

Sloan Zammouri

Lausanne, Switzerland | sloan.zammouri@epfl.ch | [linkedin/sloan-zammouri](https://www.linkedin.com/in/sloan-zammouri) | +41762072783

PORTFOLIO

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

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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 2nd and 3rd 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

CubeSat 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

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

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

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

HOBBIES

- 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!*