Enrico Gavagnin

Data Scientist

Experienced applied mathematician expert of social dynamics and collective intelligence. I like working in interdisciplinary and fast-paced environments where ideas can be challenged and evolve towards solutions.

Find out more at: **enricogavagnin.github.io**

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EXPERIENCE

Research Associate

University of Bristol, Department of Life Sciences

2020 - present | Bristol, UK

Data Science Predicting social network dynamics within ant colonies using data-driven simulations. Conceiving, designing and performing research projects on experimental and theoretical epidemiology.

Problem solving and lateral thinking Proposing and defending novel research ideas. Regularly acting as reviewer for peer-review scientific journals.

Leadership and team working Cross-disciplinary team working, line manager of two lab assistants. Supervisor and mentor for the MSc Bioinformatics Programme. Sustainability Lab coordinator.

Time and project management High degree of autonomy in the whole experimental process. This includes theoretical conception, laboratory and computational method development.

Communication Regularly visualising and presenting research results to seminars and international conferences. Scientific writing for peer-review journals.

PhD

University of Bath, Department of Mathematical Sciences

2016 - 2020 | Bath, UK

Mathematical modelling Theoretical modelling of collective behaviour of cancer cells using multi-scale modelling approach.

Time and project management Manage independent projects in parallel from formulation to completion resulting in five scientific publications.

Interdisciplinary Conceiving and leading two interdisciplinary research projects with international collaborations.

Collaboration and networking Visiting scholar at Queensland University of Technology, AU. Awarded collaboration with visual artist for exhibition “Visions of Science”.

Communication First author of five scientific publications in peer-reviewed journals and speaker to several international conferences. Teaching assistant for several units of the Department of Mathematics.

TECHNICAL SKILLS

Analytics
Collective intelligence, multi-scale modelling (agent-based/PDEs), data driven models, complex network, bioinformatics, data mining, statistical methods

Programming
Python, R, Matlab, Linux HPC, C, Git, Latex

Languages
English, Italian, Spanish

TALKS AND AWARDS

Best talk - NWE-IUSSI Winter meeting
Dec 2021 | Oxford, UK

TakeAIM first prize - Smith Institute
Feb 2020 | Oxford, UK

University of Queensland - Invited speaker
Apr 2019 | Brisbane, Australia

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

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

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

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