

Duc Long Vu

✉ longvd336@gmail.com | ☎ (+1) 609-772-7201 | 🌐 [Personal Website](#)

Research Interests

- **Primary Areas:** Machine Learning, Computer Network, Federated Learning, Graph Neural Networks, AI for Healthcare/Science
- **Applications:** Sustainable Development, Communication Systems, Distributed Computing, Resource Allocation
- **Methods:** Machine Learning, Deep Learning, Optimization

Education

New Jersey Institute of Technology
Graduate Studies in Data Science

New Jersey, US
Sep 2024 – Current

Posts and Telecommunications Institute of Technology (PTIT)
B.E. in Electronic and Telecommunication Engineering

Hanoi, Vietnam
Sep 2018 – Mar 2023

- Thesis: “Research and develop a machine learning model for supporting gene analysis and diagnosis of disease” (Grade: 10/10)
- Cumulative GPA: 3.42/4.00 (Top 2% - Faculty ranking: 7/430)

Research Experience

Data and Intelligent System Laboratory, PTIT
Research Associate

Oct 2020 – Current
Supervisor: Assoc. Prof. Hai-Chau Le

Projects as Principal Investigator:

- Design of AI-based smart wearable device for supporting visually impaired people
- Smart IoT device for face recognition and temperature detection using thermal images
- Pediatric Sepsis Diagnosis Based on Differential Gene Expression and Machine Learning Method
- A Novel Approach Based on Machine Learning for Revealing Potential Biomarkers to Diagnose Sepsis
- Machine learning-based approach for gene exploration to optimize diagnostic of ALS disease

Key Contributions to Other Projects:

- Research and Improve Video Streaming Protocol by DASH (NAVER AI Research)
- IoT Smart System for monitoring and alarm for COVID-19 guarantee (NAVER AI Research)
- Deep reinforcement learning framework for routing, modulation, and spectrum assignment in Elastic Optical Network
- Deep Learning Based Signal Modulation Identification in OFDM systems
- Research and develop a smart system for health monitoring and abnormal detection based on electrocardiogram signal
- An efficient ECG signal processing approach based on machine learning for R peak detection and arrhythmia classification

Publications

Under Preparation:

1. **Duc-Long Vu** and Hai-Chau Le, "A Novel Approach Based on Machine Learning for Revealing Potential Biomarkers to Diagnose Sepsis", *In preparation for Scientific Report*

Conference Papers:

1. Hai-Long Nguyen*, **Duc-Long Vu*** and Hai-Chau Le, "Exploiting Machine Learning And Gene Expression Analysis in Amyotrophic Lateral Sclerosis Diagnosis," *2024 Tenth International Conference on Communications and Electronics (ICCE)*, pp. 363-368, 2024. (* equal contribution)
2. **Duc-Long Vu** and Hai-Chau Le, "Efficient Machine Learning-based Gene Selection Exploiting Immune-related Biomarkers and Recursive Feature Elimination for Sepsis Diagnosis", *The 12th International Symposium on Information and Communication Technology (SOICT'23)*,
3. **Duc-Long Vu** and Hai-Chau Le, "Machine Learning-Based ALS Diagnosis Using Gene Expression Data," *2023 RIVF International Conference on Computing and Communication Technologies (RIVF)*, pp. 354-359, 2023.
4. **Duc-Long Vu**, Van Su Pham, Minh Tuan Nguyen, and Hai-Chau Le, "Pediatric Sepsis Diagnosis Based on Differential Gene Expression and Machine Learning Method", *2022 International Conference on Knowledge and Systems Engineering (KSE)*, pp. 1-6, 2022.

