# MICHELE CESPA - CURRICULUM VITAE

Physics Graduate
University of Cambridge

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https://m-cespa.github.io/

**Education:**

MSc ARTIFICIAL INTELLIGENCE & MACHINE LEARNING, IMPERIAL COLLEGE (START IN OCTOBER 2025)
BA (HONS) NATURAL SCIENCES, UNIVERSITY OF CAMBRIDGE (ACADEMIC SCHOLAR):

3rd Year: Natural Science Tripos Part II: Physics 1st Class, ranking 14th in 129

Modules (all 1st Class): General Relativity, Statistical Physics, Advanced Quantum Physics, Optics & Electrodynamics, Soft Condensed Matter Physics, Quantum Condensed Matter Physics, Particle & Nuclear Physics

Courseworks (all 1st Class): Phase-Locked Loops, Dynamics in Complex Fluids, Physics-Informed Neural Networks

2nd Year: Natural Science Tripos Part IB (all 1st Class): Physics A, Physics B, Mathematics

1st Year: Natural Science Tripos Part IA (all 1st Class): Physics, Chemistry, Mathematics, Materials Science

CITY OF LONDON SCHOOL (ACADEMIC SCHOLAR):

A Levels: A* Grades in: Physics (top of the year), Chemistry, Mathematics, Further Mathematics
GCSEs: 9 Grades (on 1-9 GCSE scale): Mathematics, Physics, Chemistry, Biology, English Language & Literature, French, Spanish, Religious Studies, Classical Greek, Latin

**Programming Languages:** Python, C++, Bash/Zsh, HTML/CSS
**Technical Skills:** PyTorch, Jupyter, Git, Sapling, LaTeX, Raspberry Pi, Arduino
**Languages:** *Native:* English, Italian; *Intermediate:* Spanish, French

**Experience:**

[2025]   Meta Software Engineering Summer Intern
[2025]   Odyssey Fellow (previously Polaris Fellowship)
[2024]   Research Intern at ARIA funded lab in University of Cambridge Biochemistry Department

- Worked on data driven models of biological systems and developed an MLP to learn non-linear dynamics of feedback Peltier heater system
- Built Raspberry Pi operated reactors to collect growth data with custom circuitry and a github repository outlining software
- Learned about Koopman operator theory, Dynamic Mode Decomposition and other algorithmic methods

[2024]   Cambridge AI Safety Hub (CAISH) Fellow
[2024]   Zero Gravity (charity) Volunteer
[2024]   Punting Chauffeur for the Trinity College May Ball
[2022]   Athena Tuition Tutor

- 3 months of Physics, Chemistry & Mathematics tutoring for students aged 11-16 including Oxbridge and competitive independent school applicants

[2022]   Private GCSE Physics Tutor
[2021]   Colet Volunteer Mentor

- Provided remote Mathematics tutoring to a variety of students up to and including GCSE level

[2020]   eBay Trading Cards Shop

- Independently ran a trading cards business on eBay earning over £3000 over the course of 2 years

**Academic Achievements:**

[2025]   Mary Sparke Academic Scholarship awarded by Girton College after Final Year examinations
[2024]   Alice Violet Jenkinson Academic Scholarship awarded by Girton College after 2nd Year examinations
[2023]   Angela Dunn Gardner Academic Scholarship awarded by Girton College after 1st Year examinations
[2022]   City of London School Scholar's Prize in A-Levels
[2021]   Cambridge Chemistry Challenge, Gold
[2021]   Royal Society of Chemistry Olympiad, Bronze

**Recent Coding Projects:**

[2025]    Pure Python (with Numba support) Automatic Differentiation engine for Physics-Informed Neural Network

[2025]    DDM (Differential Dynamic Microscopy) Codebase

[2025]    Random Forest built from scratch using only python numpy & pandas (tested with titanic data)

[2024]    General Relativity Helper web-app for symbolic tensor algebra

[2024]    Neural Network built from scratch using only python numpy

[2024]    RPi Bioreactor github repository

[2024]    Hankel (delay embed) DMD Algorithm for data driven discrete time series evolution (for presumed Markovian processes)

**Hobbies:** Olympic Weightlifting, Electric Guitar, Trading/Strategy Card Games