Maxence Latrouite

mlatrouite@student.ethz.ch
+33 6 24 44 59 97
LinkedIn
Portfolio
GitHub

Mechanical Engineering student specializing in Robotics and Control, seeking an internship within ESA's Robotics and Automation Section.

EDUCATION

- **Swiss Federal Institute of Technology Zurich (ETH)** — Zurich, Switzerland
  Master in Mechanical Engineering – Specialization in Robotics and Automatic Control — Entry 2025
  Courses: *Linear System Theory, Robot Dynamics, Dynamic Programming and Optimal Control, Probabilistic Artificial Intelligence, Embedded Systems, Nonlinear Dynamics and Chaos I*

- **Swiss Federal Institute of Technology Lausanne (EPFL)** — Lausanne, Switzerland
  Bachelor in Mechanical Engineering; Final GPA: 4.63/6 — September 2021 – July 2025
  Courses: *Control Systems, Dynamical Systems, Vibrational Mechanics, Electronics, General Physics, Finite Element Method, Thermodynamics, Fluid Mechanics, Analysis, Programming in Python and C*

- **Lycée Français International d'Alicante Pierre Deschamps** — Alicante, Spain
  Double Diploma — September 2018 – July 2021
  - **Science-specialized Baccalauréat; Final average: 17.55/20**: Specialties: Mathematics, Physics–Chemistry, Life and Earth Sciences – Latin and European options
  - **Selectividad — Spanish national university entrance exam; Admission score: 9.038/10**: Specialties: Mathematics, Physics, Chemistry, Technical Drawing

SKILLS

- **Programming languages**: Python, C, C++, MATLAB, HTML/CSS (basics)
- **Tools**: Arduino, LabVIEW, Excel, LaTeX
- **CAD & Simulation**: Fusion 360, CATIA, COMSOL, Simulink

PROJECTS

- **Robotic arm**: Development of a robotic arm to handle raspberries, integrating conductivity sensors to assess fruit ripeness, contact detection via pressure sensors, and precise motor control. (Final grade: 5.25/6)
  Tech: Arduino, analog sensors, C/C++, signal processing (September–December 2024)

- **High-speed shaft balancing system**: Dynamic modelling and vibration-based balancing of a high-speed shaft, including eigenmode identification, critical speed analysis and supercritical balancing by mass adjustment. (Final grade: 5.3/6)
  Tech: Lagrangian modeling, frequency analysis, dynamic balancing, MATLAB (March–April 2025)

- **Embedded Line-Following Robot – Low-Level Control Implementation**: Implementation of a real-time closed-loop controller on an MSP microcontroller, including ADC-based line sensing, calibration routines and PWM motor control robust to noise and hardware constraints. (Final grade: 6/6)
  Tech: C, MSP microcontroller, PWM, ADC sensing, embedded systems (May 2025)

- **Measurement Techniques – Analysis of the deformation of a flexible mast under load**: Design of an experimental device to measure the deformation and load of a boat mast subjected to wind forces. (Final grade: 5.5/6)
  Tech: Arduino, image processing with MATLAB, analog sensors, calibration system (February–June 2025)

- **Approximate Bayesian Inference in Neural Networks via SWA-Gaussian**: Bayesian uncertainty estimation for CNN-based satellite image classification using Full SWAG and posterior model sampling.
  Tech: Python, PyTorch (November 2025)

LANGUAGES

- **French**: Native • **English**: B2 - C1 • **Spanish**: B2 – DELE certified

INTERESTS

- **Space domain**: Strong interest in space exploration, participation in astronaut and astrophysicist conferences and visits to specialized museums (ESA, Cité de l'Espace), regular follow-up of missions (ESA, NASA, SpaceX).
- **Art history**: Summer courses at the École du Louvre (July–August 2022) and member of "Amis du Louvre" organization.
- **Sport**: Swimming (regional competition level) • Sailing (catamaran – level 3 certified) • Windsurfing (level 2 certified)