

Matthieu Darcy

Website

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EDUCATION

Caltech Ph.D. Candidate in Computing and mathematical Sciences, 2nd year Advisors: Profs. Houman Owhadi, Andrew M. Stuart	Pasadena, California 2021–present
Institut Polytechnique de Paris Mathématiques Vision et Apprentissage, with Highest Honors (mention “Très Bien”)	Paris, France 2020–2021
Imperial College London MSc Applied Mathematics, with Distinction	London, United Kingdom 2019–2020
King’s College London BA Mathematics and Philosophy, first class	London, United Kingdom 2016–2019

RESEARCH EXPERIENCE

French Commission for Atomic Energy Research Intern – Deep Learning for Hexahedral Meshing.	5/2022-8/2022
Imperial College London Master’s project. – Application of Kernel Flows to regression problems.	5/2022-8/2022

RESEARCH INTEREST

I am interested in the applications of wavelets, Gaussian processes and kernel methods to problems in Machine learning and Applied Mathematics.

- **Stochastic Differential Equations:** inference of the drift and diffusion of stochastic differential equations from data.
- **Operator Learning:** learning non-linear operators using wavelets and kernel methods, with applications to learning the solution operator of Partial Differential Equations and to solving integro-differential functional equations.
- **Dynamical Systems:** learning dynamical systems for data.

PUBLICATIONS AND PREPRINTS

- [1] M. Darcy, B. Hamzi, G. Livieri, H. Owhadi, and P. Tavallali, *One-shot learning of stochastic differential equations with computational graph completion*, 2022.
- [2] M. Darcy, B. Hamzi, J. Susiluoto, A. Braverman, and H. Owhadi, *Learning dynamical systems from data: A simple cross-validation perspective, part ii: Nonparametric kernel flows*, Dec. 2021.

CONFERENCES AND SEMINARS

- Third Symposium on Dynamical Systems and Machine Learning 2022, Fields Institute, Toronto, CA - Poster.
- International Conference on Continuous Optimization (ICCOPT) 2022, Lehigh, PA, USA - Talk.
- Caltech SIAM chapter 2022, Pasadena, CA, USA - Talk.
- Second Symposium on Dynamical Systems and Machine Learning 2020, Fields Institute, Toronto, CA - Talk.

TEACHING

- **Teaching Assistant** for graduate-level courses at Caltech 2023
ACM 118: Stochastic Processes and Regression, 2023.

COMPUTER SKILLS

- **Python:** proficient in numpy, scikit-learn, scipy, JAX, pandas, pytorch.
- **LaTeX:** proficient

LANGUAGES

- **English:** native
- **French:** native