

# MARINE MOUTARLIER

## Master student in robotics at EPFL

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## EDUCATION

### École Polytechnique Fédérale de Lausanne (EPFL) 09.2019- now

BsC in Microengineering & McS Robotics specialization in mobile robotics

- **Student Researcher** at REHassist for the Autonomy exoskeleton & IMOS for computer vision (on-going)
- **GPA:** 5.1/6.
- **Courses:** Machine Learning, Robotics, Mechanical, Electronics, Microcontrollers, Model predictive control, Neural interfaces, Legged robots, Image analysis, Computational motor control, Mathematics of Data, Computer Vision,

## EXPERIENCES

### Teaching assistant at EPFL, Lausanne, Switzerland 09.2021- now

Helping first and second year students with exercises. Engaging conversation on questions related to the course to make sure they understand well the topics. Watching and correcting exams

**Analysis I:** Dr Strutt and Dr Mila ; **Analysis III:** Dr Strutt; **Analysis A:** Dr Dubuis, **Analysis II for CMS :** Dr Khukhro

### FORUM at EPFL, Lausanne, Switzerland 08.2023- 11.2023

Participation of the organization the 2023 edition of the Forum. Designed the visuals of the forum: posters, displays, booths, tags, and the full week of logistics

### Summer internship at Trinity College Dublin, Dublin, Ireland 07.2023- 08.2023

Design an experimental rig for recording electromyography signals in individuals with Amyotrophic Lateral Sclerosis.

### Summer internship at Bnp Paribas, Paris & Annecy, France 07.2021 & 08/09.2022

Welcoming clients, helping them with money transfer, ebanking, actions on their bank accounts, access to the lock, giving accounting advices.

### Machining internship at ETML, Lausanne, Switzerland 07.2022

Discovering the world of machining. fabrication of a clamp and a vise. It included milling, turning, drilling.

### Rocket Team at EPFL, Lausanne, Switzerland 09.2020- 07.2021

Structure team: design of the fin tails, body, nose cone of the rocket for the project Space Race, Vostok.

### Internship in Foch Hospital, Suresnes, France 06.2017

Thoracic surgery department, with head surgeon Dr Edouard Sage. Discovery of daily tasks as consultations, operating bloc, pneumonectomies via celioscopy, pneumothorax, bi-lung transplants and discovery of the intensive care unit.

## PROJECTS

### Implementation of a stair controller for Autonomy exoskeleton at REHassist 2024

- Inter-joint synergies for stair activities
- Validation of the design paths
- Corrections, curve fitting, mapping & finite state machine implementation
- Experiments, validation of the efficiency of the assistance

### EPIDEMIC 2024

Developed a reinforcement learning method capable of containing an infection from spreading

### COIN RETRIVAL project 2024

Use of computer vision techniques (Hough transform, KNN and CNN) to identify coins from Euro and Chf.

### SALLY the soft sole 2023

Development of a pneumatic massaging sole using a proportional algorithm to regulate user chosen pressure. Designed and fabricated fully by ourselves

## SKILLS & INTERESTS

**Programming and Software:** Python ( Pytorch, Pandas, NumPy, CV2..), C++, Matlab, Latex, AutoCAD, Catia, LT-Spice, Atmel, Logisim, 3D printing, wiring

**Languages:** French (Native), English ( C1), Spanish (A2)

**Research interests :** Mobile robotics, Biomedical applications, Computer vision, Reinforcement learning

**Personal interests :** Rowing (qualified for french national championship, ski, travels, design