



# Nguyễn Thế Vĩnh

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🎓 B.Sc. in Computer Science (2021–2025)

University of Information Technology – VNUHCM, GPA: 8.01/10

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## Career Objective

Aspiring to become an **AI Engineer** specializing in **NLP**. With a solid foundation in Machine Learning, Deep Learning, and Reinforcement Learning, I aim to apply optimization algorithms to solve real-world problems. I value problem-solving, continuous learning, and hope to build groundbreaking AI applications in the field of Chatbot.

## Work Experience

### 1. AI Engineer Intern — Wisdom Solutions *(May 21, 2025 – Present)*

- Trained on ML, DL, RL fundamentals; researched RL Agent applications in network load balancing.

### 2. AI Engineer Intern — CIRTech Institute *(April 5, 2025 – Present)*

- Specialized in deploying AI models using Vertex AI; LLMs, prompt engineering, and chatbot fine-tuning.

## Notable Projects

### 1. HSBot

Repo: <https://github.com/greatwall2704/HSCODE>

**Description:** Built a pipeline to generate Q&A/description datasets and fine-tuned ViT5 model for QA and HS code generation tasks.

#### Actions:

- Gen QA dataset and evaluated with LLM-as-a-Judge and checklist..
- Performed EDA and fine-tuned the ViT5 model.
- Evaluated and optimized model based on LOSS, ROUGE-L, and BERTScore.

#### Results:

- Generated a high-quality, diverse dataset for Q&A and HS code description.
- Fine-tuned ViT5 model achieved ROUGE-L = 0.53, BERTScore-F1 = 0.84 on test set.

## 2. Multimodal Sarcasm Detection on Vietnamese Social Media Texts

Repo: [github.com/tamchamchi/data-science-competition](https://github.com/tamchamchi/data-science-competition)

**Description:** Developed a multimodal machine learning model to detect sarcasm in imbalanced social media datasets.

**Actions:**

- Conducted EDA and preprocessing: removed hashtags, URLs, converted emojis.
- Applied pre-trained models (CLIP, ViT5, ViLT) and early-fusion of image and text features.
- Used PCA and SMOTE for dimensionality reduction and data balancing; trained SVM.

**Results:** Top 8 on public test set ( $F1 = 0.4268$ ), Top 23 on private test set ( $F1 = 0.3949$ ).

## 3. MLOps Project: AI Chatbot QA System

Repo: [github.com/NguyenQuocKhanh1301/MLOps\\_Project](https://github.com/NguyenQuocKhanh1301/MLOps_Project)

**Description:** Developed a document QA system using LLM, FAISS, and FastAPI.

**Actions:**

- Designed and implemented backend APIs using FastAPI.
- Integrated LLMs with LangChain and FAISS.
- Packaged and deployed backend using Docker Compose.

**Results:** Stable chatbot API supporting various PDF inputs.

## 4. Single-Agent Reinforcement Learning for Network Load Balancing in Data Center

Repo: [github.com/NTV-UIT/Single-Agent-Reinforcement-Learning-for-Network-Load-Balancing-in-Data-Center](https://github.com/NTV-UIT/Single-Agent-Reinforcement-Learning-for-Network-Load-Balancing-in-Data-Center)

**Description:** Applied Q-Learning and DQN to optimize network load balancing in data centers.

**Actions:**

- Designed a Gym environment simulating heterogeneous server load balancing.
- Performed EDA, processed real-world trace data, built training pipeline for Q-Learning and DQN agents.
- Analyzed performance and fairness of RL approaches.

**Results:** DQN achieved Jain's Fairness Index near 1 and higher average reward than Q-Learning, demonstrating more effective and fair load distribution in real-world settings.

## Skills

- **Programming:** Python, C++.
- **AI/ML:** PyTorch, Scikit-learn.
- **Tools:** Jupyter, Docker, Git.
- **Libraries:** Gymnasium, OpenCV, NumPy, Pandas, Matplotlib, LangChain, Ollama.
- **Soft Skills:** Problem-solving, teamwork, communication, technical English reading.