

Nathaël Da Costa

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Education

University of Tübingen

PHD IN COMPUTER SCIENCE

Information assimilation in probabilistic PDE simulation

Tübingen, DE

September 2023 - Ongoing

University of Cambridge

MMATH IN PURE MATHEMATICS (PART III OF THE MATHEMATICAL TRIPOS)

With Merit.

Cambridge, UK

October 2021 - June 2022

University of Cambridge

BA IN MATHEMATICS (MATHEMATICAL TRIPOS)

First Class, ranked 38th/222.

Cambridge, UK

October 2018 - June 2021

European School of Luxembourg

EUROPEAN BACCALAUREATE, 92%

98% in Mathematics and Advanced Mathematics.

Kirchberg, LU

April 2008 - July 2018

Experience

Nanyang Technological University

RESEARCH ASSOCIATE

Research on kernel methods on manifolds.

Singapore, SG

January 2023 - August 2023

Dreams AI

MACHINE LEARNING INTERN

Studied the geometry of the space of SPD matrices.

Hong Kong, HK

December 2019 - January 2020

MM Flowers

DATA SCIENTIST, CAMBRIDGE MATHEMATICS PLACEMENT

Used Bayesian networks to learn from data.

Cambridge, UK

June 2019 - August 2019

Oxford Summer Courses

MATHEMATICS TUTOR

Taught mathematics to students from 14 to 20 years old.

Cambridge, UK

June 2021 - August 2021

Papers

PREPRINTS

Sample Path Regularity of Gaussian Processes from the Covariance Kernel

[Nathaël Da Costa](#), Marvin Pförtner, Lancelot Da Costa, Philipp Hennig, 2023, arXiv:2312.14886.

Invariant kernels on Riemannian symmetric spaces: a harmonic-analytic approach

[Nathaël Da Costa](#), Cyrus Mostajeran, Juan-Pablo Ortega, Salem Said, 2023, arXiv:2310.19270.

Geometric Learning with Positively Decomposable Kernels

[Nathaël Da Costa](#), Cyrus Mostajeran, Juan-Pablo Ortega, Salem Said, 2023, arXiv:2310.13821.

Differential Geometry with Extreme Eigenvalues in the Positive Semidefinite Cone

Cyrus Mostajeran, [Nathaël Da Costa](#), Graham Van Goffrier, Rodolphe Sepulchre, 2023, arXiv:2304.07347.

CONFERENCE PROCEEDINGS

The Gaussian Kernel on the Circle and Spaces that Admit Isometric Embeddings of the Circle

[Nathaël Da Costa](#), Cyrus Mostajeran, Juan-Pablo Ortega, *Geometric Science of Information*, pages 426-435, Cham, 2023, Springer Nature Switzerland.

Presentations

2023	Kernel Methods on Manifolds , Emergent Algorithmic Intelligence Workshop	Mainz, DE
2023	Kernel Methods on Manifolds , Non-autonomous Dynamics in Complex Systems Workshop	Dresden, DE
2023	The Gaussian Kernel on the Circle , International Conference on Geometric Science of Information	Saint-Malo, FR
2023	Differential Geometry with Extreme Eigenvalues in the Positive Semidefinite Cone , International Congress on Industrial and Applied Mathematics	Tokyo, JP

Scholarships

2018-2022	CEDIES , Luxembourg Scholarship for academic achievement (approx. 30,000€).	Luxembourg, LU
2019-2022	Churchill College Prize Scholarship , Prize for excellent exam results (awarded in 2019, 2020, 2021, 2022).	Cambridge, UK

Competitions

2018	Honorable Mention , 59th International Mathematical Olympiad (IMO).	Cluj Napoca, RO
2018	Participation , 49th International Physics Olympiad (IPhO).	Lisbon, PT
2018	Participation , 10th Benelux Mathematical Olympiad (BxMO).	Mersch, LU