Enrico Gavagnin

Data scientist and mathematician fascinated by complex networks, collective intelligence and machine learning. I like working in multidisciplinary and fast-paced environments where ideas can develop into technological solutions.

EXPERIENCE

Data Scientist

Nesta

2022 - present | London, UK

Data Science Member of the Data Analytics Practice team. Using ML and computer simulations to inform policies on sustainability, social inequality and healthcare.

- Developer and curator of a python utils package for the data analytics team
- Main author of the report "Simulation for Public Good" on the use and opportunity of computer simulations for social science to advance Nesta's missions.
- Technical consultant lead for two startups of Nesta's Venture-Studio to design UK house archetypes using EPC data to inform retrofitting assessment.

Team working and collaboration. Working as part of a team of ~25 people. Reporting to internal and external stakeholders on missions of public impact.

Project management Working on Agile (Scrum) on multiple projects in a highly-collaborative environment.

Communication Reporting results for technical and non-technical audiences at meetings, conferences and blogs.

Postdoctoral researcher

University of Bristol - Department of Life Sciences

2020 - 2022 | Bristol, UK

Network science Conceiving and performing research projects on experimental and theoretical epidemiology.

- Designing and analysing experiments on social network dynamics and collective behaviour in ant colonies.
- Using hierarchical clustering analysis to design artificial networks with targeted network topological properties

Leadership and team working Working in an interdisciplinary team of biologists and computer scientists. Manager and supervisor of two team members.

Project management Managing a 2+ years research project from conceptualisation to delivery.

Communication Regularly presenting at scientific conferences and in peer-review journals.

CONTACTS

+44 07519455694

gavagnin.enrico@gmail.com

https://enricogavagnin.github.io

enricogavagnin

github.com/enricogavagnin

TECHNICAL SKILLS

Data analytics
Artificial & collective intelligence, machine learning, mathematical modelling and simulations (agent-based models, dynamical systems), network science, probability and statistics

Programming
Python (Pandas, NumPy, SciPy, Scikit-Learn), R, Matlab, git/Github, AWS, SQL, latex, ImageJ

Languages
English, Spanish, Italian

EDUCATION

PhD, Applied Mathematics

"Stochastic models of collective cell behaviour"

Visiting research fellow at QUT, Brisbane, AU

University of Bath

2016 - 2020 | Bath, UK

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

PhD

University of Bath, Department of Mathematical Sciences

2016 - 2020 | Bath, UK

Mathematical modelling Modelling the collective behaviour of cancer cells using multi-scale modelling (PDEs, SPDES, agent based models). Teaching assistant at the Department of Mathematics in probability and statistics, dynamical systems, numerical analysis and programming.

Collaboration and networking Awarded visiting scholar at Queensland University of Technology, AU.

Project management Conceiving and leading two interdisciplinary research projects with international collaborations (see Publications 1 and 2).

Communication First author of five scientific publications in peer-reviewed journals and speaker to several international conferences (see Selected Talks and Awards).

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
2. **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
3. **E. Gavagnin,** C.A. Yates (2018). "Stochastic and deterministic modeling of cell migration". Elsevier - Handbook of Statistics, vol. 39, 37-91
4. **E. Gavagnin**, J.P.Owen, C.A. Yates (2018). "Pair correlation functions for identifying spatial correlation in discrete domains". Phys. Rev. E 97, 062104
5. **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

SELECTED TALKS AND AWARD

- "North-West- European IUSSI meeting" - *best talk award*
  Dec 2021 | Oxford, UK
- "Stochastic Models & Experiments in Ecology and Biology", ECLT
  Jul 2021 | Venice, Italy
- TakeAIM (First prize), Smith Institute
  Feb 2020 | Imperial College - London, UK
- Queensland University of Technology, *invited seminar speaker*
  Apr 2019 | Brisbane, Australia
- 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 organiser,* ECMTB
  Jul 2018 | Lisbon, Portugal
- "Collective dynamics and self-organisation in biological sciences", ICMS
  May 2018 | Edinburgh, UK
- "Society of Mathematical Biology Annual Meeting"
  Jul 2017 | Salt Lake City, Utah

OUTREACH

Popular Science, Oct 2020

Article "A collective human challenge" for the October issue of IMA Mathematics Today.

Art and Science, Sep 2018 | Bath, UK

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