Emma Claudia Nicolai

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EDUCATION

MSc Aeronautics and Astronautics, Stanford University **Sep 2025 – June 2027**

- Focus: Guidance, Navigation & Control

BEng (Hons) Aerospace Engineering, Queen Mary University of London (QMUL) **Sep 2021 – June 2025**

- 1st Class Degree. GPA: 3.84.

PROFESSIONAL EXPERIENCE

Oligo Space, **June 2026 – Aug 2026**

GNC Engineer Intern

- Architected and analyzed LEOP and extended mission operations for Oligo's first satellite using STK to model ground station coverage, launch conditions, spacecraft attitude, antenna pointing and downlink opportunities, informing ground station selection and operational planning.
- Designed and traded ADCS estimator and control configurations, evaluating pointing performance, detumbling behavior and system response across varying initial conditions to inform subsystem architecture and operational modes.
- Integrated supplier components into the ADCS simulation workflow and conducted verification and validation across scenarios in D2S2, assessing system performance and operational readiness.

Satellite Applications Catapult, **June 2024 – Sep 2024**

GNC Engineer Intern

- Modelled and validated satellite formation dynamics using Clohessy-Wiltshire equations and STK simulations, comparing analytical predictions with numerical results.
- Analyzed different swarm constellation configurations to assess and identify optimal designs.
- Presented research at Space-Comm Expo Glasgow, showcasing optimal constellation design.

Queen Mary Centre for Undergraduate Research (QMCUR), **Sep 2023 – Sep 2024**

Co-Founder and Research Assistant

- Established and coordinated QMCUR, integrating student-led research into the academic curriculum and overseeing 30 research projects involving over 36 undergraduate researchers.
- Conducted aerodynamic research for an EU sustainable aviation initiative, using STAR-CCM+ to analyze airflow and optimise propeller placement for a hybrid aircraft. Presented findings at BCUR 2024 at LSE.

LEADERSHIP AND PROJECTS

Queen Mary Students for Exploration and Development of Space (QMSEDS), **Oct 2023 – June 2025**

Founder, President and Project Lead

- Established QMSEDS as Queen Mary's official UKSEDS branch, leading recruitment and organisation. Awarded UKSEDS' New Branch (2024) in recognition of an active and engaging year.
- Led a team of 15 in the Satellite Design Competition, hosted by Airbus, designing and building a 3U CubeSat for wildfire detection; won Best Critical Design Review and Best Presentation.
- Led a team of 10 in the Olympus Rover Trials, overseeing the design of a planetary rover.

Recycling Space Debris for In-Orbit Manufacturing, **April 2025**

Undergraduate Dissertation,

- Developed a circular space economy venture concept with a five-person team, using Abaqus to assess recycling aluminum space debris into protective spacecraft shielding.

AWARDS AND PUBLICATIONS

Governing Orbits: Collision Prevention and Liability in the Age of Autonomous Space Operations,
Stanford Law, 2026

- Co-author, **Stanford Law & Policy Lab.**

Grant Awardee, Emergent Ventures 2025

- Awarded grant for overall career progression and work in satellites and sustainability.

Student of the Year, UKSEDS 2024

- Awarded for outstanding contributions to the student space community, making the most significant impact as a whole and demonstrating excellent leadership ability, dedication, hard work and persistence.

Technical skills: MATLAB, Python, CREO, SolidWorks, Figma, STARCCM+, STK, Abaqus, Git, Julia, Fusion 360, Ansys (Fluent and Mechanical), XFOIL, D2S2, OpenC3.

Languages: Fluent in Italian, English, Dutch and French.