

# Dang Trung Hieu

90541446 | [contact.hieudang@gmail.com](mailto:contact.hieudang@gmail.com)

[linkedin.com/in/trunghieudang/](https://www.linkedin.com/in/trunghieudang/) | [github.com/danghieutrong/](https://github.com/danghieutrong/) | <https://dangtrunghieu.vercel.app/>

## EDUCATION

### Nanyang Technological University

Singapore

*Bachelor of Environmental Engineering (Honours Merit)*

*Aug 2021 – May 2025*

- MH2814 Probability and Statistics: A+
- MH1812 Discrete Mathematics: A

#### *Certificates*

- Microsoft Power BI Data Analyst
- Google Advanced Data Analytics Professional Certificate
- Google Data Analytics Professional Certificate

## EXPERIENCE

### Singapore–MIT Alliance for Research and Technology

Singapore

*Machine Learning Engineer*

*Apr 2024 – Aug 2024*

- Built a Computer Vision GAN model with PyTorch, with a maximum downscaling(deblurring) factor of 64
- Attained a mean absolute error (MAE) of 0.45°C, **overachieving the 2°C MAE target**

#### *Data Analyst*

*Jan 2024 - Apr 2024*

- Preprocessed large datasets collected over 8 months with Pandas
- Performed statistical analysis to uncover supporting key metrics for the paper
- Created **15 insightful visualizations** for the publication
- **Successfully published paper<sup>1</sup>** to the Urban Climate Journal

### Google Summer of Code 2023: http4s Ember WebSocket Client<sup>2</sup>

Remote, Scala Center

*Remote Student Developer*

*May 2023 – Aug 2023*

- Developed a full WebSocket implementation<sup>3</sup> for http4s Ember—one of the most popular Scala web frameworks
- **Worked independently** and communicated remotely with the mentors and other community developers
- **Presented the project for 100 attendees** at the Northeast Scala Symposium<sup>4</sup>

## PROJECTS

### NTU MLDA Club Project: Automated Exams Grading System

*Sep 2024 - Present*

*LLM Team Lead*

- Assist professors in automating the grading of exams, potentially **reducing grading time by up to 70%**
- Utilize OCRs and CV models to detect text work, equations, and graphs from exam submissions
- Utilize VLMs and LLMs to grade students' exams based on a given grading criteria

### FYP: Applied ML in Membrane Fouling

*Aug 2024 - Present*

*Lead Author*

- Develop ML and DL models to predict flow rate through membrane over time, possibly
- **Improve accuracy by 50%** over classical models
- Lead author, collaborate with NTU Asst. Professor and MIT PhD Graduate

### Personal Portfolio

*Oct 2024 - Present*

*Personal Website<sup>5</sup>*

- Built with Front-end React Application<sup>6</sup>

*Personal Blog: Analyzing my Spotify Data<sup>7</sup>*

*Oct 2024*

- Collected and preprocessed **6-year personal Spotify data<sup>8</sup>**
- Discovered underlying trends and created **10 unique visualizations** with Plotly Javascript<sup>8</sup>

### Visualizing Movie Series Ratings over time

*Tableau Dashboard<sup>9</sup>*

*Jul 2024*

- Conducted Big Data Preprocessing<sup>10</sup> with Pandas, with **largest dataset containing 11 million rows**
- Performed Data Modelling to relate 3 large tables and launched a Tableau Visualization Dashboard<sup>11</sup>

*imdb-react-graphql*<sup>12</sup>

*2022 - 2023*

- A full-end web application built with PostgresQL, Flask, and ReactJS
- Contributed to the GraphQL backend built with Flask<sup>12</sup> and the PostgresQL database
- Developed the Frontend Application<sup>13</sup> with React and Highcharts

### **Open-source Contribution for bank.green**<sup>14</sup>

*2023*

*Volunteer Developer*

- Contributed bug fixes and improvements for the bank.green website

### **COVID-19 Mortality Analysis**<sup>15</sup>

*2022*

*School Project Lead*

- Conducted exploratory data analysis and visualization on 2-year data of U.S. COVID-19 mortality
- Built ML models to predict the number of ICU beds and ventilators required 1 day in advance

## **SKILLS**

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**Languages:** Python, SQL, JavaScript, HTML, Scala, Haskell

**Frameworks:** React, Node.js, Flask, FastAPI, Spark, Hadoop

**Tools:** Tableau, PowerBI, Git, Bash, Linux

**Soft skills:** Time Management, Communication, Adaptability, Leadership, Technical Writing, Presentation