YVES MARTIN

Robotics engineer

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WORK EXPERIENCE

Research Engineer
Stanford University – School of Medicine – Herschlag Lab

Sep 2022 – Current | Stanford, CA, USA

- Currently building a deep-learning model to predict the structure of RNA (Pytorch, Lightning, WandB). Similar to AlphaFold.
- Lead a team of 4 developers to develop a *data processing pipeline* using Python, Git, Docker, Cython, Pytest and Github Actions/Pages.
- Eased data analysis by building *a data visualization webapp* (Flask) and coded multiple data processing utils.
- Learned biochemistry and will be an author on 2 publications.

Research Fellow
Harvard University – School of Engineering – Wood Lab

Oct 2021 – Apr 2022 | Cambridge, MA, USA

- Published *a proprioceptive method for soft robotic arms* that's inexpensive, easy-to-use and has comparable performances to SOTA.
- Built a prototype using ROS (Python) and C++.

Software Engineering Intern
Safetyn

Aug – Sep 2018 | Toulouse, France

- Added a motor speed recognition feature to the device using Fourier.
- Prototyped and tested in Python, implemented in C.

Research & Development Intern
Oxxius

Feb – Jul 2018 | Lannion, France

- Automated the data acquisition with a robotic setup using Arduino.
- Helped the company transfer to Python by writing libraries for the company's serial-controlled equipment.
- Developed a laser beam measurement method using statistics, increasing operators' measurement accuracy by up to 50%.

Intern
ETML

Jul – Aug 2017 | Écublens, Switzerland

- Learning of basic machining methods: turning, milling, welding...
- Designed and machined a snap-off knife mechanism.

EDUCATION

Master of Science – Robotics
Swiss Federal Institute of Technology (EPFL)

Sep 2019 – May 2022 | Écublens, Switzerland

Computer Vision, Model Predictive Control, State estimation & Motion Planning, Machine Learning, Optimisation.

Bachelor of Science – Micro-engineering
Swiss Federal Institute of Technology (EPFL)

Sep 2015 – Jul 2019 | Lausanne, Switzerland

Programming in C/C++, CAD, Electronics, Control theory, Linear Algebra and Mechanics (Kinematics and Dynamics).

AWARDS AND PRIZES

1st Author publication at IROS – 2022
Published my master's thesis: *A Proprioceptive Method for Soft Robots using Inertial Measurement Units*.

Finalist of the Debiopharm Challenge (2/80) for the ATPen project – 2021
Designed, prototyped and tested a mechanical tremor-filtering pen. USD 10k award.

Special thanks from EPFL President – 2020
Formal recognition of my work handling the COVID-19 pandemic as General Secretary of the Student's Union (an organisation of 600 people, 9600 students, 2m$ of annual budget).

Youngest Troop Leader of France (over 400 Troop Leaders) – 2016
Took responsibility for a 35 boy-scouts troop (12 to 17 y.o.) at the age of 18 y.o. Brought the troop from 25/25 to 1/25 at the regional contest in 5 years.

PROJECTS

China Hardware Innovation Camp (CHIC)
Swiss Federal Institute of Technology (EPFL)

Aug 2019 – Feb 2021 | Lausanne, Switzerland

- Managed a 5-people team to develop *an IoT device* using an esp32, a homemade PCB, a custom case, sensors and LEDs.

Design, fabrication, modeling and control of an Origami Haptic Platform
Swiss Federal Institute of Technology (EPFL)

Feb 2021 – Jun 2021 | Lausanne, Switzerland

- Designed robotic origamis using Fusion360.
- Built multiple prototypes using a laser cutting machine and a 3D printer.
- Proposed a kinematic model using data and actuated the prototypes.

SKILLS

Natural Languages
English Fluent, French Native, Spanish Basics.

Programming
Python (Expert), C/C++ (Fluent), ROS, MATLAB, Bash, Linux, Git, Docker, CI/CD, Deep Learning, Machine Learning, Pytorch, Pandas, Sklearn.

Mechanical Design and Machining
Fusion 360, CATIA, laser cutting, 3D printing and conventional machining.

Hardware, Sensing & Control
PCB design, Arduino, esp32, Electronics, Sensor Fusion (KF/EKF), Control (PID, MPC).