Wenjie Fan

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EDUCATION & AWARDS

Keble College, University of Oxford | *MMath Mathematics and Statistics* 2020 – 2024

- GPA 3.72/4.0, awarded the college scholarship for two years

Hangzhou No.2 High School of Zhejiang Province 2017 – 2020

- A-levels: Mathematics A*, Further Mathematics A*, Physics A*
- Awarded Top Gold in British Physics Olympiads (BPhO) 2018-19 Round 1

RESEARCH EXPERIENCE

Probabilistic Principal Component Analysis for Replicated Data in Proteomics [pdf] [Github] Summer, 2023

Supervisor: Dr Oliver Crook (Department of Statistics, University of Oxford)

- Conducted in-depth literature review on PPCA, EM algorithm, and MCMC methods and their applications
- Developed two approaches for PPCA on replicated data in Python, accounting the between-replicate correlation
  - EM approach: capable of suggesting replicates that are not well-visualised or represented by traditional PCA, uncovering subtleties for more nuanced analysis and interpretation
  - MCMC approach: able to quantify clustering uncertainty and estimate the associated risk-minimising clustering. Provide insightful visualisations, including the latent space distribution
- Formatted implementations as Python packages with detailed user instructions and illustrative examples

Oscillatory Neck Propagation in Polymer Films [pdf] Summer, 2022

Supervisor: Prof Ed Brambley (Mathematics Institute & WMG, University of Warwick)

- Engaged in study of stress oscillation when stretching PET films and the finite volume method
- Released the assumption of density invariance in the previous model, with an implementation in MATLAB
- Analysed the effects and sensitivity of the parameters on the stress-strain curve in both models
- Proposed future research directions and additional experiments to a collaborator in nanocomposites

Face Mask Detection Summer, 2021

Online Research Seminar & Group Project

- Proposed the project aligning with pandemic, sourced a dataset from Kaggle for implementation
- Gained hands-on experience with the RCNN and YOLO models, assessing their capabilities and limitations
- Built a user-interface for photo and live video recognition of face masks

Restricted Three-Body Systems Summer, 2020

High School Project

- Computed numerical solutions for Restricted Three-Body Systems with MATLAB
- Visualised the results in temporal-spatial 3D paths and explored the effects of perturbations

ADDITIONAL EXPERIENCE

Gaussian Process Summer School | *Summer School* Sept. 2023

Oxford Machine Learning School | *Summer School* Aug. 2022

Ipsos China | *Customer Experience Innovation Intern* Aug. – Sept. 2021

- Translated customer survey report slides on pet insurance for Swiss Re
- Helped with desk research on diverse subjects including adaption of elevators and Generation Z's preferences
- Updated the report of net promoter score (NPS) of Manulife-Sinochem in the touchpoint of insurance claims

SKILLS & INTERESTS

Skills: Python, R, LaTeX, MATLAB, Hugo (static website), Final Cut Pro

Languages: Chinese (Native), English (Fluent)

Interests: Photography, Saxophone, Video editing **Societies:** Oxford Union, the Invariants, OxAI