

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

5/2022-8/2022

- Deep Learning for Hexahedral Meshing.

Imperial College London

Master’s project.

5/2022-8/2022

- Application of Kernel Flows to regression problems.

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