

# Dang Trung Hieu

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## EDUCATION

### Nanyang Technological University

*Bachelor of Environmental Engineering*

Singapore

*Aug 2021 – May 2025*

## 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)
- Applied data augmentation and implemented gradient clipping during training. Attained a mean absolute error (MAE) of 0.45°C, which overachieved 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*

- Conducted large, multi-table data preprocessing, statistical analysis, and data visualization
- 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 WebSocket Client for http4s Ember—one of the most popular web frameworks in Scala
- Gave a talk on the project at the Northeast Scala Symposium

## PROJECTS

### Ongoing Projects

Present

*Current Projects I am involved in*

- FYP: ML in Membrane Fouling. Lead author, collaborate with NTU Asst. Prof and MIT PhD graduate.
- LLM Team Lead for NTU MLDA Club Project: Automated Grading System

### Personal Blog

Oct 2024 - Present

*Personal Portfolio and Blog*

- Personal Portfolio: Built with front-end React application
- Spotify Blog: Data Preprocessing with Pandas and Visualization with Plotly

### imdb-tableau

2024 - Present

*Tableau dashboard displaying episodes ratings over time*

- Conducted multi-table data processing with Pandas
- Built 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