

SIU LUN CHAU

DPhil Student in Statistical Machine Learning

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EDUCATION

- DPhil in Statistical Machine Learning**
St.Peter's College, University of Oxford
- 2019 – Present
- Supervised by Prof. Dino Sejdinovic, Prof. Mihai Cucuringu and Prof. Xi-aowen Dong.
 - Recipient of the ESPRC and MRC studentship for DPhil in Statistics and Machine Learning.
 - Thesis: *Explainability, Causality, and Preference modelling via Kernel methods.*

- MMATH in Mathematics and Statistics (1st Class Honours)**
Lady Margaret Hall, University of Oxford
- 2017 – 2018
- Ranked 2nd in the year.
 - Distinction in Master Thesis: *Modelling Diseases Trajectories with Infinite Mixture of Gaussian Processes.*

- BA in Mathematics and Statistics (1st Class Honours)**
Lady Margaret Hall, University of Oxford
- 2014 – 2017
- Ranked 1st in the year.
 - Distinction in Undergraduate Essay on Boosting methods.

SKILLS

Machine Learning Models

- Kernel Methods
- Neural Networks
- Gaussian Processes
- Graph Neural Networks

Machine Learning Applications

- Causal Inference
- Preference Learning
- Explainable AI
- Uncertainty Modelling
- Bayesian Optimisation
- Graph ML

Programming Language

- Python
- R
- MATLAB

Coding software

- Gpytorch
- PyTorch
- Sckit-Learn

Language

- English
- Mandarin
- Cantonese

INDUSTRY EXPERIENCES

- Applied Scientist Intern @ Amazon, London** Jun-22
- Devise forecasting models for the Amazon Transportation Service group.
- Data Science Consultant @ Ravio, London** Apr-22 - Present
- Designed a word embedding model to compare job titles across companies.
- Research Intern @ Max Planck Institute of Intelligent System, Tubingen** Oct-21 - Present
- Researched into machine learning for econometrics under the supervision of Dr. Krikamol Muandet. Topics covered: instrumental variable regression, and regression discontinuity design.
- Content Developer @ Cambridge Spark, London** Aug-17 - Present
- Designed projects and delivered Machine Learning courses to upskill students and corporates. Topics include: basic ML, model explainability using LIME and SHAP, time series modelling, and Gaussian processes.
- Machine Learning Consultant @ Gini, Hong Kong** Oct-20 - Jan-21
- Developed a Gaussian Processes based explainable time series model for giniPredict, a forecasting tool built for use in Google spreadsheets for decision-makers.
- Machine Learning Consultant @ Catalyst AI, Cambridge** Apr-19 - Oct-20
- Developed forecasting models for clients from agricultural tech and fashion retail companies.
- Cofounder and Managing Director @ OSG Digital, Oxford** Apr-17 - Apr-19
- Cofound and managed Oxford first's student-led machine learning consultancy group with over 50 technical consultants.

PUBLICATIONS

- 6. RKHS-SHAP: Shapley Value for Kernel Methods | Submitted**
Siu Lun Chau, Javier Gonzalez, and Dino Sejdinovic
- Constructed a framework to explain RKHS functions using the Shapley value paradigm.
- 5. Spectral Ranking with Covariates | Submitted**
Siu Lun Chau, Mihai Cucuringu, and Dino Sejdinovic
- Proposed spectral approaches to the classical problem of ranking players in light of co-variate information.
- 4. Learning Inconsistent Preference with Gaussian Processes | AISTATS 2022**
Siu Lun Chau, Javier Gonzalez, and Dino Sejdinovic
- Proposed *Generalised Preferential Gaussian Process* to model preferences that depart from rankability, a common and strong modelling assumption that is often violated in practice.
- 3. BayesIMP: Uncertainty Quantification for Causal Data Fusion | NeurIPS 2021**
Siu Lun Chau*, Jean Francois Ton*, Yee Whye Teh, Javier Gonzalez, and Dino Sejdinovic
- Proposed *Bayesian Conditional Mean Embedding* to utilise interventional distribution non-parametrically while also quantifying the model uncertainty.
- 2. Deconditional Downscaling with Gaussian Processes | NeurIPS 2021**
Siu Lun Chau*, Shahine Bouabid*, and Dino Sejdinovic
- Devised a Bayesian solution for statistical downscaling which handles unmatched multi-resolution data through the proposed *Deconditional Gaussian Processes*.
- 1. Kernel-Based Graph Learning From Smooth Signals: A Functional Viewpoint | IEEE 2020**
Xingyue Pu, Siu Lun Chau, Xiaowen Dong, and Dino Sejdinovic
- Proposed a graph learning framework to recover topological structure from observed graph signals.