Erwin Poussi

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Graduate student in Aeronautics & AstronÒautics at Stanford, working on reinforcement learning and autonomous robotic systems.

EDUCATION

STANFORD UNIVERSITY, Palo Alto (CA) 2025 – 2027
- MS in Aeronautics & Astronautics
- Relevant coursework includes *Principle of Robots Autonomy, Decision Making under uncertainty, Navigation for autonomous systems.*

ECOLE POLYTECHNIQUE, Palaiseau (FRA) 2020 – 2025
- Master's level program in Mechanical Engineering, with a focus on autonomy and a minor in Entrepreneurship.
- Relevant coursework includes *Advanced Machine Learning for Autonomous Agents, Optimization and Control, Statistics, Computational Fluid Dynamics, and Computational Solid Engineering.*

Cumulative GPA: **3.96/4.0**

WORK EXPERIENCE

Stanford Multi-Robot Systems Lab *Palo Alto, CA* Jan. 2025 – Present
- **Research Assistant – Language-steered drones:** designing reinforcement learning policies for language-conditioned drone navigation, combining object-level goal grounding with sim-to-real transfer.

Stanford School of Medicine, Qiu Lab *Palo Alto, CA* Oct. 2025 – Present
- **Research Assistant – Pantheon-CLI:** contributing to *Pantheon-CLI*, an open-source LLM-powered agent framework for scientific analysis. Involved in analyzing in-house and public multi-omics datasets (scRNA-seq, spatial transcriptomics), and currently collaborating with Vizgen to integrate a reinforcement learning module for autonomous gene panel design by Pantheon.

Stevens Institute of Technology, RRG *Hoboken, NJ* Apr. 2025 – Aug. 2025
- **Research internship – Learning based Modeling:** focused on modeling permeability of parachute broadcloth under rarefied conditions. Developed a machine learning-based optimization framework combining random forests and genetic algorithms to infer model parameters from experimental data using a multi-fidelity approach.

Daher Aerospace *Nantes, FRA* Jun. 2024 – Sep. 2024
- **Simulation intern:** Developed an ANSYS Mechanical APDL code to simulate the electromagnetic field and heat generation in thermoplastic composite plates produced by Daher's inductive welding machine, aligning simulated and experimental temperatures to enable better control of the final part shape.

French Police Cybercrime Unit – Leadership training, *Paris, FRA* Nov. 2022 – Apr. 2023
- **Officer cadet:** Managed a team of trainee software engineers
- Authored investigation guides on various cyberattack cases for new unit members
- Designed *an AI-based tool for detecting online threats*
- Took part in police patrols.

SELECTED RESEARCH WORK

MAGDRONE Oct. 2025 – Jan. 2026
- Built a 3D photogrammetry pipeline combining drone imagery and magnetometer data for magnetic field mapping with improved geospatial accuracy

REINFORCEMENT LEARNING FOR GENE PANEL SELECTION Sep. 2025 – Dec. 2025
- Formulated gene panel selection as a sequential decision-making problem in single-cell transcriptomics. Trained agents using PPO and actor–critic algorithms to optimize clustering fidelity (ARI) under panel-size constraints, focusing on generalization across tissues and robustness to biological noise

REINFORCEMENT LEARNING FOR TRADING Jan. 2025 - Apr 2025
- Designed and implemented a custom high-frequency market simulator to evaluate trading strategies under uncertainty. Trained agents with PPO, Actor-Critic, and DQL algorithms, focusing on reward-free exploration, robustness to distribution shifts, and real-time decision-making performance.

UNDERGRADUATE RESEARCH PROJECT Sep. 2023 - May 2024
Guidance System Development for Autonomous Visual-Based Docking – Space center (CSEP)
- Undergraduate research thesis under the guidance of **Antoine Pallois**, establishing the groundwork for the navigation algorithm of the Nyx spacecraft, chosen by Axiom to support the ISS by 2027.
- Supervised by the Exploration Company in collaboration with Polytechnique Space center.

SKILLS

Programming: Java, Python, 0bject-oriented programming, Pytorch, TensorFlow, Ansys Workbench &Apdl, Matlab, Dedalus, Solidworks, VS code , ROS2, 3D Zephyr.
Languages: French (native), English (TOEFL 109), Mooré (Fluent), German (basic)

EXTRACURRICULAR ACTIVITIES

Volunteering

- **Stanford Black Graduate Student Association**, Fundraising Chair — Sep. 2025 - Present
- **Cheer up**, A cancer support non-profit association: in charge of Outreach and External Relations — Oct. 2023- Apr. 2025
- **XProjets,** A student consulting firm: Project Manager member of the Business Development Dept — Jan. 2024- 2025
- **Freshers' week**: Organized the integration of X23 cohort (≈ 500 students) — Jan. 2024- Apr. 2024
- **Tutored** high school and undergrad students in math and physics to prepare them for competitive exams — Sep. 2022- Apr. 2023

Sports: Handball (France's intercollegiate championship), Field and track (competitive), Weightlifting

Arts: Drawing, Painting, Dancing

Miscellaneous: Interested in geopolitics especially in Africa

Awards

- **French Government Excellence Scholarship**, awarded by the French Embassy in Burkina-Faso to pursue graduate studies at Ecole Polytechnique
- **2nd Place, 2021 Youth Olympiads, French Legion of Honor (SMLH),** Team-based cultural competition fostering teamwork, solidarity, and civic engagement.
- **1st place nationwide, 2020 Burkina Faso Advanced Scientific A-levels**; selected as spokesperson for 103 laureates across all categories.
- **2020 Model Student Award,** recognizing outstanding school involvement, exemplary behavior, and academic performance within the Academy.
- **2020-2019-2018 Excellence Awards,** awarded to the student with the highest academic score across all high school levels in PMK.