Dang Trung Hieu

90541446 | hieudangtrung@protonmail.com
linkedin.com/in/trunghieudang/ | github.com/danghieutrung/ | https://dangtrunghieu.vercel.app/

Education

Nanyang Technological University — Singapore
Bachelor of Environmental Engineering — *Aug 2021 – May 2025*

Certifications — Remote
Microsoft Power BI Data Analyst — *Sep 2024*
Google Advanced Data Analytics Professional Certificate — *Jul 2024*
Google Data Analytics Professional Certificate — *Jun 2024*

Experience

Machine Learning Engineer Intern — Singapore–MIT Alliance for Research and Technology
ML model for temperature downscaling (PyTorch) — *Apr 2024 – Aug 2024*

- Developed a GAN model with a maximum downscaling factor of 64
- Downscaling is a technique to convert images to higher resolution (e.g., converting temperature data from a map of 1x1 km grids to 200x200 m grids, which corresponds to a factor of 5)
- Carried out Data Preprocessing with NetCDF data using Python NetCDF4
- Applied Transfer Learning from a pretrained model and modified model architecture to our use case
- Employed data augmentation technique and implemented gradient clipping during training
- Achieved a mean absolute error (MAE) of 0.45°C, significantly surpassing the target of 2°C MAE

Data Analyst Intern — Singapore–MIT Alliance for Research and Technology
Cooling Singapore 2.0 Measurement Campaign — *Jan 2024 – Apr 2024*

- Performed multi-table data preprocessing using Excel and Pandas. The datasets spanned an 8-month period and updated every minute.
- Calculated key metrics to support the analysis
- Crafted visualizations for the paper using Matplotlib
- Co-authored for published paper in Urban Climate Journal: Impact of rainfall on air temperature, humidity and thermal comfort in tropical urban parks

Student Developer — Remote, Scala Center
Google Summer of Code: http4s Ember WebSocket Client — *May 2023 – Aug 2023*

- Developed a full implementation of a WSClient for http4s Ember—one of the most popular Scala web frameworks
- Managed remote communication with mentors and actively engaged with community members for guidance and support.
- Completed the project in three months and gave a talk at the Northeast Scala Symposium

Projects

Final Year Project — Present
Applied ML in membrane fouling

- Overview: Apply Data Science to study Membrane Fouling in Desalination and utilize Machine Learning to predict water flow through membrane over time
- Assembled 100 datasets from various published papers and conducted Data Cleaning
- Serving as the lead author, collaborating with NTU Professor and MIT PhD graduate

NTU MLDA Club Project — Present
Automated Grading System

- Overview: Employ AI model to automatically grade students' exam submission
- Utilized Vision-Language Models (VLM) to evaluate visual charts and Large Language Models (LLM) to assess text work
- Serving as the LLM Team Lead, collaborating with a team of 10 students

Personal Portfolio and Blog Sep 2024 - Present

Personal Website

- Personal Portfolio: Built with CSS and front-end React application

Blog Post: Analyzing my Personal Spotify Data Oct 2024

- Collected and analyzed six years' worth of my personal Spotify data
- Performed Data Preprocessing using Pandas and created Visualization with Plotly
- Cleaned and extracted data into seperate tables for 10 unique charts
- Designed 10 visualizations using Plotly Javascript and wrote a short narrative for each chart

imdb-tableau Jul 2024

Tableau dashboard displaying episodes ratings over time

- Downloaded multiple large datasets from IMDB, with largest dataset containing 11 million rows
- Conducted Multi-table Data Preprocessing with Pandas
- Performed Data Modelling to establish tables relationship and built a visualization dashboard with Tableau

imdb-graphql 2022 - 2023

Charts displaying episodes ratings over time

- A full-end web application built with PostgresQL, Flask, and ReactJS
- Contributed to the GraphQL backend built with Flask and the PostgresQL database
- Developed the frontend application with React and Highcharts

COVID-19 Data Analysis and Predictive Modeling 2022

Analysis of COVID-19 mortality in the U.S.

- Conducted exploratory data analysis and visualization of COVID-19 related deaths
- Built ML models to predict the number of ICU beds and ventilators needed 1 day in advance

Skills

Languages: Python, SQL (Postgres), JavaScript, HTML, Scala, Haskell
Frameworks: React, Node.js, Flask, FastAPI
Tools: Tableau, PowerBI, Git, Bash, Linux
Soft skils: Time Management, Communication, Adaptability, Leadership, Technical Writing, Presentation