Giancarlo Antonino
Antonucci, PhD

Profile

I'm a **computational scientist** at UKAEA, the UK's fusion research centre. I combine **advanced maths** (numerical analysis, nonlinear optimization, and mathematical modelling) and **high-performance computing** to run faster simulations of chaotic plasma inside fusion reactors (tokamaks).

Contact

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Skills

Italian (native), English (C2)
Julia, Python, C/C++, Fortran
Matlab, LaTeX, HTML, CSS

Experience

Computational Scientist at *UKAEA* **2022.09–now**
◇ Culham, England, United Kingdom

Retained Lecturer at *Jesus College* **2022.01–2022.06**
◇ Oxford, England, United Kingdom

Co-Founder & R&D Director at *Natwork* **2017.11–2019.04**
◇ Turin, Italy

Researcher at *UKAEA* **2018.07–2018.10**
◇ Culham, England, United Kingdom

Researcher at *DSTL* **2018.04–2018.07**
◇ Porton Down, England, United Kingdom

Education

DPhil (PhD) in Applied Mathematics at *Oxford University* **2017–2025**
◇ Centre for Doctoral Training in Industrially Focused Mathematical Modelling
◇ Thesis: *Solving Chaotic ODEs with Time-Parallel Algorithms*

MSc in Applied Mathematics at *Oxford University* **2016–2017**
◇ Master of Science in Mathematical Modelling and Scientific Computing
◇ Thesis: *Iterative Solution of Evolutionary PDEs via All-at-Once Methods*

BEng in Physical Engineering at *Turin Polytechnic University* **2013–2016**
◇ Thesis: *Application of the Numerov Algorithm to the Hartree Model for the Helium Atom*

Publications

Finite-Time Convergence Guarantees for Time-Parallel Algorithms **2026**
◇ In preparation

A Moving-Window Algorithm for the Time Parallelization of Chaotic Systems **2026**
◇ In preparation

Estimating the Risk of Satellite Collisions in Densely Populated Orbit Shells **2020**
◇ DOI: 10.33774/miir-2021-v0g46

Multispectral Snapshot Demosaicing via Non-Convex Matrix Completion **2019**
◇ DOI: 10.1109/DSW.2019.8755561

Limits on Simultaneous Transmit and Receive **2019**
◇ DOI: 10.33774/miir-2022-zhvsw

Additional education

Oxford Machine Learning Summer School
Oxford University **2025**

Summer School in Plasma Physics
UKAEA **2022**

Summer School in MATLAB for Scientific and Parallel Computing
Palermo University **2015**