# Shadi Naguib

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## EDUCATION

**Ecole Polytechnique Fédérale de Lausanne**                                                   Lausanne, CH
*Master of Science in Robotics & Data Science*                                     Feb. 2020 – March. 2023
*Bachelor of Science in Microtechnical Engineering*                                  Sep. 2016 – Feb 2020
- **Relevant Coursework**: Computer Vision, Deep Learning, Distributed Systems, Aerial Robotics, Electronics, Product Design

## EXPERIENCE

**Claryo, Inc**                                                                            Jun. 2023 – Sep. 2023
*Intern - Machine Learning Engineer*                                           New York, NY - Portland, OR
- Integrated architectures for **multi-view 3D object detection** and **semantic segmentation** onto Claryo's web-based robotics infrastructure platform, collaborating in a cross-functional team.
- Adapted models for compatibility with **multiple deployment targets**, including cameras with built-in processing units (ex. OAK-D).
- Contributed to building a **Command Line Interface** (CLI) to facilitate developer interaction with the platform.
- Implemented the entire pipeline, from data ingestion to model deployment, for **three pilot project clients.**

**Harvard Microrobotics Laboratory**                                                       Sep. 2022 – Apr. 2023
*Master Thesis Student Researcher - Weld line based navigation for robotic ship hull cleaning*        Cambridge, MA
- Developed a **feature-based navigation** algorithm for underwater robot locomotion.
- Implemented a **digital twin** with ROS2 and Gazebo, actively collaborating with engineers for navigation testing.
- Integrated sensors for weld line detection.
- Iterated and improved the navigation pipeline on several versions of the underwater robot.

**Rovenso - Autonomous Robots for Security and Safety Monitoring**                          Feb. 2022 – Aug. 2022
*Intern - Machine Learning for Agile Robots*                                                   Lausanne, CH
- Collaborated to build an **MLOps pipeline** that manages the entire data and model flow for anomaly detection, from creation and pre-processing to training and deployment.
- Designed, trained, and assessed **object detection algorithms** for Rovenso's latest generation autonomous robot.
- Tested and validated the implementation on **agile robots**, ensuring systems scaled to meet user demands.
- Pitched the robot's capabilities to multiple clients across three countries.

## SKILLS

**Machine learning and Data Analysis** : Pytorch, Docker, AWS, Scala, Java, SQL, OpenCV, Spark, Pandas, BeatifulSoup, Selenium
**Robotics** : Python, C++, ROS2, Gazebo, Embedded ML (through NVidia Jetson), Kinematics
**Electronics and Design** : PCB design, High-Power electronics, Micro-controllers, Micro-soldering, Computer-Aided design
**Languages** : Native in English, French, Arabic – Spanish (B1) and German (A1)

## EXTRACURRICULAR

**Volunteer Firefighter, Certified**
- Followed specific physical and theoretical training in fires and emergency procedures.
- Joined a support team to provide aid in case of emergencies.

**Student unions**
- Coaching: Led a 30-person volunteer team, managing and organizing events for first-year students.
- PolySports: Cooperated with 15 students to organize a **sports competition** bringing together 900 students from various universities.

**Personal engineering projects**
- Remote controlled electric skateboard using brushless DC motors, a custom built lithium-ion battery pack, and a 3D printed timing belt transmission system.
- Phone-activated door opening mechanism using wireless-capable microcontrollers and stepper motors.