DANIEL MARRIS

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EDUCATION

- **Engineering Mathematics (Ph.D.)** University of Bristol, 2021 - 2025
  - Developed and analysed novel analytical models to give quantitative predictions on search efficiency.
  - Implemented mathematical models and large stochastic simulations in **Python** and **Julia** often using **high-performance computing** (Slurm) and **Unix environments**.
  - Made substantial contributions to the literature on **stochastic processes** with **four peer-reviewed scientific publications** (14 citations on Google Scholar, four recommendations on ResearchGate).
  - Worked extensively in **interdisciplinary collaborations** leveraging my expertise in mathematical modelling to understand ecological search behaviour.
  - Honed my communication skills, exemplified via **five solo presentations at international conferences**.
  - Spent six months at a **world-renowned research institute** at the University of Cambridge.
- **Engineering Mathematics (MEng)**, First class with Honours University of Bristol, 2017 - 2021
  - **Units Include:** Applied Data Science (85%); Quantum Information Theory (69%); Applied Statistics (86%); Mathematical & Data Modelling (70%); Technical Project (73%).
  - Engineered a stochastic agent-based model in **Python** to analyse how territorial behaviour affects disease propagation, featuring real-time data visualisation through a custom API.
  - Cleaned, processed and visualised NetCDF files containing 3 billion+ tropical cyclone (TC) wind speed measurements in **Python** to quantify regions at most risk of damage from TCs.

PROFESSIONAL EXPERIENCE

- Graduate Teaching Assistant University of Bristol, 2021 - 2025
  - Taught courses in **mathematical modelling** and **Python** for $1^{\text{st}} - 4^{\text{th}}$ year students.
  - Taught data structures, code structure, unit testing, OOP and Git version control.
  - **Supervised 20+ industry-provided projects** in sectors such as health, transport, energy and finance.
  - **Nominated for Bristol Teaching Award** for my lectures to students from non-standard backgrounds.
  - Tested Python assessment material to ensure all code provided behaved as intended.
- Mathematical Consultant Freelance, 2023 - 2025
  - Worked with **Scientific Volume Imaging** developing fast kernel-based methods for determining fluorescent decay rates to improve software to de-convolute microscopy images.
  - Worked with **Furuno Electric Co., Ltd.** developing statistical models to quantify uncertainty over the number of salmon in a fish farm.

ACADEMIC PUBLICATIONS

- **D. Marris**, P.F.L., F.B., and L.G., *Collective Foraging and Behavioural Heterogeneity in Ants: First-Passage Statistics with Heterogeneous Walkers in a Honeycomb Lattice*, Accepted, *arXiv:2411.03290*, (2025).
- L.G., S.S., D.D., **D. Marris**, and T.K., *Multi-target search in bounded and heterogeneous environments: a lattice random walk perspective.* Target Search Problems, Springer Cham, (2025).
- **D. Marris**, and L.G., *Persistent and anti-Persistent Motion in Bounded and Unbounded Space: Resolution of the First-Passage Problem*, New Journal of Physics, 26, 073020, (2024).
- **D. Marris**, S.S., and L.G., *Exact spatiotemporal dynamics of lattice random walks in hexagonal and honeycomb domains.* Physical Review E, 107(5), 054139, (2023).