Journal Papers:

5. **Duc-Long Vu**, Duc-Hieu Nguyen, D. N. Phuong Phi, and Hai-Chau Le, "Design of an AI-based smart wearable device for visually impaired people", *Journal of Science and Technology on Information and Communications (JSTIC)*, 2022.
6. Linh T. Nguyen, **Duc-Long Vu**, Minh Tuan Nguyen, and Hai-Chau Le, "Recognition of Human Faces and Temperatures based on automatically intelligent algorithm", *Journal of Science and Technology on Information and Communications*, ISSN 2525-2224, vol.01 (CS.01), pp. 4-9, 2022.
7. Linh T. Nguyen, **Duc-Long Vu**, Duc Hieu Nguyen, and Hai-Chau Le, "IoT monitoring system automatically recognizes and measures body temperature using deep learning techniques", *XXIV National Conference on Electronics, Communication and Information Technology (REV-ECIT 2021)*, pp.426-431, 2021.

Teaching Experience

New Jersey Institute of Technology

Sep 2024 – Current

Teaching Assistant, Data Science Department

- Course: DS677 - Deep Learning (graduate level)

Posts & Telecommunications Institute of Technology

Aug 2023 – Aug 2024

Assistant Lecturer, Data Engineering Department

- Teaching Courses: Introduction to Programming, Introduction to Data Engineering
- Teaching Assistant: Advanced Data Structures and Algorithms for International ASEAN students
- Participated in design syllabus and set hands-on projects for Big Data course funded by Samsung R&D
- Managed and guided students through experimental and hands-on assignments

Industry Experience

Data Scientist Intern, PIXTA Vietnam Co.Ltd

Sep 2022 – Oct 2022

Technologies: PyTorch, Pytorch Lightning, Linux

- Implemented deep learning models (VGG-16, ResNet-50, ResNet-16, EfficientNet) for multi-class classification
- Researched state-of-the-art models: Slow Fast Network, Retina Net, Style-GAN

Cloud Engineer Intern, Viettel Network

Apr 2021 – Oct 2021

Technologies: Kubernetes, Docker, Ansible, Python, Bash, OpenStack, KVM/QEMU, SDN, CI/CD

- Developed Hot-plug RAM/CPU features in KVM and OpenStack
- Created web application for service deployment using Ansible

Technical Skills

- **Machine Learning/AI:** PyTorch, TensorFlow, Scikit-learn, Keras
- **Programming:** Python, R, Matlab, C, Labview
- **Cloud & Infrastructure:** Docker, Kubernetes, AWS, OpenStack, VMware, QEMU/KVM
- **Version Control & Tools:** Git, Github, Gitlab
- **Networking:** TCP/IP, Dynamic/Static Routing, CCNA

Languages

- **English:** Professional working proficiency
 - IELTS: 6.5 (All band scores over 6.0)
 - TOEIC: 860 (Reading: 390 - Listening: 470)
- **Vietnamese:** Native proficiency

Honors & Awards

- VEF 2.0 Fellows 2024 (2024)
- Full Scholarship TA assistantship for PhD in Data Science at NJIT (\$71K/year) (2024)
- Full scholarship for Summer School in Modern Machine Learning (2023)
- 6th DTU International Summer Research School scholarship (2023)
- Merit Award for excellent research results at PTIT (2023)
- Merit Award for outstanding academic results at PTIT (2023)
- Huawei Seeds for The Future scholarship (2022)
- Third Prize in the National Student Scientific Research Contest (2022)
- First Prize in the PTIT Student's Scientific Research Contest (2021, 2022)
- Honda Award 2021 program - Selected among 100 Vietnamese students (2022)
- Viettel Digital Talent scholarship (2021)
- PTIT scholarship for outstanding academic results (2018-2019, 2020-2021, 2021-2022)

Volunteering

- Technology Consultant at Data Technology Club - Telecommunication Faculty I
- Working as Score Keeper Referee in the VEX IQ National Robotics Championship 2023

References

- **Professor. Bao-Vo Nguyen Quoc**
 - Full Professor - Dean of School of Technology, Van Lang University
 - Email: bao.vnq@vlu.edu.vn
- **Professor. Tien-Ban Nguyen**
 - Dean of Telecommunications Faculty I, PTIT
 - Email: bannt@ptit.edu.vn
- **Professor. Hai-Chau Le**
 - Head of Data Engineering Department, PTIT
 - Email: chaulh@ptit.edu.vn / lehaichau@ieee.org