Xing Liu

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EDUCATION

- **University of Cambridge** — Cambridge, UK
  Master of Advanced Study; Mathematical Statistics (Part III) — Oct 2019 – present
- **Imperial College London** — London, UK
  Bachelor of Science; Mathematics with Statistics; 1st Class Honours (Top 5% in the cohort). — Oct 2016 – Jul 2019
  - Hyman Levy Memorial Prize, 2019.
  - G-Research Ltd Prize, 2018.
  - Faculty of Natural Sciences Deans List, 2017, 2018 and 2019.

RESEARCH EXPERIENCE

- **Statistical Modelling for Streaming Data in R** — London, UK
  Undergraduate Research Opportunity Programme; supervised by Dr Din-Houn Lau. — Jun 2018 – Aug 2018
  - Studied iterated weighted least-square algorithm and abrupt change-point detection methods using both parametric and non-parametric test statistics. Topics covered the CUSUMSQ charts, Kolmogorov-Smirnov test and Greenwald-Khanna algorithm. Wrote from scratch all R codes used and produced a 36-page report.
  - Funded by the Imperial College London Department of Mathematics UROP Bursary.

- **Bayesian Additive Regression Trees for Bayesian Quadrature** — London, UK
  SR Flaxman, Z Shen, R Kang, H Zhu, X Liu, W Jiang
  - We extend the existing BART model to an additive design one, which allows inference to be made on the underlying function of given datasets via an ensemble of weak models instead of a single strong model. We further show how this contributes to Bayesian Quadrature and argue that it has distinct advantages over Monte Carlo integration and Bayesian quadrature with Gaussian processes.

- **Predicting Sepsis at Triage** — Toronto, Canada
  Xing Liu; supervised by Dr Anna Goldenberg and Erik Drysdale.
  - Used various machine learning models to predict early signs of Sepsis at medical triage. NLP methods (TF-IDF and Clinical BERT) were adopted to extract signals from the triage notes. Dataset used was from the Emergency Department of the SickKids Hospital in Toronto, Canada. At an experimental stage, our models outperformed the current Sepsis alert tool at SickKids in terms of the sensitivity for a given false positive rate of 10%.
  - Built a Python pipeline that can be used to leverage for prediction of Sepsis and other diseases to improve triage.

INTERNSHIP EXPERIENCE

- **Oneway Group** A finance company that engages in investment management and trading — Beijing, China
  Trading Intern — Aug 2017 – Aug 2017
  - Undertook training courses on foreign exchange, including trading strategies and application of various indicators.

EXTRACURRICULAR ACTIVITIES

- **Imperial Mathematics Competition Committee** — London, UK
  Senior Event Coordinator and Co-Founder — May 2017 – May 2019
  - Led a team of 3 to petition UK/EU universities for collaboration; established partnerships with the Maths societies from 11 UK/EU universities within a month. Competition attracted over 200 participants in its debut.

- **Imperial College AI Hack Committee** — London, UK
  Research Engineer — Aug 2018 – Nov 2018
  - Worked in a team of six to design questions for the competition. Question concerned the prediction of the property sale price in Brooklyn, New York City. Helped to coordinate the contest on the day.

SKILLS AND COMPETENCIES

- **Languages**: Chinese Mandarin (Native); English (Professional); French (Basic).
- **Programming**: R, Python, MATLAB (Proficient); Unix (Intermediate); Fortran (Elementary).