

# Sloan Zammouri

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## PORTFOLIO

[slo damn.github.io/sloanzammouri](https://slo damn.github.io/sloanzammouri) 

Please consider visiting my portfolio!

## EDUCATION

**M.S. Robotics and Control**  
EPFL, Lausanne  
Sep 2024 - Oct 2026

**Laidlaw Leadership and Research Program**  
Oxford University  
Dec 2023 - Dec 2024

**BSc of Microengineering**  
EPFL, Lausanne  
Sep 2021 - Oct 2024

## SKILLS

### Software

SolidWorks, Fusion360,  
Inventor, CATIA, Onshape  
Comsol, Ansys, Abaqus  
(nonlinear mechanics, contacts,  
fluids, electromagnetics,  
electrostatics, thermodynamics,  
chemical)  
KiCad, Arduino/ESP IDE  
Matlab, Simulink  
C/C++, C#, Python  
Linux, ROS2, Gazebo  
MoveIt, RVIZ

### Manufacturing

3D Printing (FDM, SLA)  
Turning/Milling Lathes  
Bending/Soldering CNC  
Carbon Fiber Crimping  
Soldering (electronics)

### Other Technical Knowledge

*Technical report and documentation*

*Scientific writing (publications)*

*Technical drawings (GD&T)*

*Teamwork, Time management*

## LANGUAGES

English | French

Spanish | Portuguese

Sloan Zammouri

## UMGRAUEMEIO

### Drone Robotics Engineer

Sao Paulo, Rio de Janeiro, July 2024 – Sept 2024

- Developed a simulation, using ROS/Gazebo and the DJI SDK, to deploy drones over the Amazon rainforest and stream camera footage
- Linked my simulation to the company main product “Pantera” and their vision-based detection model of wildfires to create a monitoring system
- Deployed a proof of concept on a DJI drone to detect a nearby fire

## XPLORE

### Team Leader of Robotic Arm Sub-System

Lausanne, Sep 2023 – Dec 2024

- Led 10 students (from bachelor to PhD) with a 20k CHF budget to imagine and build a full customized industrial robotic arm, assemble it and program it to compete at the European Rover Challenge; where we won 2<sup>nd</sup> and 3<sup>rd</sup> places worldwide ([certificate here](#))
- I detail in my portfolio: the making of an universal robotic actuator, the manufacturing of the whole 6DOF custom arm, the control and kinematics.

### Design of Robotic Wrist and Gripper

Lausanne, Sep 2022 – Sept 2023

- Designed and prototyped a robotic wrist using differential belts and a gripper using a custom “two-way screw”. We used it during the European Rover Competition and won best Manipulation task ([certificate](#))

## EPFL SPACECRAFT TEAM

### CubeSat Engineer

Lausanne, Sept 2022 – Sept 2023

- Worked on the onboard computer we sent in Space
- Integrated code to control power distribution within the OBC

### CanSat Engineer

Lausanne, Sept 2021 – Sept 2022

- Development of a custom PCB for a CanSat we launched with a 2-meter rocket

## LABORATORY OF INTELLIGENT SYSTEMS

### Soft Robotics Research Student

Lausanne, Sept 2024 – Now

- Developed a soft and edible contractile linear actuator using chemical reactions as input power
- Performed Geometry Optimization and compared different designs to maximize force output while respecting the requirements
- Created a custom manufacturing process utilizing multipart molding and chemistry
- Characterized the actuator with motion capture, isobaric and isostatic tests
- Wrote a publication with the lab (waiting for publication)

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## LABORATORY OF INTEGRATED ACTUATORS

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### Artificial Muscle Optimization Research Student

Neuchatel, June 2023 – Sept 2023

- Comsol Multiphysics simulations of the actuator
- Matlab optimization to find the best parameters
- Manufacturing in cleanroom and characterization
- Publication of a paper [here](#)

## RELATED COURSEWORK

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### Bachelor level:

- Foundation courses: *Linear Algebra, Analysis (I, II, III, IV), Numerical Analysis, Physics Mechanics, Physics Thermodynamics, Physics Fluids, Physics Electromagnetism, Chemistry, Material Science (I, II)*
- Mechanical Design: *Mechanical Construction (I, II), Mechanical Design (I, II), Manufacturing Technologies, Microfabrication Technologies, Microfabrication Practicals, Advanced Mechanisms for Extreme Environments*
- Electronics and Electromagnetics: *Electronics (I, II), Electronic Circuits and Systems, Logic Systems, Microcontrollers, Sensors, Wireless Sensor Practicals, Electrotechnics (I, II), Actuators and Electromagnetic Systems (I, II)*
- Coding and Control: *Information, Computation and Communication, Project Oriented Programming, Signals and Systems (I, II), Control Systems and Discrete Time Control, Embedded Systems and Robotics*

### Master level:

- *Machine Learning I, Machine Learning Programming, Model Predictive Control, Basics of Mobile Robotics, Basics of Robotics for Manipulation, Robotics Practicals, Reinforcement Learning, Virtual Reality, Micro/Nano Robotics*

## ACADEMIC PUBLICATIONS

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- *Development of an Edible Linear Contractile Actuator, publication pending*
- *An artificial urinary sphincter based on dielectric elastomer technology, SPIE, 2024*

## HOBBIES

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- Music and Piano: *Founded (with 2 friends) my High School Music Club and Studio. It is still operating nowadays and recognized as an academic option on the French platform "Parcoursup"*
- Running: *I participated in different long-distance races since I moved to Lausanne and I like to run a bit almost each morning*
- Karate: *Practiced Karate for 15 years in France and got black belt*
- Hackathons: *My friends and I recently found that we really love doing hackatons so, when we have time, we hack!*