

FABRIZIO CARAGIULO

Mathematical Modelling | Quantitative Analysis
fabrizio.caragiulo@gmail.com

GitHub: <https://github.com/Giafazio>

LinkedIn: [linkedin.com/in/fabrizio-caragiulo](https://www.linkedin.com/in/fabrizio-caragiulo)

Research website:

<https://sites.google.com/view/fabriziocaragiulo>

PROFILE

I hold a PhD in Mathematics and I have a background in rigorous modelling, asymptotic analysis and complex systems. I am interested in applying mathematical modelling and scientific computing to quantitative problems in finance, especially portfolio analysis, risk modelling and asset allocation. I bring strong analytical depth, experience in formulating difficult problems, and a growing Python-based toolkit.

PROFESSIONAL EXPERIENCE

2025–

Postdoctoral Researcher, *Université libre de Bruxelles*

Research in mathematical physics, with a focus on effective approaches to complex systems.

2021–2025

PhD in Mathematics, SISSA – *International School for Advanced Studies, Trieste*

Thesis work on classical systems (pattern formation in materials) and quantum systems (electrical transport at low temperatures and in disordered systems).

Research published in several papers in peer-reviewed journals and presented at international conferences and workshops. Co-organised the (open day) event Junior Math Days at SISSA.

2017–2018

Teaching Assistant, University of Trieste

Exercise sessions for Analysis and Geometry courses.

EDUCATION

MSc in Mathematics, University of Trieste.

BSc in Mathematics, University of Bari.

SELECTED PUBLICATIONS & PROJECT

- Caragiulo, Mastropietro & Porta, “[Edge Transport in Haldane-Like Models with Quasi-Periodic Disorder](#),” *Communications in Mathematical Physics* 407, 169 (2026).
- Caragiulo, Scalabrino & Voglino, “[Homogenization in One-Dimensional Higher-Order Non-Local Models of Phase Transitions](#),” *Ricerche di Matematica* (2026).
- Python project: “[Esperimenti di Portafoglio — Basic Portfolio Analysis](#)” (2026). Analysis of historical returns, portfolio risk and drawdowns, with comparison of five risk proxies and long-only constrained portfolio optimization.

SKILLS

Python: NumPy, pandas, SciPy, Matplotlib, Jupyter.

Quantitative analysis: mathematical modelling, optimization, asymptotic and multiscale analysis.

Tools: Git, LaTeX, Inkscape, Mathematica. Basic C, basic Astro (CSS, Typescript), MS Office (PowerPoint with IguanaTeX, Word, Excel).

Languages. Native Italian; fluent English; basic French.