TUAN NGUYEN

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OBJECTIVE

Ph.D. Candidate in Computer Science specializing in **trustworthy and efficient machine learning systems**, including **Generative AI (GenAI)**, **Federated Learning**, and **Multi-Agent Systems**. Seeking Software Engineer/ Research Scientist/ Applied Scientist Intern roles leveraging expertise in ML/AI research and development.

RESEARCH INTERESTS

I am broadly interested in **Efficient Machine Learning Systems & Algorithms** (e.g., Generative AI (GenAI), Multi-Agent Systems) and **Systems for Collaborative & Trustworthy Learning** (e.g., Federated Learning, Robustness, Privacy, Explainability).

EDUCATION

VinUniversity & University of Illinois Urbana-Champaign (UIUC) Jan 2023 – Present
Ph.D. Candidate in Computer Science (Joint Program)
- Advisors: Prof. Kok-Seng Wong, Prof. Khoa Doan (VinUniversity), and Prof. Fan Lai (UIUC)
- Concurrently pursuing M.S. in CS at UIUC (Fall 2025) — Awarded Vingroup Scholarship

VNU-University of Engineering and Technology (VNU-UET) Aug 2015 – Jul 2019
Bachelor of Science in Computer Science — Graduated with High Distinction
- Ranked 1st in a class of 30 — Awarded VNU-UET Scholarship for Academic Excellence

PUBLICATIONS

*** indicates equal contribution**

- **Tuan Nguyen**, Khoa D Doan, Kok-Seng Wong. "FLAT: Latent-Driven Arbitrary-Target Backdoor Attacks in Federated Learning." In arXiv, 2025. link.
- **Tuan Nguyen**, Dung Thuy Nguyen, Khoa D Doan, Kok-Seng Wong. "Non-Cooperative Backdoor Attacks in Federated Learning: A New Threat Landscape." In arXiv, 2024. link.
- Ngoc-Hieu Nguyen, Tuan-Anh Nguyen, **Tuan Nguyen**, Vu Tien Hoang, Dung D Le, Kok-Seng Wong. "Towards Efficient Communication Federated Recommendation System via Low-rank Training." In WWW, 2024. link.
- Thuy Dung Nguyen*, **Tuan Nguyen***, Phi Le Nguyen, Hieu H. Pham, Khoa Doan, Kok-Seng Wong. "Backdoor Attacks and Defenses in Federated Learning: Survey, Challenges and Future Research Directions." In Eng. Appl. Artif. Intell., 2024. link.
- Thuy Dung Nguyen, **Tuan Nguyen**, Anh Tran, Khoa D Doan, Kok-Seng Wong. "IBA: Towards Irreversible Backdoor Attacks in Federated Learning." In NeurIPS, 2023. link.
- Thai-Hung Nguyen, Hong-Phuc Vu, Dung Thuy Nguyen, **Tuan Minh Nguyen**, Khoa D Doan, Kok-Seng Wong. "An Empirical Study of Federated Unlearning: Efficiency and Effectiveness." In ACML, 2023. link.
- **Tuan Nguyen***, Phi Nguyen*, Dai Tran, Hung Pham, Quang Nguyen, Thanh Le, Hanh Van, Bach Do, Phuong Tran, Vinh Le, Thuy Nguyen, Long Tran, Hieu Pham. "Ensemble Learning of Myocardial Displacements for Myocardial Infarction Detection in Echocardiography." In Front. Cardiovasc. Med., 2023. link.
- Hang Duong Thi Thuy, **Tuan Nguyen Minh**, Phi Nguyen Van, Long Tran Quoc. "Fully Automated Machine Learning Pipeline for Echocardiogram Segmentation." In KSE, 2021. link.

