

# Vinh-Hung (Tommy) Ly

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## Education

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**Columbia University**, New York

May 2025

**B.A. Computer Science and Statistics**

**GPA: 3.82/4.0**

**Selected Coursework:** Statistical Analysis of Neural Data (PhD), Probabilistic Machine Learning (PhD), Bayesian Statistics, Artificial Intelligence, Algorithms, Stochastic Processes, Times Series

**Royal Melbourne Institute of Technology Vietnam** - B. Com

2013

## Research Experience

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**The Mortimer Zuckerman Mind Brain Behavior Institute**, New York

Summer 2024 - Present

*Research Assistant, Computational Neuroscience Lab*

*Advisor: Prof. Liam Paninski*

- Developed semi-supervised pose estimation pipeline using Ensemble Kalman Smoother (EKS) and iterative self-training, achieving 10% improvement over baseline ensemble models
- Developed novel data augmentation methods for multi-session neural decoding using adaptive dropout based on neuron centrality measures and graph contrastive learning
- Manuscript in preparation: "Improving Pose Estimation through Ensemble Kalman Smoothing and Transfer Learning"

**Columbia Irving Medical Center**, New York

Summer 2023

*Research Intern, Program for Mathematical Genomics*

*Advisor: Prof. Raúl Rabadán*

- Developed hybrid CNN-Transformer for chromatin accessibility prediction, processing 115 ATAC-seq datasets with 0.5 Pearson correlation

**New York Genome Center**, New York

Summer 2022

*Research Intern, Tech Innovation Lab*

*Advisor: Prof. Sanja Vicković*

- Modified PySeq2500 package to repurpose Illumina HiSeq 2500 for automated microscopy with parallel processing

## Industry Experience

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**Uber Technologies Inc**, New York, Singapore & Vietnam

2016 - 2020

*Senior Regional Operations Manager*

- Designed spatial-temporal analysis framework using SQL to identify optimal cross-dispatch opportunities, analyzing 500k+ trips for market-specific patterns and driver utilization optimization
- Built complex SQL pipeline for calculating incentive burn rates across US/Canada, validating offline analysis against experimental results
- Led Asia-Pacific marketplace optimization, developing analytics tools for surge pricing and ETA anomaly detection

## Projects & Honors

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**Projects:** attract-repel embedding (graph embedding for non-transitive relationships), brainsets (neural decoder with adaptive augmentation), pseudo-labeler (semi-supervised learning pipeline), atac-rna processing (chromatin accessibility pipeline)

**Honors:** Cohen Scholar (\$25k), Columbia GS Honor Society (top 76 students, min. GPA 3.8), Dean's List (5 semesters)

## Skills & Activities

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**Technical:** Python, Java, C, PyTorch, scikit-learn, Lightning AI, gcloud, aws, PostgreSQL

**Activities:** Co-founder of AI@Columbia (600+ member community), Completed Ironman Maryland (14.5 hours)