

Thomas Zacharis PhD

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personal website

thwmakos.xyz

linkedin profile

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github profile

github.com/thwmakos

programming

C++23, matlab,
Mathematica, Python,
Rust, HTML, CSS, \LaTeX

short bio

Recent PhD graduate in mathematics with a specialisation in dynamical systems, combining advanced analytical skills with a strong programming background. Proven ability to tackle complex problems, innovate solutions, and apply mathematical concepts in diverse domains, seeking a challenging position that leverages both mathematical expertise and programming proficiency.

research skills

- effective communication: able to communicate complex ideas clearly and concisely to both technical and non-technical audiences
- collaborative mindset: experienced in working effectively in a team environment, with a strong ability to collaborate and contribute to open-source projects
- adaptability and flexibility: quick to adapt to changing project requirements and priorities
- prioritisation organisation: skilled in managing multiple projects and deadlines, with a strong ability to prioritise tasks and maintain a high level of productivity
- critical thinking and problem-solving: able to approach problems from multiple angles, think critically, and develop creative solutions
- resilience and perseverance: strong ability to work through challenges and setbacks, with a commitment to finding solutions and overcoming obstacles
- continuous learning and improvement: committed to ongoing learning and professional development, with a strong desire to stay up-to-date with the latest technologies and methodologies

knowledge areas

software	strong knowledge of C++23, matlab, Mathematica, Python (numpy, scipy, pandas, sage, selenium webdriver), Rust, HTML/CSS, web hosting, development on Linux environment
theoretical	scientific simulation, numerical schemes for ordinary and partial differential equations, finite differences and finite elements, MCMC methods, data structures & algorithms, number theory and algebra of cryptography, linear and nonlinear optimisation, inverse problems, data assimilation

education & professional experience

2019–2024	Teaching assistant & programming instructor Tutor in theoretical, applied, computational mathematics) and programming (algorithms, optimisation, numerical and symbolic computation in Python)	University of Edinburgh
2018 – 2023	PhD in Mathematics September 2018 – July 2023, funded by Maxwell Institute	University of Edinburgh
2017–2018	MSc in Computational Applied Mathematics Scholarship from University of Edinburgh	University of Edinburgh
2012–2017	BSc in Mathematics Admission award for exceptional students	University of Athens

select publications

- 2024 T. Zacharis et al. "Geometric analysis of fast-slow PDEs with fold singularities via Galerkin discretisation." *Nonlinearity* **37.11** (2024): 115017
- 2021 M. Zhouqian, N. Popović, and T. Zacharis. "Geometric analysis of a two-body problem with quick loss of mass". *Nonlinear Dynamics* **104.3** (2021): 2015-2035

conferences

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| 2022 | Topics in Multiple Scale Dynamics | Banff, Canada |
| 2022 | TUM Research Opportunities Week | Munich, Germany |
| 2022 | Dynamics Days Europe | Aberdeen, UK |
| 2022 | British Applied Mathematics Colloquium | Loughborough, UK |