DANIEL MARRIS

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SUMMARY

I am a final year PhD candidate at the University of Bristol. With a strong publication record in mathematical non-equilibrium statistical physics, I am adept working analytically and computationally. I have excellent communication skills, exemplified by presenting my research at many international meetings and conferences.

EDUCATION

The University of Bristol   September 2021 - March 2025 (expected)
Engineering Mathematics (PhD), supervised by Prof. Luca Giuggioli.
Thesis Title: *Markovian and non-Markovian Transport on the Lattice: From Data to Analytics via Random Walks with Internal Degrees of Freedom*

The University of Bristol   September 2017 - June 2021
Engineering Mathematics (MEng), First class with Honours.

TECHNICAL STRENGTHS AND RESEARCH INTERESTS

Interested in stochastic processes, more specifically:

- Lattice random walks,
- Search dynamics,
- Non-Markov processes,
- Stochastic simulations,
- The intersection of statistical physics and movement ecology.

Programming Languages & Tools: Julia, Python, Matlab, HPC, Git, LaTeX, Markdown, Inkscape.
Languages: English (Mother Tongue), German (CEFL B1).

PUBLICATIONS

- Marris, D., & Giuggioli, L. *Persistent and anti-Persistent Motion in Bounded and Unbounded Space: Resolution of the First-Passage Problem*, New Journal of Physics, 26, 073020,(2024).

- Giuggioli, L., Sarvaharman, S., Das, D., Marris, D., & Kay, T. *Multi-target search in bounded and heterogeneous environments: a lattice random walk perspective. The Target Problem*, Springer Verlag, (2024).

- Marris, D., Sarvaharman, S., & Giuggioli, L. *Exact spatiotemporal dynamics of lattice random walks in hexagonal and honeycomb domains.* Physical Review E, 107(5), 054139 (2023).

ACADEMIC VISITS

- Isaac Newton Institute (Cambridge, UK, June-December 2023),
- ICTP Meeting: Information, Noise and Physics of Life (Niš, Serbia, June 2024).

CONFERENCES AND WORKSHOPS

Invited Talks:

- British Applied Mathematics Colloquium (Newcastle, UK, 2024),
- Modelling non-Markov Movement Processes (Cambridge, UK, 2023).

Contributed Talks:

- Modelling and Applications of Anomalous Diffusions (Cambridge, UK, 2024),
- Summer School on Mathematics of Movement (Cambridge, UK, 2023),

- British Applied Mathematics Colloquium (Bristol, UK, 2023),
- Engineering Mathematics Away Day (Oxford, UK, 2023).

Study Groups:

- European Study Group with Industry (Ålesund, Norway, 2022), Collaborated with Furuno Electric Co., Ltd.

Other Conferences Attended:

- Collective Behaviour (Cambridge, UK, 2023),
- Measures and Representations of Interactions (Cambridge, UK, 2023),
- SIAM-IMA Student Chapter Conference (Reading, UK, 2022).

TEACHING EXPERIENCE

Modules Taught:

- Mathematics and Data Modelling (Student level: 1st, 2nd, and 3rd years),
- Applied Linear Algebra (Student level: 2nd year),
- Discrete Mathematics (Student level: 1st and 2nd years),
- Engineering Mathematics (Student level: 1st and 2nd years),
- Transition Mathematics (Student level: 1st and 2nd years),
- Further Computer Programming (Student level: 1st and 4th years).

Responsibilities:
Supervising industry-focused undergraduate research projects,
Supervising group coding projects,
Providing supplementary lectures to aid transitioning students,
Marking (formative and summative),
Writing Python scripts to aid in the marking of coding projects,
Demonstrating and helping in labs and workshops.

AWARDS

- Nominated for a Bristol Teaching Award for delivering supplementary lectures to students struggling with the Engineering Mathematics II course (2023).
- Winner of British Applied Mathematics Colloquium *Mug Competition* for best graphic representation of research (2023).

OTHER PROFESSIONAL ACTIVITIES

- Organiser and chair of the Engineering Mathematics Post-Graduate Seminar Series
- Outreach at the Somerscience Festival (2023), co-running the workshop *Mathematical Modelling: Hands on Practical Problem Solving* with Prof. Alan Champneys.
- Maintain a repository of useful works for people looking to work with Lattice Random Walks (Awesome-Random-Walks)
- Member of the hiring panel for a Lecturer position in Engineering Mathematics assessing the candidates' teaching quality.

OTHER WORK EXPERIENCE

Labourer and Decorator (Bumble Bell Tents)	Summer 2019
Commis Chef (The Sussex Yeoman)	Summer 2018
Barista and Waiter (Scoop & Crumb)	July 2015 - December 2017