

# Jean-Francois Ton

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## EDUCATION

### UNIVERSITY OF OXFORD | PHD IN STATISTICS AND MACHINE LEARNING

Expected 2017 – 2021 | St Peter's College, Oxford, UK

- PhD Thesis title: Meta-Learning using Kernel Methods
- Supervised by Prof. Dino Sejdinovic and Prof. Yee Whye Teh
- Research interests include Gaussian Process, Meta-Learning, Deep Learning and Bayesian Quadrature

### UNIVERSITY OF OXFORD | MASTERS, APPLIED STATISTICS

Oct 2016 – Aug 2017 | Somerville College, Oxford, UK

- Distinction (Top 10%) with published thesis in a Journal
- Awarded the Principal's Prize worth £250 (Somerville College)
- Courses include Machine learning, Applied Statistics, Graphical Models, Bayes Methods

### IMPERIAL COLLEGE LONDON | BACHELORS OF MATHEMATICS

Oct 2013 – Aug 2016 | London, UK

- 1st Class Honor (~ Top 10%)
- Awarded Best First Year Poster Prize in Statistics worth £100(100%)
- Focused on Statistical Methods, project on Markov Chain Monte Carlo Methods

## INDUSTRY AND RESEARCH EXPERIENCE

### APPLE | RESEARCH SCIENTIST INTERN

July 2020 – Present | Cupertino

### BLOOMBERG LP | GLOBAL DATA INTERN

Jun 2016 – Sep 2016 | EQUITY EVENTS, London

Project: Automating IPO and AGM workflow

- Used Python to automate the AGM and IPO data scrape workflow
- Decrease analyst work time by 50 hours per year

### IMPERIAL COLLEGE | UNDERGRADUATE RESEARCHER

Jun 2016 – Jul 2016 | London

Project: Reinforcement Learning on Games (Supervised by Prof. Calderhead)

- Investigated methods such as MiniMax, Alpha-Beta Pruning and Reinforcement learning (RL)
- Implemented Reinforcement learning techniques, i.e. Temporal Difference and Q-learning to create a self-learning Crawler and PacMan program (CS188 online course UC Berkley)
- Was funded £1200 for the program by the Mathematics Department

### IMPERIAL COLLEGE | UNDERGRADUATE RESEARCHER

Jun 2015 – Aug 2015 | London

Project: Creating Unbiased Estimators using Biased Estimators for SDEs (Supervised by Prof. Calderhead)

- Investigated the impact of biased estimators on inference for the parameters of the SDEs ie. the Ornstein-Uhlenberg process (OU process)
- Successfully created an unbiased estimator using clever truncation methods when simulating the solution of the SDEs
- Was funded £1200 for the program by the Mathematics Department

## PUBLICATIONS

### **META LEARNING FOR CAUSAL DIRECTION** | UNDER REVIEW 2020

Jean-Francois Ton, Dino Sejdinovic, Kenji Fukumizu

- Introduced a new meta learning algorithm for causal direction detection when given only little data.
- Achieve better/equal performance to SOTA while taking only a fraction of the time i.e. 30 mins down to a few seconds.

### **PRUNING UNTRAINED NEURAL NETWORKS: PRINCIPLES AND ANALYSIS** | UNDER REVIEW 2020

Soufiane Hayou, Jean-Francois Ton, Arnaud Doucet, Yee Whye Teh

- Introduce comprehensive theory on pruning neural networks and their dependence on initialization.
- Proposed a scaling scheme allowing us to prune DNN up to 99.5% while still retaining good accuracy

### **METAFUN: META-LEARNING WITH ITERATIVE FUNCTIONAL UPDATES** | ICML 2020

Jin Xu, Jean-Francois Ton, Hyunjik Kim, Adam Kosiorek, Yee Whye Teh

- Extended iterative meta-learning algorithms to the Function space.
- Obtained SOTA results on most popular meta-learning benchmarks.

### **NOISE CONTRASTIVE META-LEARNING FOR CONDITIONAL DENSITY ESTIMATION USING KERNEL MEAN EMBEDDINGS** | UNDER REVIEW 2019

Jean-Francois Ton, Lucian Chan, Yee Whye Teh, Dino Sejdinovic

- Extended the Neural Process to capture multi-modal conditional densities
- Use kernel mean embeddings and noise contrastive methods for functional embeddings of the tasks.

### **AUTOMATED MODEL SELECTION USING BAYESIAN QUADRATURE** | ICML 2019

Henry Chai, Jean-Francois Ton, Roman Garnett, Michael A. Osborne | Long Beach, US

- Introduced a novel active search algorithm tailored to Model selection
- More efficient than standard MCMC methods when the likelihoods are expensive to compute

### **TOWARDS A UNIFIED ANALYSIS OF RANDOM FOURIER FEATURES** | ICML 2019

Zhu Michael Li, Jean-Francois Ton, Dino Oglic, Dino Sejdinovic | Long Beach, US

- Introduced an alternative view for the analysis of Random Fourier Features
- Introduced a novel and better algorithm for Random Fourier Features that is now data dependent

### **SPATIAL MAPPING WITH GAUSSIAN PROCESSES AND NON-STATIONARY FOURIER FEATURES** | JOURNAL OF SPATIAL STATISTICS | 2018

Jean-Francois Ton, Seth Flaxman, Dino Sejdinovic, Samir Bhatt

- Introduced a non-stationary extension to Random Fourier Features, with application on spatial data
- Applied our new method on Malaria data and opened a new avenue to non-stationary spatial modelling

## SELECTED EXPERIENCES

### **CONFERENCE REVIEWER FOR AISTATS 2019 AND 2020**

### **TEACHING ADVANCED TOPICS IN STATISTICAL MACHINE LEARNING**

Jan 2019 - Jun 2020 | Oxford, UK

- Class tutor for a Machine learning course for fourth year undergraduates

### **TREASURER FOR THE OXFORD TABLE TENNIS CLUB**

Oct 2018 - Present | Oxford, UK

### **AMAZON-OXWASP BERLIN MACHINE LEARNING WORKSHOP**

Apr 2019 | Berlin, Germany

### **PRESIDENT OF THE IMPERIAL COLLEGE TABLE TENNIS SOCIETY**

Mar 2016 - Oct 2016 | London, UK

## AWARDS

### **ESPRC AND MRC STUDENTSHIP FOR DPHIL IN STATISTICS AND MACHINE LEARNING**

2017 - 2021 | Oxford, UK

### **SOMERVILLE COLLEGE PRINCIPAL PRIZE**

2017 | Oxford, UK

### **ARCHIBALD JACKSON PRIZE**

2016 - 2017 | Oxford, UK

### **FIRST YEAR STATISTICS PROJECT PRIZE**

2014 | London, UK

## LANGUAGES / SOFTWARE

### **PROGRAMMING**

Language (in order of experience)

Python • R

Libraries

Pytorch • Pandas • Numpy

### **SPOKEN & WRITTEN**

Native

English

Business

German • French • Luxembourgish