

David Morselli

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Current position

- Jul. 2024 – present **Postdoctoral Research Fellow**, *University College London (UCL)*, London (UK)
Project: NexT Gen (develop novel therapies to target unique features in solid tumours in children), supported by the Cancer Grand Challenges partnership funded by Cancer Research UK, the National Cancer Institute and The Mark Foundation for Cancer Research.
- Mar. 2025 – present **Adjunct Research Fellow**, *Swinburne University of Technology*, Melbourne (Australia)

Education

- Jan. 2021 – Nov. 2024 **Ph.D. in Applied Mathematics**, *Swinburne University of Technology*, Melbourne (Australia), and *Politecnico di Torino*, Turin (Italy)
Research topic: *Improving the effectiveness of oncolytic virotherapy: insights from mathematical modelling*.
Advisors: Prof. Federico Frascoli (Swinburne) and Prof. Marcello Delitala (PoliTo).
- Sep. 2018 – Sep. 2020 **Master in Mathematics for Applications**, *Sapienza–University of Rome*, Rome (Italy), 110/110 with honors
Thesis: *Invariant Gibbs measures for the nonlinear Schrödinger equation*.
Advisor: Prof. Piero D'Ancona.
- Sep. 2019 – Jul. 2020 **Swiss–European Mobility Programme Scholarship**, *ETH*, Zürich (Switzerland)
- Sep. 2015 – Jul. 2018 **Bachelor in Mathematics**, *Sapienza–University of Rome*, Rome (Italy), 110/110 with honors
Thesis: *Shock waves stability for scalar viscous conservation laws* (in Italian).
Advisor: Prof. Corrado Mascia.
- Jan. 2018 – Jun. 2018 **Erasmus + Scholarship**, *Universidad Autónoma*, Madrid (Spain)

Awards and prizes

- Feb. 2026 *Outstanding PhD Thesis Award*, Australia and New Zealand Industrial and Applied Mathematics (ANZIAM)
- Mar. 2025 *2024 SoSCET Best Student Paper Award (Department of Mathematics)*, Swinburne University of Technology
- Feb. 2025 *Best poster prize*, INTERPHACE symposium 2025 (Francis Crick Institute)
- Jul. 2023 *Best poster award*, Workshop “Topics on Neuroscience, Collective Migration and Parameter Estimation” (University of Oxford)

Jun. 2023 *Best talk*, Maths HDR Student Conference (Swinburne University of Technology)

Travel awards from Institut Henri Poincaré, Lake Como School of Advanced Studies, European Society for Mathematical and Theoretical Biology, Australia and New Zealand Industrial and Applied Mathematics, Gruppo Nazionale di Fisica Matematica, Moffitt Cancer Center, UCL MAPS, Young Researchers of the Complex Systems Society.

Publications

Papers in preparation

8. R. M. CROSSLEY, A. MARCHETTI, D. MORSELLI, *Persistent delays between agent-based and continuum models of travelling waves*.
7. D. MORSELLI, M. CHIN, I. BENHAMMOU, L. VIMEUX, M.-O. COPPENS, E. DONNADIEU, C. DUNLOP, K. M. PAGE, *Modelling T-cell migration in the tumour microenvironment*.
6. F. BALLATORE, D. MORSELLI, C. GIVERSO, *A multiphase mechanical model for immunotherapy in brain tumour*.

Papers under review

5. D. MORSELLI, M. E. DELITALA, A. L. JENNER, F. FRASCOLI *A hybrid discrete-continuum modelling approach for the interactions of the immune system with oncolytic viral infections*, submitted. Preprint available at <https://doi.org/10.48550/arXiv.2404.06459>

Published papers

4. D. MORSELLI, F. FRASCOLI, M. E. DELITALA, *The role of viral dynamics and infectivity in models of oncolytic virotherapy for tumours with different motility*, Bulletin of Mathematical Biology, 88:66, 2026. <https://doi.org/10.1007/s11538-026-01630-6>
3. D. MORSELLI, G. CHIARI, F. FRASCOLI, M. E. DELITALA *A phenotype-structured mathematical model for the influence of hypoxia on oncolytic virotherapy*, Mathematical Biosciences, 391:109570, 2026. <https://doi.org/10.1016/j.mbs.2025.109570>
2. D. MORSELLI, M. E. DELITALA, F. FRASCOLI, *Agent-based and continuum models for spatial dynamics of infection by oncolytic viruses*, Bulletin of Mathematical Biology, 85:92, 2023. <https://doi.org/10.1007/s11538-023-01192-x>
1. G. CHIARI, M. E. DELITALA, D. MORSELLI, M. SCIANNA, *A hybrid modeling environment to describe aggregates of cells heterogeneous for genotype and behavior with possible phenotypic transitions*, International Journal of Non-Linear Mechanics, 144:104063, 2022. <https://doi.org/10.1016/j.ijnonlinmec.2022.104063>

