Ramón Dineth Nartallo-Kaluarachchi

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Summary

I am Ramón, a doctoral student interested in computational science and applied mathematics with a particular focus on neuroscience and biology. My research focuses on the dynamics of complex systems using models and data analysis.

Education

University of Oxford Oxford, UK
Doctor of Philosophy, Mathematics. *Thesis: Nonequilibrium dynamics of brain networks* 2022-
Research in complex systems, data science and neuroscience, supervised by Alain Goriely FRS and Renaud Lambiotte within OCIAM and Morten Kringelbach in the Centre for Eudaimonia and Human Flourishing.

University of Warwick Coventry, UK
Master of Mathematics with Study in Europe. 2018-2022
First Class Honours: 85% average

Study Abroad - **Universidad Complutense de Madrid** Madrid, Spain
Courses in mathematics. *Matrícula de honor × 4. Overall 8.5/10 average* 2020-2021

Wilson's School Wallington, UK
4 A* levels, 12 A* GCSEs. 2011-2018

Publications and preprints

'Multilevel irreversibility reveals higher-order organisation of non-equilibrium interactions in human brain dynamics'
R. Nartallo-Kaluarachchi, L Bonetti, ..., R. Lambiotte and A. Goriely, *bioRxiv 2024.05.02.592195* 2024

'Broken detailed balance and entropy production in directed networks'
R. Nartallo-Kaluarachchi, M. Asllani, ..., A. Goriely and R. Lambiotte, *arXiv 2402.19157* 2024

'Computational Modeling of Ephaptic coupling in Myelinated and Unmyelinated Axon Bundles Using the EMI Framework'
A. Gatti*, **R. Nartallo-Kaluarachchi***, A. Uppal* and P. Benedusi, *Simula SpringerBriefs on Computing* 2024

'Splitting integrators for spiking neuronal models'
R. Nartallo-Kaluarachchi, *Master's thesis* 2022.

Experience

Univeristy of Oxford Oxford, UK
Tutor and Teaching Assistant Oct 2022 –

- Tutor for MSc course in Networks. TA in Numerical Solution of PDEs, Nonlinear Systems and Stochastic Modelling of Biological Processes

University of Warwick Coventry, UK
Fourth-year supervisor Oct 2021 – June 2022

- Gave bi-weekly classes and marked homework for a group of 10 first-year undergraduates in core mathematics modules.

Softwire London, UK
Software Developer (Internship) June 2021 – August 2021

- Summer internship as full stack develop working with Typescript and React to develop a content management system for an insurance company. Worked with APIs, UX design, containerisation and version control.

Bloomberg Remote/London, UK
Global Data Analyst (Internship) June 2020 – August 2020

- Summer internship at data analyst in the Corporate Actions team processing entity metadata. Automated the processing of data for MTF stock exchanges and analysed the IPO database to find newsworthy trends.

Sargent & Co. Caterham, UK
Accounting Assistant July 2016, July – August 2018

- Work experience then summer role providing accounting services for small firms.

Skills & Interests

Technical: Python, R, Matlab, Java/Typescript, Git
Language: English (Native), Spanish (Advanced, C1)
Interests: Basketball, folk music and fiction books

Popular articles

'Broken symmetry and the emergent complexity of life' R. Nartallo-Kaluarachchi *The Oxford Scientist* 2024

Seminars & Conference Talks

Invited

'Non-equilibrium dynamics in the human brain and other complex networks' March 2024
Machine Learning & Data Science Graduate Seminar, Department of Mathematics, Florida State University
Invited: M. Asllani

'Time-irreversibility of complex network dynamics' Feb 2024
Networks Seminar, Mathematical Institute, University of Oxford Invited: T. LaRock

'From dynamics to thermodynamics in the brain and beyond' Feb 2024
Centre for Eudaimonia and Human Flourishing Seminar, Linacre College, University of Oxford
Invited: M. Kringelbach

Contributed

'Broken detailed balance in dynamics on directed graphs' July 2024
Dynamics Days Europe, Bremen, Germany

'Broken detailed balance and entropy production in complex directed networks' May 2024
British Network Science Symposium

'Time-irreversible dynamics on directed networks' Apr 2024
Networks & Time Workshop, NEU London, UK

'Broken detailed balance and entropy production in directed networks' Jan 2024
NetSciX, Venice, Italy

'Multilevel irreversibility reveals higher order non-equilibrium interactions in human brain dynamics' Jan 2024
NetSciX, Venice, Italy

'Lattice-embedded network dynamical systems' Jan 2024
NetSciX, Venice, Italy

'Multilevel irreversibility reveals higher order organisation of non-equilibrium interactions in human brain dynamics during long- term memory' Nov 2023
C3: Complexity, Computers and Consciousness, London, UK

'Network methods for analysing time-series from complex interacting systems' March 2023
Data Natives, City University of London, UK

'Network methods for analysing time-series from complex interacting systems' March 2023
British Applied Mathematics Colloquium, Bristol, UK