Huyen Nguyen

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SUMMARY OF QUALIFICATIONS

- Hi, my name is Huyen Nguyen. I'm a fourth year PhD student in ECE Department, UIUC, working on topics in machine learning for biomedical data.
- Past research interest's topics involves **object detection**, **density estimation**, **biomedical foundation model fine-tuning**, contrastive learning, and **generative modelling** for biomedical datasets.
- Experienced in Python, MATLAB and Data Analysis and Visualization tools, deep learning library (Pytorch, scikit-learn), CUDA/GPU programming, Git.

EDUCATION

Hanoi University of Science and Technology	Hanoi, Vietnam
BEng. In Biomedical Engineering	August 2021
Cumulative GPA: 3.64/4.00	
University of Illinois at Urbana Champaign	Champaign, IL, USA
MSc, Electrical and Computer engineering,	May 2025
Cumulative GPA: 3.64/4.00	
University of Illinois at Urbana Champaign	Champaign, IL, USA
PhD, Electrical and Computer engineering,	May 2027

RELEVANT COURSEWORK

Machine Learning | Digital Signal Processing II | Computer Vision | Random Processes | Introduction to Optimization | Statistical Learning Theory | Natural Language Processing | Algorithmic Game Theory | Biosensors | Information Theory| Vector Space Signal Processing | Generative Models for Biology and Life Sciences| Diffusion Flow Matching Models

TECHNICAL SKILLS

Programming languages: Python, Matlab. **Github**: https://github.com/huyenn0314
Libraries: PyTorch, scikit-learn NumPy, Pandas, Matplotlib

RELEVANT PROJECT EXPERIENCE

Research Project, *Automatic density estimation of nanoparticles in light microscope images* Aug 2022 – Aug 2024
- In collaboration with Nanosensor Group, UIUC
- Utilizing deep neural network for automatic, efficient particle density estimation in microscope

Vector Space Course Group Project, *Fine-grained contrastive learning with textual priors* March 2025
- Vector Space Signal Processing group project to improve the contrastive learning with text priors
- Applied signal processing, signal sparsification to construct text priors.

Research Project, *Fine-tuned foundation model for cytology images classification* Jan 2025 - present
- In collaboration with Mayo Clinic under Mayo-UIUC Alliance Fellowship
- Implementing and experimenting with foundation models for cytology images classification and analysis for ovarian cancer screening and diagnosis.

Generative Models Course Group Project,
A Comparative Study of Flow-Based and Diffusion-Based 3D Molecule Generation Methods April 2025
- Conduct a comparative study of two state-of-the-art generative frameworks: FlowMol, a continuous- time flow-based model, and GeoLDM, a diffusion-based.
- Reveal distinct trade-offs between the two approaches; provide practical insights into the strengths and limitations of flow- and diffusion-based models for molecular design.

RELEVANT WORK EXPERIENCE

University of Illinois at Urbana-Champaign	Champaign, IL
Teaching Assistant, ECE 310: Digital Signal Processing	Aug 2023 - present
University of Illinois at Urbana-Champaign	Champaign, IL
Research Assistant, Project: Light microscopy image processing for the PRAM device	Aug 2022 – Aug 2024

- Academic advisor: Prof. Brian Cunningham and Prof. Minh N. Do

Vin-Illinois Smart Health Center, VinUniversity	Hanoi, Vietnam

Research Assistant, Project: Object detection with knowledge graph for pill detection Jan 2022 – June 2022
iBME Lab, Hanoi University of Science and Technology Hanoi, Vietnam
Research Assistant, Project: Machine learning for lung sounds classification Jan 2020 - Aug 2021

- Academic advisor: Dr. Vu Tran