Peer reviews

Review activities for the following journals:

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| ☐ Bull. Math. Biol. | ☐ Chaos, Solitons Fractals |
| ☐ Front. Appl. Math. Stat. | ☐ J. Nonlinear Sci. |
| ☐ Math. Biosci. | ☐ Physica D |

Teaching activity

- 2026 **Online tutorials for year 10 excellent students**, *Parallel Academy, Good Thinking Society*, United Kingdom
- 2025–2026 **Mathematical ecology**, *Mathematics BSc., University College London*, London (United Kingdom)
- 2023–2024 **Analysis I exercise sessions (in Italian)**, *BSc. in engineering, Politecnico di Torino*, Turin (Italy)
- 2023 **Calculus and Applications tutorials**, *BSc., Swinburne University of Technology*, Melbourne (Australia)
- 2021–2022 **Analysis I exercise sessions (in Italian)**, *BSc. in engineering, Politecnico di Torino*, Turin (Italy)

Co-supervision of Master thesis

- Nov. 2025 **Pasquale Lotito**, *MSc. in Mathematical Engineering, Politecnico di Torino*, Turin (Italy), supervised with M. Delitala
- Jul. 2025 **Emma Ciccarelli**, *MSc. in Mathematical Engineering, Politecnico di Torino*, Turin (Italy), supervised with M. Delitala and F. Frascoli

Conferences and Ph.D. schools attended

Organisation of mini-symposia

- Sep. 2025 **Congress of the Italian Society of Applied and Industrial Mathematics (SIMAI) 2025**, *Scuola Internazionale Superiore di Studi Avanzati (SISSA)*, Trieste (Italy)
- Jul. 2024 **GIMC-SIMAI young 2024**, *University of Naples Federico II*, Naples (Italy)

Invited talks

- Nov. 2025 **NexTGen Annual Meeting**, *Dana Farber Cancer Institute*, Boston (USA)
- Sep. 2025 **Congress of the Italian Society of Applied and Industrial Mathematics (SIMAI) 2025**, *Scuola Internazionale Superiore di Studi Avanzati (SISSA)*, Trieste (Italy)
- Jun. 2025 **British Mathematical Colloquium and British Applied Mathematics Colloquium**, *University of Exeter*, Exeter (UK)
- May 2023 **Melbourne Mathematical Biology seminar**, *University of Melbourne*, Melbourne (Australia)

Selected contributed talks and poster presentations

- Nov. 2025 **Cancer Grand Challenges Future Leaders' Conference 2025**, Milan (Italy)
- Feb. 2025 **INTERPHACE symposium 2025**, *Francis Crick Institute*, London (UK)
- Jul. 2024 **13th European Conference on Mathematical and Theoretical Biology, ESMTB**, Toledo (Spain)

- Oct. – Nov. 2023 **11th Integrated Mathematical Oncology workshop: “Steering Evolution/Extinction”**, *Moffitt Cancer Center*, Tampa (USA)
- Aug. – Sep. 2023 **Congress of the Italian Society of Applied and Industrial Mathematics (SIMAI) 2023**, *University of Basilicata*, Matera (Italy)
- Feb. 2023 **59th Australia and New Zealand Industrial and Applied Mathematics conference**, *The University of Queensland*, Cairns (Australia)
- Jul. 2023 **Workshop “Topics on Neuroscience, Collective Migration and Parameter Estimation”**, *University of Oxford*, Oxford (UK)
- Sep. 2022 **12th European Conference on Mathematical and Theoretical Biology, ESMTB and SMB**, Heidelberg (Germany)
- [Other workshops](#)
- Jul. 2025 **187th European Study Group with Industry**, *University of Bristol*, Bristol (UK)
- Jan. – Feb. 2023 **“Mathematics in Industry Study Group”**, *Monash University*, Melbourne (Australia)

Research visits

- Nov. 2025 *Politecnico di Torino*, Torino (Italy), hosted by Prof. Marcello E. Delitala
- Apr. 2023 *Queensland University of Technology*, Brisbane (Australia), hosted by Dr. Adrienne L. Jenner and Prof. Matthew Simpson
- Apr. 2023 *University of New South Wales*, Sydney (Australia), hosted by Dr. Pantea Pooladvand and Prof. Adele Coster

Languages

Italian	Mother Tongue	English	Fluent
Spanish	C1 (DELE)	Hebrew	A2 (Hebrew University of Jerusalem)

Digital Skills

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| ○ MATLAB | ○ Python |
| ○ C, C++ | ○ R |