

# Michael Vinh Pham

500 College Ave Swarthmore, PA 19081  
mphan1@swarthmore.edu

## Education

### **Swarthmore College**

Swarthmore, PA

Pursuing B.A. in Honors Mathematics and Honors Economics, 3.7 GPA

Class of 2025

- Activities: 2-year Cross Country/Track Student-Athlete, Swarthmore College Computer Society, EA

## Work Experience

### **Swarthmore Economics Department**

Swarthmore, PA

Economics Research Assistant

Full-Time | May 2024 - July 2024

- Advised by Dr. Stephen O'Connell
- Incorporating human capital into macroeconomic model differential equations to assess tradeoffs of cutting public capital investment programs to alleviate Sub-Saharan Africa debt distress
- Mathematically and computationally deriving equations such as steady states and annuity equivalence welfare
- Writing Python scripts to calculate equations and visualize data

### **Harvard Economics Department**

Remote

Economics Research Assistant

Part-Time | January 2024 - Present

- Advised by Stephanie Kestelman (5th-year Harvard Economics Ph.D. student)
- Recreating Computer Vision models to construct treated group counterfactual for spatial difference-in-difference
- Writing data preprocessing, ML Python scripts to conduct sentiment analysis, sequence-to-sequence analysis in audio from LA City Planning Commission hearings

### **Swarthmore Economics Department**

Swarthmore, PA

Teaching Assistant

Part-Time | August 2022 - Present

- Intermediate Microeconomics (Fall 2024), Social Science Quantitative Lab (Fall 2024), Public Economics (Spring 2024), Econometrics (Fall 2023, Spring 2024), Intro to Economics (Fall 2022)
- Lead Stata workshops and problem sessions, explain economic concepts, facilitate student collaboration
- Additional duties include mentoring students by giving advice on completing economics major

### **UCSD E4E Lab**

San Diego, CA

Machine Learning Research Assistant

Full-Time | June 2023 - September 2023

- Advised by Dr. Ryan Kastner and Dr. Curt Schurgers
- Researched, experimented with CV techniques to semantically segment UAV, satellite imagery to track Mangrove Tree deforestation, climate change loss
- Wrote Python scripts to source satellite data, geographic information system processing, feature engineered, coded ML models with PyTorch

### **Swarthmore Qu Lab**

Remote

Machine Learning Research Assistant

Part-Time | February 2023 - June 2023

- Advised by Dr. Xiaodong Qu
- Read 100+ ML for EEG classification papers and second-authored systematic review papers accepted to KDD-UC and HCII conferences

### **UCSF Microbiome Sequencing Lab**

Remote

Bioinformatics Research Assistant

Part-Time | November 2022 - May 2023

- Advised by Dr. Renuka Nayak
- Wrote R, Python Tensorflow scripts to analyze high-dimensional, sparse microbiome arthritis development data
- Developed new ML architecture achieving 0.3, 0.38, 0.44 ppt info gain on MCC score over best existing DL model when predicting Gender, Abx treatment, SKG/WT phenotypes/traits, respectively

### **Karner Blue Capital**

Remote

Quantitative Intern

Full-Time | May 2022 - August 2022

- Read mathematical financial literature to implement models such as Fama-French and CLA Semivariance into ESG firm's Portfolio Optimizer using Python outperforming previous optimizer by 19 ppt over 6-year backtests

### **Other**

**Programming Languages:** Python, Stata, R, MatLab, C++, C, JavaScript

**Data Science/ML Technologies:** PyTorch, Tensorflow, Hugging Face, Pandas, SciKit, GIS (QGIS, Geopandas), BeautifulSoup, SQL, git

**Web Technologies:** Django, Next.js, HTMX, Tailwind, HTML/CSS

**Languages:** English (Native), Vietnamese (C1), Spanish (B2), Mandarin (A2)

**Citizenship:** United States

### **Projects**

**Universal Healthcare's Effects on Individuals' Choices** | Paper

Spring 2024

- Advanced Econometrics course final project analyzing the impact of Mexico's Seguro Popular on individual choices such as labor-leisure, family planning, cancer screening take-up
- Used alternatives to TWFE (Callaway-Sant'anna estimator and ML-based MCNNR matrix completion estimator) to find intent-to-treat treatment effect of Seguro Popular on outcomes

**Low-Resource Bam-Fr Neural Machine Translation** | Project

February 2023

- Worked with team to fine-tune ML models to translate neglected low-resource language Bambara
- Placed 5th in Orange Silicon Valley Bambara-French machine translation competition

**Long COVID (Stimulus): Medium to Long-Term Effects of the PPP Program on Unemployment** | Paper Fall 2022

- Econometrics course final project which estimated the impact of Paycheck Protection Program on unemployment rates using lagged TWFE models on panel data of PPP loans at the county level