SKILLS

Languages	Vietnamese (native), English (IELTS 7.0: R 7.5, L 6.5, S 6.5, W 6.5, Nov 2024)
Programming Languages	Python, C/C++, Java, Kotlin, Git, Bash, LaTeX, Vim
Software & Tools	Linux, TensorFlow, PyTorch, Docker, OpenCV, Scikit-Learn, Flask, Streamlit

EXPERIENCE

Research Engineer Jan 2019 - Dec 2021
UET-AILab, VNU-UET *Hanoi, Vietnam*

- Engineered cardiac analysis systems, developing algorithms for Left Ventricular Global Longitudinal Strain (LVGLS) measurement and Left-Ventricle detection with Ejection Fraction (EF) calculation, enhancing diagnostic accuracy for medical imaging.
- Designed a Medical Image Data Storage System and Mobile App for medical image interpretation, improving data accessibility and usability for clinicians.
- Co-authored a patent (National Office of Intellectual Property of Vietnam, 2022): "Automated Quantification of Ejection Fraction directly from Echocardiography video."

Software Engineer (Part-time) Jan 2019 - Aug 2019
FastGo *Hanoi, Vietnam*

- Developed a Maximum Bipartite Matching Algorithm, optimizing driver-user matching for a ride-hailing platform, increasing system efficiency by improving matching speed.
- Created tools and databases in map services for precise user location and vehicle route planning, enhancing navigation accuracy.

Software Engineer (Intern) June 2018 - Sept 2018
Kiwi Universe *Hanoi, Vietnam*

- Developed an Android application for driver services, including car washing and food delivery, improving operational efficiency and customer experience for service providers.

RESEARCH PROJECTS

Privacy-Preserving, Robust, and Explainable Federated Learning Framework. Led research on an AI framework for healthcare systems, funded by VinUni-Illinois Smart Health Center (VISHC), to enhance data security and model reliability. Published "Backdoor Attacks and Defenses in Federated Learning" and "FLAT: Latent-Driven Arbitrary-Target Backdoor Attacks in Federated Learning".

Video-based AI for Cardiac Function Assessment. Contributed to an AI project funded by VinIF, developing models for cardiac function assessment and disease prediction, leveraging machine learning for improved medical diagnostics. Published "Ensemble Learning of Myocardial Displacements for Myocardial Infarction Detection in Echocardiography".

Artificial Intelligence System for Myocardial Infarction Diagnosis. Developed an AI system for myocardial infarction diagnosis and prognosis using echocardiography, funded by VinIF, contributing to early disease detection. Published "Fully Automated Machine Learning Pipeline for Echocardiogram Segmentation".

TEACHING

- **VinUniversity | Teaching Assistant** Feb 2022 - June 2025
  - Undergraduate classes: Cybersecurity (Spring 2024); Introduction to Programming (Fall 2022, Fall 2023, Fall 2024); Object-oriented Programming and Data Structures (Spring 2023); Computer Systems Programming (Spring 2022).
- **VNU-University of Engineering and Technology | Teaching Assistant** Sep 2019 - Dec 2021
  - Undergraduate classes: Introduction to Computer Programming Languages (Fall 2019, Fall 2020, Fall 2021); Advanced Programming (Spring 2020, Spring 2021).

ACADEMIC SERVICES

- Reviewer for ICLR, NeurIPS, and ICML (2023–2025); NeurIPS '25 Datasets and Benchmarks track; and workshops: Backdoors (NeurIPS '23), DIG-BUG (ICML '25)

AWARDS AND ACHIEVEMENTS

- **Academic Scholarships**
  - Vingroup Scholarship for M.S. in Computer Science at UIUC (2025).
  - Full Scholarship for Ph.D. in Computer Science at VinUniversity (2023–present).
  - VNU-UET Scholarship for Academic Excellence (2016–2019).
  - VNU Mitsubishi Scholarship awarded by Tokyo-Mitsubishi UFJ Bank, Japan (2018).
- **Academic Awards**
  - Second place in the National Mathematics Contest for University Students (2019).
  - Young Face Vietnam National University Award (2019).
  - Digital Race - Vietnam National Contest on Autonomous Car by FPT and VTV: UET Fastest Champion (2018) - 800 contestants, 260 teams.
  - Second place in ACM ICPC Vietnam National Programming Contest (2017).
  - Second place in the National Informatics Contest for High School Students (2015).
- **Other Honors**
  - Fully-funded sponsorship for the Summer School on Advances in Data Science & AI in Vietnam (2021).
  - Fully-funded sponsorship for the Southeast Asia Machine Learning School (SeaMLS) in Indonesia (2019).
  - Fully-funded sponsorship for the KAIST CS Camp in South Korea (2019).