

# Enrico Gavagnin

Data scientist and mathematician fascinated by artificial and collective intelligence. I like working in interdisciplinary and fast-paced environments where ideas can develop into new solutions.



## EXPERIENCE

### Data Scientist

#### Nesta

2022 - present | London, UK

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

- Developed and curated a python utils package for the data analytics team
- Prototyping a predictive simulation model for childcare policy interventions in UK
- Identifying house archetypes using clustering analysis on EPC data for two startups of Nesta's Venture Studio

**Team working and collaboration.** Collaborating in a team of ~25 people. Reporting to internal and external stakeholders on missions of public impact.

**Project management** Working on Agile in a highly-collaborative environment.

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

### Research associate

#### University of Bristol - Department of Life Sciences

2020 - 2022 | Bristol, UK

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


- Curated the design and analysis of experiments on social network dynamics of ant colonies
- Using hierarchical clustering analysis to design artificial networks with targeted 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** Time 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](https://github.com/enricogavagnin)

## TECHNICAL SKILLS

### Data analytics

Machine learning (Regression, Clustering), artificial & collective intelligence, network science, multi-scale modelling (agent-based, PDEs), probability and statistics, microscopy image analysis

### Programming

Python (numpy, pandas, scikit-learn), R, Matlab, git/Github, AWS, SQL, latex, ImageJ

### Languages

English, Italian, Spanish

## 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, 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 5).

**Communication** First author of five scientific publications in peer-reviewed journals and speaker to several international conferences.

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## 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

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## 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

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## 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