

Nguyen Duong Hieu

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Education

Tran Phu High School for the Gifted, Natural Science 1 2020 – 2023
National Economics University, BS in Data Science in Economics and Business Sept 2023 – Now

- GPA: 3.81/4.0
- **Coursework:** Linear Algebra, Probability & Statistics, Numerical Methods, Optimization Methods, Computer Architecture, Algorithms & Data Structures, Computational Theory, Machine Learning, Data Mining, Database Systems (SQL), Data Analysis for Economics & Business

Experience

Research Assistant, DATAOPT Lab – National Economics University, Hanoi, Vietnam July 2024 – Now

- Conduct research on optimization techniques and their applications in machine learning and data-driven decision making.
- Developed and implemented mathematical models and algorithms for analyzing large-scale datasets in economics and business contexts.
- Collaborated with research team members to design experiments, evaluate models, and prepare academic reports.
- Engaged in academic discussions and knowledge-sharing activities on topics of convex optimization, numerical methods, and applied mathematics.

Teaching Assistant (Tutor), Python for Data Science, National Economics University – Hanoi, Vietnam August 2025 – Now

- Assisted the course instructor by preparing homework assignments based on lectures and course materials.
- Reviewed and graded student submissions, providing detailed solutions and feedback.
- Supported students by answering questions and clarifying concepts related to Python programming and data science applications.

Projects

Hanoi Temperature Forecasting System Late 2025

- Developed an end-to-end machine learning pipeline to forecast daily and hourly temperatures in Hanoi using 10 years of historical weather data.
- Conducted comprehensive Exploratory Data Analysis (EDA) to identify long-term climate trends and seasonal patterns, which guided feature engineering strategies.
- Designed an automated MLOps strategy featuring drift detection (using PSI and KS-Test) and a champion/challenger retraining protocol to ensure long-term model reliability.
- Collaborated with a 5-member team to optimize a CatBoost model (using Optuna) and deploy the final solution via Streamlit.
- *Technologies:* Python, Pandas, CatBoost, Optuna, ONNX, Streamlit.

Skills

Technical Skills

- Mathematical Optimization (Convex Optimization, Numerical Methods)
- Data Analysis & Statistical Methods
- Mathematical Modeling
- Algorithmic Thinking & Problem Solving
- Programming: Python (Pandas, Matplotlib), SQL

- Research & Academic Writing

Soft Skills

- Critical Thinking & Analytical Skills
- Research and Information Synthesis
- Teamwork & Collaboration
- Adaptability & Willingness to Learn
- Time Management

Certifications and Achievements

- **2022** IELTS 7.0
- **2023** Consolation Prize in Mathematics, Hai Phong City-Level Competition
- **2024** Academic Encouragement Scholarship (Excellent Level), Faculty of Mathematical Economics
- **2024** Outstanding Youth Union Member Award – National Economics University (2023–2024)
- **2025** Top 10 – Hanoi Mathematical Modeling Competition

Interests

- Mathematical Optimization & Convex Analysis
- Machine Learning & Data-Driven Decision Making
- Numerical Methods & Algorithm Design
- Research in Applied Mathematics & Data Science