Zan Jia Tan

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Skills

Data Analysis Tool Stack	Experienced: Excel, PowerBI, Pandas, NumPy, SciPy | Proficient: Plotly, SQL, Tensorflow, Scikit-Learn
Programming Languages	Experienced: Python, Matlab | Proficient: R, VBA, Mathematica | Elementary: Rust, C++
Developer Tools	Experienced: VSCode, Spyder, Jupyter, Github | Elementary: AWS, Azure Suite, KDB
Languages	Native Fluency: English, German | Conversational: Mandarin, Arabic | Beginner: French, Italian

Experience

Transport for London (TfL), Graduate Transport Analyst and Data Scientist | London, UK *09/2023 - Current*

- **Machine Learning and Visualisation:**
  - *Feature engineering and Temporal analysis of Sensors (Python):* Created change point detection and feature engineering to find London-wide traffic sensor failures.
  - *Customer insight (Python, Sci-kit):* Improved accuracy and granularity of growth forecasting through clustering and feature engineering to identify customer segments from a 70 million point, 15TB dataset.
  - *Demand growth model (Python):* Reduced model validation time by 40% and improved the flagging and clustering process of a 50,000-point dataset of London-wide movements.
  - *Factors in injuries and incidents at bus station:* Merged SHE (Safety, Health, and Environment) Datasets with Bus Demand and Bus Station data to find aggravating environmental factors.
  - *Google Hackathon: Air Quality and Disability-Weighted Routing:* Developed a route-pathing algorithm using air quality, congestion, heat, and accessibility as weighting factors.
- **Data Engineering and Visualisation:**
  - *Version control for traffic models (Python, Plotly, Flask):* Streamlined evaluation of traffic model features through data extraction, cleaning, and visualisation, reducing auditing time by 50%.
  - *London station demand and sensor dataset engineering (Python):*
    - Shortened data analysis and model validation process by creating data pipelines to ELT (Extract, Load, and Transform) raw data, cleaning, merging and correcting data types, reducing analytics and validation process by 30%.
    - Enhanced modelling workflow efficiency by 60%, through scripts which clean, prepare, and interface data outputs.
- **Team work and Collaboration:**
  - Streamlined team interfacing by introducing standard coding practices, version control, and a central code repository.
  - Coordinated the TfL AI Journal club events to promote interdepartmental and cross-team collaborations.
- **Achievements:**
  - Winner of a Make-a-Difference award for work excellence and team contribution.

Imperial College Aeronautics Department, Undergraduate Researcher | London, UK *06/2021 - 09/2021*

- **Utilized laser and high-speed cameras to visualize, observe, and analyze airflow. (PIV)**
  - Wrote a standard best-practice guide for PIV (Particle Imaging Velocimetry) set-up.
  - Improved understanding of wake behaviour, by gathering over 3TBs of data and analysing results, allowing for the next iteration of the experiment to be planned.

Singapore Armed Forces (SAF), Main Branch Administrator | Singapore *10/2016 - 10/2018*

- Improved domain awareness and policy-decision KPIs for senior management through OSINT intelligence gathering.
- Increased server-health KPIs by 17% through development flagging and risk-assessment algorithms and procedures.
- Reduced cyber-vulnerabilities by 27% through policy and SOP procedures based on ISO27001.

Education

Imperial College London, MEng in Aeronautical Engineering | Second-Class Upper Honours *10/2018 - 10/2022*

- **Master's Thesis:** Applying reduced-order, data-driven methods, such as POD (proper orthogonal decomposition) and SINDy (Sparse Identification of Non-linear Dynamics) to find an approximate model of a chaotic system.
- **Relevant Modules:** Numerical Methods | Computing | Advanced Mathematics | Introduction to AI and Machine Learning
- **Initial Design of a Hydrogen Powered Plane** (*Propulsion Sub-team Leader* (2 months))
  - Successfully led and coordinated the timeline and deliverables of a complex 2-month project across five sub-teams.
- **Aerospace Vehicle Design** (*Conceptual Design of an aircraft) (6 months)*
  - Created temporal model of airfoils, propulsion, and control systems, ensuring compliance with FAR 25.

Extracurriculars and Non-Professional Leadership Positions

Imperial College London, Fourth Year Academic Rep. | London, UK *09/2021 - 06/2022*

- Enhanced module delivery and student satisfaction through active feedback and strategic improvements for 120 students.
- Winner of "Best Academic Rep." for negotiation and mediation over project marking and module delivery.

CITYKids, Academic Tutor | Singapore *01/2016 - 09/2016*

- Tutored and mentored approximately two dozen children from dysfunctional families.

Hobbies and Interests

Hobbies **Music Composition**: Collaborated with professional musicians under supervision of Dr. John Sharpley | **Violin Performance**: working towards a performance diploma | **Chess**