YU TIAN

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EDUCATION

University of Oxford   **Oxford, UK**
PhD. Mathematics   Sep. 2018 - Present
EPSRC Centre for Doctoral Training for Industrially Focused Mathematical Modelling (InFoMM CDT)

University of Manchester   **Manchester, UK**
BSc. Mathematics and Statistics (2+2 Dual Degree)   Sep. 2016 - Jun. 2018

Beijing Institute of Technology   **Beijing, China**
BSc. Mathematics (2+2 Dual Degree)   Sep. 2014 - Jun. 2016

HONOURS AND AWARDS

- EPSRC InFoMM CDT Studentship (fully-funded PhD studentship, 2018 – 2022)
- First Prize in China Undergraduate Mathematical Contest in Modelling (Beijing, 09/2016 & 09/2015)
- First-Class People's Scholarship (5% in academia, 2014-2016)
- National Scholarship (5% in academic, research and other activities, 2014-2015)

RESEARCH EXPERIENCE

University of Oxford   **Oxford, UK**
PhD Research Project: Role Extraction and Diffusion on Networks.   Oct. 2019 - Present
Supervisors: Prof. Renaud Lambiotte (Oxford), Dr. Alisdair Wallis, Dr. Sebastian Lautz (Tesco).

InFoMM CDT Mini-Project: Inter-District Packaged Gas Optimisation.   Jul. - Sep. 2019
Supervisors: Prof. Raphael Hauser (Oxford), Dr. Peter Connard, Dr. Harsida Jenkins (Air Products)
- Formulated the problem of both inventory management and transshipment of products as a mixed integer programming, and reviewed state-of-the-art techniques.
- Proposed several relaxation methods based on Lagrangian relaxation to improve solving efficiency.

InFoMM CDT Mini-Project: Halo Effect and Demand Transfer on Products.   Apr. - Jun. 2019
Supervisors: Prof. Renaud Lambiotte (Oxford), Dr. Alisdair Wallis (Tesco).
- Devised a method combining Poisson processes with time series analysis to identify the product relationships from aggregated sales data quantitatively.
- Applied regression techniques, and proposed several validation methods on real data.

University of Manchester   **Manchester, UK**
Final Project: Model Selection versus Model Averaging in Gaussian Processes.   Feb. - Jun. 2018
Supervisor: Prof. Thomas House
- Proposed to apply model averaging technique to the parameter estimation phase, and achieved it though Monte Carlo method.
- Compared this overall method with the classical model selection in real data (code in Python).

ACADEMIC EVENTS

Selected Communications
- **Conference on Complex Systems (CCS)**, Lyon, France. (Oct. 2021)
  Contributed talk: A network-based approach to extract complements and substitutes from sales data.
- **InFoMM Annual Meeting** (Virtual), University of Oxford, UK. (July 2021)

- **Oxford Network Seminar** (Virtual), University of Oxford, UK. (May 2021)
  Seminar talk: Extracting complements and substitutes from sales data: a network perspective.

Study Groups
- **SIAM-IMA Study Group with Industry**, Edinburgh, UK. (Jun. 2021)
  Worked on detecting abnormal performance of wind turbines by machine learning.
- **European Study Group with Industry (ESGI 162)**, Leeds, UK. (Jul. 2020)
  Worked on estimating customer lifetime value in the gaming industry using incomplete data.
- **European Study Group with Industry (ESGI 145)**, Cambridge, UK. (Apr. 2019)
  Worked on deep learning hardening techniques for image classifier.
- **InFoMM UK Graduate Modelling Camp**, Oxford, UK. (Apr. 2019)

TEACHING EXPERIENCE

University of Oxford   **Oxford, UK**
Teaching Assistant   Sep. 2019 - Apr. 2020
- C5.4 Networks, Hilary Term 2020
- B8.5 Graph Theory, Michaelmas Term 2019

TECHNOLOGY SKILLS

- **Programming:** Proficiency in Python (pandas, numpy, scipy, networkx, statsmodels, scikit-learn etc), MATLAB; Familiarity with R Language, C Language.

- **Optimisation:** MOSEK, Lingo.

PUBLICATIONS AND REPORTS

Publications
- **Y. Tian**, Sebastian Lautz, Alisdair Wallis and Renaud Lambiotte. *Extracting complements and substitutes from sales data: a network perspective.* Accepted, *EPJ Data Science*, 2021.

Technical Reports
- S. Abrahams, R. Ali, A. Berryman, N. Aishah Hamzah, T. Khang, C. Ng, **Y. Tian**, and H. Yang. *Estimating customer lifetime value (CLV) in the gaming industry using incomplete data.* Report for European Study Group with Industry 162, Leeds, UK, 2020.
- M. Benning, L. Bonthrone, T. Carr, J. Dyer, A. Malip, M. McGuigan, A. Puiu, **Y. Tian**, A. Wendland and L. Yang. *Identifying potential hardening techniques for image classifiers.* Report for European Study Group with Industry 145, Cambridge, UK, 2019.

MEMBERSHIPS

- Society for Industrial and Applied Mathematics (SIAM), Student Affiliate

- Institute of Mathematics and its Applications (IMA), Student Affiliate