Qingang(George) Tang

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EDUCATION

University College London **London, UK**

BSc in Mathematics:84% (second year)(top 5%) *Sep 2021--Expected May 2024*

- **Core Module:** Further Linear Algebra, Computational Method, Mathematical Method 4, Probability and Statistic, Advanced Modelling Techniques, Numerical Methods, Combinatorial Optimisation, Domain Specialist in Machine Learning, Applied Stochastic Methods, Statistical Machine Learning.

Dean Close School **Cheltenham, Gloucester, UK**

High School, A Levels *Sep 2019 – Jun 2022*

- **Major coursework:** Mathematics (A*), Further Mathematics (A*), Physics (A*), Design Technology (A*).
- **Awards:** 2 gold and 3 silver UKMT certificates and entered BMO

Coursera course(With Certificate): IBM machine learning, Deep learning specialisation, Generative AI with Large Language Models

MIT online courses: Introduction to Computer Science and Programming in Python, Introduction to Computational Thinking And Data Science, Machin Learning for Inverse Graphics, Mathematics of Machine Learning

INTERNSHIP EXPERIENCE RESEARCH PROJECTS

Simulation and analysis of Modon Motion in an inviscid and Confined Fluid Environment **London, UK**

Supervised by Doctor Mathew Crowe, UCL *May 2023 – July 2023*

- Developed a mathematical solution for the shallow water equations, leading to the derivation of the quasigeostrophic potential vorticity equation and the Modon through the implicit function theorem.
- Utilized the Dedalus Python package for Modon simulations, resulting in a depiction of 15 randomly sized dipole vortices and evaluated the simulation techniques, including the spectral method and tau method.
- Concluded through rigorous analysis that the behaviour of dipole vortices can be effectively captured using a point vortices model.

A guide into Vector space, quotient space, dual space and group theory **London, UK**

Supervised by Edward Segal, UCL *Aug 2023 – Sep 2023*

- Focused on exploring isomorphism in various areas of linear algebra, focusing on proven key results such as the Isomorphism Theorem for Vector Spaces and the First Isomorphic Theorem.
- Conducted further research in the dual space, aiming to establish a connection between the dual space and machine learning techniques, specifically investigating its relation to Support Vector Machines (SVM).

WORKING EXPERIENCE

Micro-Intelligence **China, Shanghai**

Intern, Algorithm engineer. *July 2023 – Sept 2023*

- Implemented matrix transformation to meticulously calibrate the trajectory for the image capture devices across diverse machinery configurations. This streamlined approach led to a significant reduction in setup time. Furthermore, the transformation matrix can be universally applied to the positional adjustments of several robotic arms, enhancing efficiency by minimising redundant configuration.
- Leveraged Bayesian optimisation to enhance machinery camera placements, identifying Expected Improvement (EI) as the top acquisition function and ensuring consistent photography of identical workpieces by maintaining stable control variables.
- Resulting in an error of less than 2mm through transformation, which is insignificant compared to the manual set-up cost.

EXTRACURRICULAR ACTIVITIES

Contest Adakas's Fintech summer insight program *May 2023 – June 2023*

- Conducted a thorough analysis of existing Anti-Money Laundering (AML) challenges during my tenure at Adaka's Fintech Summer Insight Programme, identifying key areas where traditional mechanisms fall short.
- Proposed a Distributed Ledger Technology (DLT) system as a complementary solution, thereby enhancing the efficiency of existing methodologies utilised by Regulatory Technology companies.

Ebury Hackathon Challenge *Feb 2023*

- Utilized the Isolation Forest algorithm to effectively identify and handle outliers within a dataset of over 30,000 samples, significantly enhancing data quality and facilitating the effective training of supervised learning models during the Hackathon Challenge.
- Employed robust preprocessing techniques, including encoding categorical variables and feature selection. A notable accuracy of 81.23% utilising a neural network with x layers, securing a 3rd place ranking among all competing teams.

IMC trading challenge *March 2023*

- Undertook intensive training utilising simulated trading data and implemented a Recurrent Neural Network (RNN) with Long Short-Term Memory (Long Short-Term Memory) architecture to predict stock market dynamics, achieving a mean square error of less than 18% on the test set.
- Explored the integration of Transformer models, examining their potential in capturing long-term dependencies with the data, and assessed their effectiveness in enhancing the model's performance and broadening its capabilities for more accurate stock market behaviour forecasting.

SKILLS & INTERESTS

- **Languages:** Chinese (Native), English (IELT average 7)
- **Programming Skills:** Python (Numpy, Pandas), Matlab, Mathematica, Solidwork, R
- **Technical Skills:** Microsoft Excel, Word, PowerPoints
- **Interests:** Tennis, swimming.