





Enrico Gavagnin

Research Associate

Applied mathematician with PhD and 2+ years' post-doctoral experience in theoretical and experimental epidemiology. Knowledgeable and interested in modelling collective dynamics and complex networks.

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EXPERIENCE

Research Associate

University of Bristol, School of Life Sciences

2020 - present | Bristol, UK

- Using social insects as biological model to study epidemiological dynamics.
- Processing and analysing large datasets of social interaction networks
- Conceiving, designing and performing experiments with social insects using automated individual-tracking
- Cross-disciplinary team working, line manager of two lab assistants, Sustainability Lab coordinator
- Conceiving, supervising and time managing master's projects

PhD

University of Bath, School Mathematical Sciences

2016 - 2020 | Bath, UK

- Theoretical and applied research in the field of mathematical biology. Thesis: "Stochastic multi-scale models of cell behaviour"
- Conceiving and leading interdisciplinary research projects with international collaborations
- First author of five scientific publications in peer reviews journals (Physical Review E, Journal of Theoretical Biology, Biophysical Journal, Elsevier Handbook of Statistics)
- Teaching assistant for the courses Programming, Modelling and dynamical systems, Probability and Statistics
- Visiting scholarship at Queensland University of Technology, Australia

EDUCATION

MSc, Pure and Applied Mathematics

Università degli Studi di Padova

2014 - 2016 | Padova, Italy

Erasmus+ exchange at University of Bristol

BSc, Pure and Applied Mathematics

Università degli Studi di Padova

2011 - 2014 | Padova, Italy

TECHNICAL SKILLS

Mathematical modelling

Multi-scale modelling (agent-based/PDE), Probability and complex network analysis, Bioinformatics and statistical methods

Programming

Python, Matlab, R, Bash, Linux HPC, C, Git

Laboratory

Microscopy image analysis (ImageJ), Trained in qPCR, experimental planning

Languages

English (proficient), Italian (native), Spanish (intermediate)

AWARDS

Best talk - NWE-IUSSI Winter meeting

Dec 2021 | Oxford, UK

TakeAIM first prize - Smith Institute

Feb 2020 | Oxford, UK

Travel grant - Santander Mobility Award

Aug 2020 | Brisbane, Australia

Landahl Travel grant - Society of

Mathematical Biology

Jul 2017 | Salt Lake City, Utah

SELECTED TALKS

University of Queensland - Invited speaker

Apr 2019 | Brisbane, Australia

Modelling stochastic biological systems,

BAMC - Co-organizer

Apr 2019 | Bath, UK

Center of Information Services and High

Performance Computing, TU - Invited speaker

Dec 2018 | Dresden, Germany

Swiss Federal Institute of Aquatic Science and

Technology - Invited speaker

Dec 2018 | Zurich, Switzerland

Multi-scale models of cell behaviour,

ECMTB - Co-organizer

Jul 2018 | Lisbon, Portugal

PUBLICATIONS

1. **E. Gavagnin**, S.T. Vittadello, G. Gunasingh, N.K. Haass, M.J. Simpson, T. Rogers, C.A. Yates (2021). "Synchronised oscillations in growing cell populations are explained by demographic noise". *Biophys. J.* vol. 120(8), pp.1314-1322
 3. **E. Gavagnin**, M.J. Ford, R.L. Mort, T. Rogers, C.A. Yates (2019). "The invasion speed of cell migration models with realistic cell cycle time distributions". *J. Theor. Biol.* 481, 91-99
 5. **E. Gavagnin**, C.A. Yates (2018). "Stochastic and deterministic modeling of cell migration". *Elsevier - Handbook of Statistics*, vol. 39, 37-91
 6. **E. Gavagnin**, J.P.Owen, C.A. Yates (2018). "Pair correlation functions for identifying spatial correlation in discrete domains". *Phys. Rev. E* 97, 062104
 7. **E. Gavagnin**, C.A. Yates (2018). "Modeling persistence of motion in a crowded environment: The diffusive limit of excluding velocity-jump processes". *Phys. Rev. E* 97, 032416
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OUTREACH

Popular Science

Article 'A collective human challenge' for the October issue of IMA Mathematics Today.
Oct 2020

Art and Science

Collaboration with the artist Leonie Bradley, author of "*Wavefront*"
Installation view of Visions of Science at Andrew Brownsword Gallery
Sep 2018 | Bath, UK

TALKS

- "North-West- European IUSSI meeting", aware best talk
Dec 2021 | Oxford, UK
- "Stochastic Models & Experiments in Ecology and Biology", ECLT
Jul 2021 | Venice, Italy
- TakeAIM Award Ceremony, Smith Institute
Feb 2020 | Imperial College - London, UK
- "Summer Solstice Conference on Discrete Models of Complex Systems", Max Planck Institute
Jul 2019 | Dresden, Germany
- "PDEs in Mathematical Biology: Modelling and Analysis", LMS
May 2019 | Edinburgh, UK
- Queensland University of Technology, invited seminar speaker
Apr 2019 | Brisbane, Australia
- University of Queensland, invited seminar speaker
Apr 2019 | Brisbane, Australia
- "Modelling stochastic biological systems" mini-symposium co-organizer, BAMC
Apr 2019 | Bath, UK
- Center of Information Services and High Performance Computing, invited seminar speaker , TU
Dec 2018 | Dresden, Germany
- EAWAG, invited seminar speaker, Swiss Federal Institute of Aquatic Science and Technology
Dec 2018 | Zurich, Switzerland
- "Multi-scale models of cell behaviour" mini-symposium co-organizer, ECMTB
Jul 2018 | Lisbon, Portugal
- SIAM - National Student Chapter Conference, University of Bath
Jun 2018 | Bath, UK
- "Collective dynamics and self-organization in biological sciences", ICMS
May 2018 | Edinburgh, UK
- "Stochastic Models in Ecology and Evolutionary Biology"
Apr 2018 | Venice, Italy
- "Society of Mathematical Biology Annual Meeting"
Jul 2017 | Salt Lake City, Utah