025  
*Bachelor of Science in Computer Science (Specialization in Data Science and Artificial Intelligence)* Ha Noi, Viet Nam
  - GPA: 3.23/4.00
  - Coursework includes Data Science, Machine Learning, Computer Vision, and Natural Language Processing.

## PATENTS AND PUBLICATIONS

C=CONFERENCE, J=JOURNAL

### JOURNAL PAPERS:

- [J.2] **Vuong Tuan-Cuong**, Trang Xuan Mai, Van Luong Thien. (2025). **Task-Free Mixture of Agents for Multi-Document Summarization Leveraging LLMs and Knowledge Graphs**. *Neural Computing and Applications* (Submitted).
- [J.1] Ngo Vu-Duc, **Vuong Tuan-Cuong**, Van Luong Thien, Tran Hung. (2023). **Machine learning-based intrusion detection: feature selection versus feature extraction**. *Cluster Computing*, pp. 1-15. Springer.

### CONFERENCE PAPERS:

- [C.3] **Vuong Tuan-Cuong**, Cong Chi Nguyen, Pham Van-Cuong, Le Thi-Thanh-Huyen, Tran Xuan-Nam, Luong Thien Van. (2024). **Effective Intrusion Detection for UAV Communications using Autoencoder-based Feature Extraction and Machine Learning Approach**. Manuscript accepted for publication in 2024 *International Symposium on Nonlinear Theory and Its Applications*, pp. 798-804.
- [C.2] **Vuong Tuan-Cuong**, Trang Mai Xuan, Luong Thien Van. (2024). **BERT-VBD: Vietnamese Multi-Document Summarization Framework**. In *CITA 2024: The 13th Conference on Information Technology and its Applications*, pp. 1798-1804.
- [C.1] **Vuong Tuan-Cuong**, Tran Hung, Trang Mai Xuan, Ngo Vu-Duc, Luong Thien Van. (2022). **A Comparison of Feature Selection and Feature Extraction in Network Intrusion Detection Systems**. In *2022 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, pp. 1798-1804.

## HONORS AND AWARDS

- **Nominee for Student Best Paper Awards in CITA2024** Jul. 2024  
*The 13th Conference on Information Technology and its Applications.*
- **Viet Nam Informatics Olympiad consolation prize 2023** Dec. 2023  
*VietNam Free Opensource Software Association*
- **JASSO Scholarship for International Students in Japan** Feb. 2023  
*Japan Student Services Organization | JASSO*
- **Asia Pacific Signal and Information Processing Association Annual Summit and Conference Scholarship** Dec. 2022  
*APSIPA ASC*
- **Second Prize in Scientific Research Competition hosted by Phenikaa University** Aug. 2022  
*Phenikaa University*
- **First Prize in Scientific Research Competition hosted by Faculty of Computer Science** Feb. 2022  
*Phenikaa University*

## RESEARCH EXPERIENCE

- **Business AI Lab - National Economics University** [🌐] *Research Assistant*  
Onsite  
August 2025 – Present  
◦ Led research on **multimodal AI for Healthcare and Business/Economics**, focusing on data fusion (text, tabular/EHR, imaging) for clinical decision support and business analytics.  
◦ Core RA in the lab's **research proposal team**: co-authored proposals and documentation to secure external **funding** and support collaborations.
- **AIoT Lab - Phenikaa University** [🌐] *Research Assistant*  
Onsite  
October 2021 – Present  
◦ Research on **Agentic AI**, self-supervised/predictive representations, and multimodal understanding; explored **JEPA-style** objectives for compact predictive embeddings.  
◦ **Deployed multi-agent systems for Multi-Document Summarization**, integrating RAG/knowledge graphs and iterative agent collaboration to improve factuality and coverage.
- **Shibaura Institute of Technology** [🌐] *Talent Student - Exchange Student*  
Onsite  
Dec 2022 – Feb 2023  
◦ Developed a home-based IoT framework integrating wearable ECG sensors and anomaly-detection agents to detect sudden cardiac arrest in elderly residents.

## WORK EXPERIENCE

- **BSM Labs** [🌐] *Full Time AI Engineer*  
Onsite  
April 2024 - June 2025  
Ha Noi, Viet Nam

## SKILLS

- **Programming Languages**: Python, C++, Latex
- **LLM & Agents**: LangChain, OpenAI-agents, LlamaIndex, Qdrant, n8n, Unsloth
- **ML & DL**: PyTorch, TensorFlow, scikit-learn, Transformers (BERT, GPT)
- **Data & Databases**: Pandas, NumPy, Faiss, ChromaDB, Milvus, Neo4j
- **DevOps & MLOps**: GitHub Actions, Docker, RunPods, PM2
- **Cloud & Infra**: AWS, GCP, self-hosted GPU clusters

## TEACHING ASSISTANTSHIP

- **CSE703023: Computer architecture, Phenikaa University.** 2023
- **CSE703041: Introduction to artificial intelligence, Phenikaa University.** 2022

## PROFESSIONAL ACTIVITIES

- **Student member of Asia-Pacific Signal and Information Processing Conference** *November 2022 - Present*
- **Reviewer, ISCIT 2025 - International Symposium on Communications and Information Technologies, IEEE 2025**
- **Reviewer, ISDS 2025 – International Conference on Intelligent Systems and Data Science, Springer** 2025
- **Reviewer, AI & Society, Springer** 2025
- **Reviewer, CITA 2025 – Conference on Information Technology and its Applications, Springer** 2025
- **Reviewer, KSE 2023 – International Conference on Knowledge and Systems Engineering, IEEE** 2023

## ADDITIONAL INFORMATION

**Languages**: Vietnamese (Native), English (Toeic - 800).

## REFERENCES

1. **Dr. Thien Van Luong**  
PhD - Leader of Bussiness AI Lab,  
Department of Computer Science National Economics University  
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Email: [thienlv@neu.edu.vn](mailto:thienlv@neu.edu.vn)  
*Relationship: Supervisor*
2. **Dr. Trang Xuan Mai**  
PhD - Leader of AIoT Lab, Deputy Dean,  
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*Relationship: Supervisor*