

MICHELE CESPA - CURRICULUM VITAE

3rd Year Student at Girton College,
University of Cambridge

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Education:

BA (HONS) NATURAL SCIENCES UNIVERSITY OF CAMBRIDGE (ACADEMIC SCHOLAR):

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

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, SQL, C++, Bash/Zsh (mac & linux), HTML

Technical Skills: PyTorch, Jupyter, Git, LaTeX, Raspberry Pi, Arduino, Excel

Languages: *Native:* English, Italian; *Intermediate:* Spanish, French

Experience:

- [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
 - Weekly sessions discussing AI Safety concerns and learning about AI training/testing methods
 - Introductory understanding of machine learning models (including LLMs) and AI failure modes
- [2024] Zero Gravity (charity) Volunteer Mentor/Tutor
 - Mentored an A-Level student through the university application process
- [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:

- [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
- [2020] City of London School Scholar's Prize in GCSEs
- [2015] Academic Scholarship for duration of studies (7 years) at City of London School

Recent Coding Projects:

- [2024] General Relativity Helper web-app for symbolic tensor algebra
- [2024] Neural Network built from scratch using only python numpy (tested with phase comparator data)

- [2024] Facebook ticket/event trading bot using Optical Character Recognition (in progress)
- [2024] MLP trained on peltier heater data (in progress)
- [2024] ResNet trained on general image recognition
- [2024] CNN trained on MNIST digit recognition
- [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