

ALESSANDRA FRENCH

Somerville College, Oxford OX2 6HD, United Kingdom

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EDUCATION

University of Oxford, Oxford UK

Oct 2021 - Present

MEng Engineering Science

Predicted First Class Honours, Ranked 29/174 Engineering Students in Class

Part B exam marks: 77 overall, including 92 in Information Systems Engineering and 88 in

Control Systems Engineering

* On leave March 2024 – Dec 2024 for orthopedic hip surgery

The Perse School, Cambridge UK

Sept 2019 - June 2021

A*A*A*A* in Maths, Further Maths, Physics, and Chemistry A-Levels

AWARDS AND HONOURS

Institute of Engineering Technology Boost Scholarship, Future Talent Award

Dec 2023

Somerville College Scholarship, Awarded for academic performance

2025-2026

Somerville College Scholarship, Awarded for academic performance

2022-2023

Institute of Engineering Technology Diamond Jubilee Scholarship

Oct 2021

Gold Industrial Cadetship Award, Gold Crest Award Awarded for an Engineering

Education Scheme project

April 2020

PROJECTS

Alternating Minimization Algorithms for Fast Path Planning

Oct 2025 - Present

Master's Thesis (Ongoing)

- Ongoing project where I am developing algorithms that solve motion planning problems in high-dimensional environments with obstacles.

Model free control policy search for liftable systems

July – Sept 2023

EPSRC-funded Research Internship

- Selected for one of 15 Engineering and Physical Sciences Research Council (EPSRC)-funded summer research internships at Oxford University's Engineering Department (10 weeks).
- Developed a Python-based solver to compute the LQR-optimal nonlinear controller for a nonlinear dynamical system in a model-free context.
- Applied to nonlinear systems that admit finite-dimensional linear representations by selecting appropriate non-linear observable functions on the state to form a Koopman-invariant subspace.
- Analyzed rates of convergence with varying uncertainty in the polynomial degree of the system dynamics.

SoleMate

Oct 2023 – June 2025

Undergraduate Group Design Project

- Designed a somatosensory feedback replacement device to improve the walking gait of lower limb amputees.

MathWorks Minidrone Competition

June 2023

Team Competition

- Awarded 3rd place out of 152 teams competing from Europe, the Middle East, and Africa.
- Competition where I used MATLAB and Simulink to program a drone to use an onboard camera and real-time control strategies to follow a previously unseen path and land on a landing pad.

WORK EXPERIENCE AND INTERNSHIPS

Maths and Physics Tutor

2020 - Present

Private Tutor, Cambridge UK

- Teach maths and physics to two Year 10 students during my school holidays, prepared them for secondary school entrance exams and currently preparing them for GCSEs.

AstraZeneca

Aug 2019

Internship, Cambridge UK

- Learned about bioinformatics and computational chemistry.

Cambridge University Hospitals: Addenbrooke's

July 2019

Internship, Cambridge UK

- Shadowed clinicians during patient meetings (in neurophysiology and neurology departments) and helped set up EEGs or patients who had experienced seizures, learned about how clinicians interpret EEG data to give accurate diagnoses.

Vesper MEMS

July 2019

Internship, Cambridge UK

- Engineering intern at a nanotechnology company developing microphones.
- Conducted experiments on the durability of a MEMS microphone; assessed the prototypes for any structural damage before and after tests using a powerful microscope, tested response to sound.

SKILLS

Programming Languages	Python, MATLAB, C++
Languages	French, Portuguese
Other Skills	Simulink, Stateflow, SolidWorks, BenchVue

EXTRACURRICULAR ACTIVITIES

- **Oxford University Mixed Martial Arts** Varsity Team, won my bout. Started women's only MMA sessions as Women's Officer. Received Somerville College Sports Award. Oct 2022 - Present
- **Gym Renovation Committee** Selected by the Somerville College Oxford Junior Common Room Committee to renovate college gym. Included repainting, purchasing powerlifting equipment, and replacing dangerous equipment. Required project planning, budgeting, public speaking, and teamwork. Feb – Nov 2023
- **Volunteer Computer Science Teacher, Cambridge UK** Volunteer teacher to 30 Year 5 students in computer programming using BBC: Micro Bit, taught at Queen Edith and Fen Ditton Primary Schools. Sept. 2018 – April 2019

OTHER INFORMATION

I am a US Citizen and have Indefinite Leave to Remain in the UK (UK Home Student Fee Status).