

Vinh-Hung (Tommy) Ly

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Education

Columbia University, New York

May 2025

B.A. Computer Science, Minor in Statistics

GPA: 3.7/4.0

Coursework: Artificial Intelligence, Probabilistic Machine Learning, Statistical Analysis of Neural Data, Bayesian Statistics, Algorithms, Stochastic Processes, Time Series

Honors: Knight-Hennessy Scholars Semi-Finalist (top 6% of 8,500 applicants), Cohen Scholar (\$25k), Columbia General Studies Honor Society (top 76 students/semester), Dean's List (6 semesters)

Royal Melbourne Institute of Technology Vietnam - B. Com

2013

Research Experience

The Mortimer Zuckerman Mind Brain Behavior Institute, New York

Summer 2024 - Present

Research Intern, Computational Neuroscience Lab

Advisor: Prof. Liam Paninski

- Developed a semi-supervised computer vision pipeline for pose estimation by integrating an Ensemble Kalman Smoother with iterative self-training, achieving a 10% improvement over baseline ensemble models; manuscript in preparation ([github: pseudo-labeler](#))

Columbia Irving Medical Center, New York

Summer 2023

Research Intern, Program for Mathematical Genomics

Advisor: Prof. Raúl Rabadán

- Developed a hybrid CNN-Transformer deep learning model for chromatin accessibility prediction, processing 115 ATAC-seq datasets, achieving a Pearson correlation of 0.5

New York Genome Center, New York

Summer 2022

Research Intern, Tech Innovation Lab

Advisor: Prof. Sanja Vicković

- Created background correction and focal plane detection using `dask` and `xarray` for PySeq2500 microscopy

Open Source Contributions

- **PyTorch Geometric Contributor:** enhanced graph representation methods that address fundamental limitations in non-transitive relationships:
 - ▶ Implemented the [attract-repel embeddings model](#) and general-purpose [wrapper](#), both accepted into PyTorch Geometric's neural network ([official documentation](#))
 - ▶ Demonstrated performance improvements of up to +23% AUC across different architectures - Graph Convolutional Network, Graph Attention Network, GraphSAGE ([example](#))
 - ▶ Developed [repel-fraction analysis methodology](#) for network characterization and authored a [technical analysis](#) on pseudo-Euclidean embeddings

Industry Experience

Uber Technologies Inc., New York, Singapore & Vietnam

2016 - 2020

Senior Regional Operations Manager

- Architected spatial-temporal analysis frameworks and complex SQL pipelines for cross-dispatch optimization and incentive burn rate calculation, processing 500k+ trips and validating predictions with experimental results for enhanced driver utilization and data reliability.

Skills & Activities

Technical Skills: Python, Java, C, SQL, PyTorch, Snowflake, dbt, Lightning AI, GCP, AWS, Git, Linux

Activities: Completed Ironman Maryland triathlon (2.4-mile swim, 112-mile bike, 26-mile run) in 14.5 hours