# Alexis **Bellot**

*London, UK*

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## Research interests

- Machine learning for healthcare applications.
- Causal inference and discovery.
- Hypothesis testing.
- High-dimensional statistics.

## Education

### University of Cambridge — *Cambridge, United Kingdom*

PhD Applied Mathematics - Machine Learning — *Expected beginning 2021*

- Thesis Title: Hypothesis Testing and Causal Inference with Heterogeneous Medical Data.
- Affiliated with, and funded by the Alan Turing Institute.
- Supervisor: Prof. Mihaela van der Schaar.

### University of Oxford — *Oxford, United Kingdom*

MSc Applied Statistics — *Sept. 2017*

- MSc Grade: Distinction.
- Courses in Graphical Models, Applied Statistics, Foundations of Statistical Inference, Statistical Programming, Statistical Machine Learning, Bayes Methods, Computational Statistics.

### Imperial College London — *London, United Kingdom*

BSc Mathematics — *Jun. 2016*

- BSc Grade: First Class Honours.
- Courses in all areas of Mathematics with a specialization in Statistics.

## Publications

### In submission

6. T. Kyono, Y. Zhang, A. Bellot, M. van der Schaar, "*MIRACLE: Causal Structure Learning and Exploitation for Imputing Missing Data*".
5. A. Bellot, M. van der Schaar, "*Continuous Time Synthetic Controls*".
4. A. Bellot, M. van der Schaar, "*Mechanistic Causality using Neural ODEs*".
3. A. Bellot, M. van der Schaar, "*Scoring DAGs with Dense Unobserved Confounding*".
2. A. Bellot, M. van der Schaar, "*Kernel Hypothesis Testing with Set-valued Data*".
1. A. Bellot, M. van der Schaar, "*Accounting for Unobserved Confounding in Domain Generalization*".

### Accepted conference papers

9. A. Bellot, R. A. Floto, M. van der Schaar, "*AI-based Hypothesis Testing in Individuals with CF*", Pediatric Pulmonology (Abstract), 2020.
8. A. Bellot, M. van der Schaar, "*A Kernel Two Sample Test for Unbiased Decisions*", Causality Workshop NeurIPS, 2020.
7. Y. Zhang, A. Bellot, M. van der Schaar, "*Learning Overlapping Representations for the Estimation of Individualized Treatment Effects*", AISTATS, 2020.
6. Z. Qian, A. Alaa, A. Bellot, M. van der Schaar, "*Learning Dynamic and Personalized Comorbidity Networks from Event Data using Deep Diffusion Processes*", AISTATS, 2020.
5. A. Bellot, M. van der Schaar, "*Conditional Independence Testing using Generative Adversarial Networks*", NeurIPS, 2019.
4. A. Bellot, M. van der Schaar, "*Boosting Transfer Learning with Survival Data from Heterogenous Domains*", AISTATS, 2019.
3. A. Bellot, M. van der Schaar, "*Multitask Boosting for Survival Analysis with Competing Risks*", NeurIPS, 2018.
2. A. Bellot, M. van der Schaar, "*Boosted Trees for Risk Prognosis*", Machine Learning for Healthcare Conference (MLHC), 2018.
1. A. Bellot, M. van der Schaar, "*Tree-based Bayesian Mixture Model for Competing Risks*", AISTATS, 2018.

### Accepted journal papers

5. T. Cowling, D. Cromwell, A. Bellot, and others. "*Logistic regression and machine learning predicted patient mortality from large sets of diagnosis codes comparably*", Journal of Clinical Epidemiology, 2020

4. T. Cowling, A. Bellot, and others. "*One-year mortality of colorectal cancer patients: development and validation of a prediction model using linked national electronic data*", British Journal of Cancer, 2020.
3. Y. Ruan, A. Bellot, and others. "*Predicting the Risk of Inpatient Hypoglycemia With Machine Learning Using Electronic Health Records*", Diabetes Care, 2020.
2. A. Bellot, M. van der Schaar, "*A Bayesian Approach to Modelling Longitudinal data*", ACM Computing for Healthcare, 2020.
1. A. Bellot, M. van der Schaar, "*A Hierarchical Bayesian Model for Personalized Survival Predictions*", IEEE J. BHI, 2018.

## Awards

2019 **Award** Best Abstract at the AIMED conference in London.
2019 **Award** Winner of the G-Research PhD Competition, prize of £10000.
2018 **Award** PhD studentship at the Alan Turing Institute, London.
2017 **Award** PhD studentship at the Oxford-Warwick Center for Doctoral Training (Declined).

## Service

2021 **Reviewer** AAAI Symposium on Survival Prediction: Algorithms, Challenges, and Applications, ACM Transactions on Information Systems.
2020 **Reviewer** NeurIPS, ICLR, AISTATS, ACM Transactions on Intelligent Systems and Technology.

## Skills

**Software** – Proficient in R and Python (including most machine learning libraries such as Pytorch and sklearn).
**Spoken Languages** – Spanish, French, English, Luxembourgish, German.