Alberto Caron

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Education

Sept 2021 – Ongoing
Visiting PhD Student, *The Alan Turing Institute*, London
- Project: *Interpretable Off-Policy Evaluation and Learning*

  Development of Interpretable Causal Deep Learning models (employing Neural Additive networks) for optimizing decision-making in terms of treatment allocation policies, using `Pytorch` ML framework

Oct 2019 – Ongoing
PhD in Statistics & Machine Learning, *University College London, Dept of Statistical Sciences*, London
- PhD Project: *"Bayesian Learning in the Counterfactual World"*

  Theory and methodology for causal effects estimation via Bayesian Nonparametrics/Probabilistic Machine Learning (employing Bayesian Additive Regression Trees, Gaussian Processes, Deep Kernel Learning), under high-dimensional observational data. Focus on estimation of individual/heterogeneous treatment effects.

Sept 2015 – Dec 2017
MSc in Statistics & Econometrics, *Bocconi University*, Milan, *110/110 cum laude, GPA: 28.43/30*
- Major Modules: Advanced Statistics, Bayesian Statistics, Advanced Maths, Advanced Econometrics, Time Series Analysis, Micro & Macro Econometrics
- Master dissertation: *"Assessing the Effectiveness of Monetary Policy In The Euro Area: A MIDAS-BVAR approach."*

  Prediction and Structural Analysis using cointegrated (Bayesian) Vector Autoregressions.

Jan 2015 – Jun 2015
Exchange Program, *University of Gothenburg*, Gothenburg
- Environmental Economics, Economic Geography

Sept 2012 – Sept 2015
BSc in Economics & Social Sciences, *Bocconi University*, Milan, *105/110, GPA: 27.16/30*
- Major Modules: Math, Stats, Micro & Macro Economics, Econometrics, Development Economics

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Experience

Oct 2019 – Ongoing
Teaching Assistant, *University College London*, London
- STAT0001 (Economics), STAT0006 (Linear Models), STAT0007 (Stochastic Processes)

Sept 2018 – Oct 2019
Consultant, *EREDA Consultants*, London
- Working on a research/consultancy project commissioned by the UK governmental Department for Business, Energy & Industrial Strategy, performing statistical and econometric evaluation of environmental/energy policies (employing Regression Discontinuity Designs and Cluster Analysis)
- Development of `R` Shiny App for customized data analytics

Sept 2018 – Oct 2019	**Research Assistant**, *University College London, Bartlett School of Env, Energy & Resources*, London
	- Statistical and econometric evaluation of environmental/energy policies using Synthetic Control Method, for a Department for Business, Energy & Industrial Strategy project
Mar 2018 – Sept 2018	**Research Assistant**, *Department of Economics, Bocconi University*, Milan
	- Web Scraping with `Python`, data cleaning and econometric Analysis of public procurement data
Oct 2016 – Mar 2017	**Research Field Project**, *IGIER, Bocconi University*, Milan
	- Econometric analysis of high-frequency financial trading data using autoregressive models

Publications & Pre-prints

- Caron, A., Baio, G. & Manolopoulou, I., *Counterfactual Learning with Multioutput Deep Kernels*, 2022, *under review at conference*

  Develops a novel causal Deep Kernel Learning model for better scalability in estimating treatment effects with multiple actions and outcomes of interest ([Python code repository](#))

- Caron, A., Baio, G. & Manolopoulou, I., *Interpretable Deep Causal Learning for Moderation Effects*, 2022, *ICML 2022, 2nd Interpretable Machine Learning in Healthcare Workshop*

  Develops a novel causal Neural Additive Model for interpretable moderation effects estimation that drive heterogeneity in treatment effects ([Python code repository](#))

- Caron, A., Baio, G. & Manolopoulou, I., *Shrinkage Bayesian Causal Forests for Heterogeneous Treatment Effects Estimation*, 2021, arXiv:2102.06573, accepted to *"Journal of Computational & Graphical Statistics"*

  Develops a novel causal Bayesian Nonparametric model for targeted regularization and uncertainty quantification around individual treatment effects with high-dimensional predictor space ([R package](#))

- Caron, A., Baio, G. & Manolopoulou, I., *Estimating Individual Treatment Effects using Non-Parametric Regression Models: a Review*, 2020, arXiv:2009.06472, accepted to the *"Journal of the Royal Statistical Society, Series A"*

  Reviews and compares performance via Monte Carlo simulated experiments of the state-of-the-art methods for individual treatment effects estimation ([R code repository](#))

- Zhu, H., Liu, X., Caron, A., Manolopoulou, I., Flaxman, S. & Briol F. X., *Contributed Discussion of "Bayesian Regression Tree Models for Causal Inference: Regularization, Confounding, and Heterogeneous Effects"*, 2020, *"Bayesian Analysis"*, 15(3), discussion

Working Papers

- Samartsidis, P., Hernandez, N., Caron, A., Baio, G. & Manolopoulou, I. *Bayesian Functional Data Analysis for Causal Effects Estimation over Time*, 2022, *work in progress*

- Caron, A., *Causal Effect Identification and Estimation under Manipulative Mediators*, 2022, *work in progress*

Software

- **Python:** `pytorch, numpy, pandas, matplotlib, sklearn, scipy, etc.`
- **R:** `tidyverse (ggplot, dplyr,...), lm, nnet, etc.;` ML libraries, Shiny App development, package development
- **Others:** `LaTeX, SQL, MatLab, C++, STATA`

Languages

Italian	Native Speaker	
English	C1/C2 Level	*IELTS Certificate*
French	B1 Business	
Spanish	A2	

Awards & Scholarships

Mar 2022	Junior Travel Award, ISBA 2022 World Meeting
Jan 2022	Costas Goutis Prize for best PhD Upgrade Viva, UCL, Dept of Statistical Sciences
Sept 2021	Enrichment Students Award, The Alan Turing Institute
Sept 2019	PhD Studentship, UCL, Dept of Statistical Sciences
Sept 2018	*Lino Venini* Scholarship, *BPN Fundation, Novara*
Jan 2015	*Erasmus+ Scholarship*

Contributed Talk & Invited Presentations

June 2022	Contributed Talk, International Society for Bayesian Analysis (ISBA) World Meeting, Montreal
Mar 2022	UCL, Dept Statistical Science, PhD Seminars
Apr 2021	UCL, Priment Clinical Trials Unit Statistical Seminar
Apr 2020	UCL, Dept Statistical Science, Computational Statistics Reading Group