Cristiana Diaconu

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Education

Machine Learning Group, University of Cambridge *2023 - Present*
PhD in Machine Learning - Probabilistic modelling for spatio-temporal data
Supervised by Prof. Richard Turner, Advised by Prof. José Miguel Hernández Lobato

MEng in Information Engineering and Bioengineering, University of Cambridge *2019-2021*

- Part IIB: **Ranked 1st overall** (Distinction 83%)
- Part IIA: First Class Honours (89%)

BA Hons Natural Sciences - Physics and Materials Science 2017-2019
Part IB *First Class Honours (I) - 79%*, Part IA *Upper Second Class (II.1) - 69%*

Publications and Select Preprints

Estimating Interventional Distributions with Uncertain Causal Graphs through Meta-Learning
The Thirty-Ninth Annual Conference on Neural Information Processing Systems (NeurIPS), 2025
Anish Dhir*, **Cristiana Diaconu***, Valentinian Mihai Lungu, Richard E. Turner, Mark van der Wilk

Gridded Transformer Neural Processes for Large Unstructured Spatio-Temporal Data
Spotlight poster (top 2.6%**)** *at the International Conference on Machine Learning (ICML), 2025*
Matthew Ashman*, **Cristiana Diaconu***, Eric Langezaal*, Adrian Weller, Richard E. Turner

On Conditional Diffusion Models for PDE Simulations
The Thirty-Eighth Annual Conference on Neural Information Processing Systems (NeurIPS), 2024
Aliaksandra Shysheya*, **Cristiana Diaconu***, Federico Bergamin*, Paris Perdikaris, José Miguel Hernández-Lobato, Richard E. Turner, Emile Mathieu

Approximately Equivariant Neural Processes
The Thirty-eighth Annual Conference on Neural Information Processing Systems (NeurIPS), 2024
Matthew Ashman*, **Cristiana Diaconu***, Adrian Weller, Wessel P. Bruinsma, Richard E. Turner

Translation Equivariant Transformer Neural Processes
International Conference on Machine Learning (ICML), 2024
Matthew Ashman, **Cristiana Diaconu**, Junhyuck Kim, Lakee Sivaraya, Stratis Markou, James Requeima, Wessel P. Bruinsma, Richard E. Turner

In-Context In-Context Learning with Transformer Neural Processes
Proceedings of the 6th Symposium on Advances in Approximate Bayesian Inference (AABI), 2024
Matthew Ashman*, **Cristiana Diaconu***, Adrian Weller, Richard E. Turner

Guided Autoregressive Diffusion Models with Applications to PDE Simulation
AI4DiffEqtnsInSci Workshop at International Conference on Learning Representations (ICLR), 2024
Federico Bergamin*, **Cristiana Diaconu***, Aliaksandra Shysheya*, Paris Perdikaris, José Miguel Hernández Lobato, Richard E. Turner, Emile Mathieu

Denoising Diffusion Probabilistic Models in Six Simple Steps
Richard E. Turner, **Cristiana Diaconu**, Stratis Markou, Aliaksandra Shysheya, Andrew Y. K. Foond, Bruno Mlodozeniec

Work Experience

Research Intern at Polymathic AI 2025

- Developing a method to fine-tune a foundational deterministic PDE model into a probabilistic one.
- Improving the stability of long rollouts and investigating the transfer abilities of the large PDE foundation model developed by Polymathic AI.

Researcher Intern at Microsoft Research AI4Science 2025

- Improved the conditional generation abilities of a generative model for inorganic materials, and optimised diffusion model choices for improved performance.
- Integrated models into the existing codebase following best software engineering practices.

Data Scientist/Machine Learning Engineer at L2S2 2021 - 2023

- Analysed and developed machine learning models on big medical data sets (1M+ datapoints); examples include predicting the mortality risk of patients using Hospital Episode Statistics (HES) data, investigating the risk of deterioration of elderly people by analysing vital signs data.
- Developed an automatic pupil detection algorithm and an emergency department simulator using a discrete event simulator in **Python**.
- Worked on the data development of the National Emergency Care Data Set (ECDS) Max.

Data Analyst Summer Intern at Intropic 2020

- Performed an event study that analysed the impact of Passive Fund demand and supply, and proposed a simple long-short strategy based on the findings.
- Cleaned and processed the 4-year historical dataset on which the event study was performed; was responsible for the final version of the dataset that was shared with the clients.

Additional Projects

High quality IT system for emergency care in developing countries 2023-2024

- Contributed to an open-source, **Django**-based application that can be used to provide emergency care in clinics/hospitals with limited technological resources (e.g. from developing countries).

Cuff-less Blood Pressure Estimation 2020-2021

- Worked with a 2.4TB database to develop a combination of physical and machine learning-based models, with the aim to perform non-invasive cuff-less estimation of the arterial blood pressure.

Academic Activities

Top Reviewer at NeurIPS 2025
Reviewer at NeurIPS, ICLR, ICML, UAI 2025
Guest Lecturer on Diffusion Models at the MPhil in Machine Learning and Machine Intelligence 2024
Admissions Interviewer for Undergraduate Engineering, Queens' College, Cambridge 2023, 2024, 2025
Project Supervisor, University of Cambridge 2023-Present

- Currently co-supervising the projects of two fourth-year Engineering students aiming to adapt neural processes to streaming data.
- Co-supervised three fourth-year Engineering students, and two students completing an MPhil in Machine Learning and Machine Intelligence in topic such as neural processes and diffusion models.

Undergraduate Supervisor, University of Cambridge 2023-Present
Lab Demonstrator for the Lego Mindstorms exercise, University of Cambridge 2023-2024

Scholarships and Awards

Cambridge Trust Scholarship 2023-2027
Full scholarship for PhD in Machine Learning.
The Institution of Civil Engineers Baker Prize 2021
*Awarded for the **highest score in the combined order of merit** (Ranked 1st) in Part IIB Engineering.*
Queens' College Academic Prizes 2020-2021

- **The Ruth Hendry Prize** & **The James & Jean Bennett Prize** (2021): For distinction in Engineering.
- **Foundation Scholarship** & **The Prigmore Prize** (2020): For First Class performance.

Science Olympiads 2014-2017
Silver Medal at European Union Science Olympiad (2015); Multiple National Medals (Romania).

Skills

Computing - Python, MATLAB, PyTorch, OpenCV, Simpy, Django, LaTex
Language - Romanian: Native, English: Fluent, Spanish: Advanced, German: Basic