

# Ken Tan Jian Shun

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## EDUCATION

### Imperial College London

*MEng Civil Engineering*

London, UK

*Sep. 2019 – June 2023*

- On track for a First Class Honours.
- Dean's List Award (Top 10% in the cohort) in Year 2.
- Relevant modules include Computational Methods and Transport Systems, Logistics & Network Algorithms.

## WORK EXPERIENCE

### Tech Research Intern

*Transport Systems & Logistics Laboratory (TSL), Imperial College London*

London, UK

*July 2022 – September 2022*

- Spearheaded the development of an interactive web interface using a Python framework (Dash by Plotly) for the deployment of Chronos, a multi-agent time-based, logistics simulation framework developed by TSL.
- Initiated the design of various parent classes in Python to integrate GUI/visualisations as well as a custom web-based command-line to allow users to send commands to Chronos.
- Worked closely with a colleague to enable the streaming of Pygame visualisations onto a web interface using Numpy, FFmpeg, and multiprocessing libraries.
- Built Docker images and containers to allow various Chronos simulation instances to be run independently in parallel.
- Used Sphinx/MKDocs to neatly document the web interface's development guidelines for TSL's future reference/research.

### Engineering Consultancy Intern

*G&P Geotechnics Sdn. Bhd.*

Kuala Lumpur, Malaysia

*July 2021 – September 2021*

- Compiled and interpreted geotechnical site data based on engineering concepts to gather insights for design.
- Worked out a subsurface investigation bill of quantities for the client's reference for budget planning.
- Explored various engineering software and technology such as Slope/W and SAFE for engineering design processes through official documentation, to assist the firm in design analysis works.
- Independently developed an in-house algorithmic automation spreadsheet for rock support designs to be used in the firm's excavation works using open source tools such as Web Plot Digitiser.

## PROJECTS AND PROGRAMMING EXPERIENCE

### Cryptocurrency Trade Arena | *Python, Flask, SQLite*

*August 2022 - present*

- Currently working on a full-stack web application that allows users to compete with each other in trading virtual cryptocurrency coins. Worked with the CoinGecko API to pull live coin data to be used.
- Designed the front-end of the web app using CSS Bootstrap and Jinja (web templating engine). Built a user login authenticator with appropriate password hashing via the Werkzeug library within Flask.
- Built databases on the back-end using SQLite to store user login credentials, user portfolio data etc.
- Future plans include building more functional features (leaderboard, widgets, personalised watch-lists and deployment.)

### Transport Network Analytics | *Python, Numpy, Pandas, Matplotlib, NetworkX, Pulp*

*October 2021*

- Conducted data analysis on a dataset from TFL (Transport for London) with Python with the purpose of determining the next best stations for implementing step-free access.
- Developed geographical visualisations using NetworkX/Matplotlib, processed datasets with Numpy/Pandas, worked with algorithms such as Dijkstra's and built a mathematical model using Pulp.

### Finite Element Analysis of Truss Structures | *MATLAB*

*April - May 2021*

- Conducted an iterative finite element (FE) analysis on a complex structural structures (trusses) as an introduction to object-oriented programming with MATLAB.
- Built a primary class constructor method along with various methods for FE analysis involving assembling/solving large matrices and plotting visualisation graphs.

## TECHNICAL SKILLS AND INTERESTS

**Languages:** Fluent in English, Mandarin, Cantonese. Intermediate in Malay.

**Programming Languages:** Python, MATLAB, VBA (Excel). Exposed to Javascript, SQL, C.

**Technologies:** Microsoft Office, Git, Bootstrap, HTML/CSS. Exposed to Docker.

**Libraries/Frameworks:** Dash (Plotly), Pygame, Flask. Exposed to Pandas, Numpy, Matplotlib.

**Extracurricular:** Projects/Events Director @ YME-UK 20/21 (Non-profit student-led engineering-themed organisation), Executive Coordinator @ MSTW 2020 (Largest student-led technological conference in Malaysia), Vice Captain 20-22 (Imperial College Lion Dance Group), Solo Keyboardist (Malaysian Night 2020).

**Interests:** Avid Pianist (Trinity ATCL Piano Diploma, Youtube channel with piano arrangements), Amateur Violinist (ABRSM Grade 5, various orchestral participation.), Personal Finance, Fitness (Spartan SEA Regional Series Finisher, frequents the gym).