

Titouan Renard,

Master student in Robotics with a minor in Data Science

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I am a student at EPFL currently pursuing a Master of Sciences in Robotics with a minor in Data Science. I am interested in research with a focus on control theory, machine learning and their applications to robotics systems. As I have progressed in my master I realized that I have a particular interest in optimal control and reinforcement learning (which are the topics I have mostly worked on).

Education

Ongoing **Master in Robotics with a Minor in Data Science**, Lausanne, Switzerland 2020-Present
EPFL, STI and IC faculties

Bachelor in Microengineering, Lausanne, Switzerland 2020
EPFL, STI faculty

Bilingual Maturité, Neuchâtel, Switzerland 2016
French-English bilingual high-school, Lycée Denis de Rougemont, Physics and Applied Math

Past Projects

Power-Optimal Trajectory Generation for Airborne Wind Energy, semester project at LA3 2021
(EPFL), under the supervision of Prof. Colin Jones.

Worked on a strongly non-linear and non-convex optimization problem, implemented an appropriate iterative solver method to deal with the non-convexity in Matlab.

Deep Robust Navigation with Cognitive Mapping Visual Representations, project done in 2021
the "Visual Intelligence - Machines and Minds" course at (EPFL), course given by Prof. Amir Zamir.

Development and implementation of a novel deep-reinforcement learning method for visual navigation. [Presentation Video of the Project](#).

Summer Internship, Biorobotics Lab EPFL, at the Biorobotics Laboratory at EPFL, under the 2018
supervision of Alessandro Crespi.

Implementation of a simple vision-based localization system using C++ and OpenCV.

Skills

Programming, in C, C++, Javascript, Matlab, Python and Scala. Experience with OpenCV, Scipy, CasAdi, Tensorflow and Pytorch, comfortable with Unix systems and git. Experience with Google Cloud Platform for training deep learning models.

Math and Applied Math, Probabilities, Linear Algebra, Calculus, Dynamic System Theory and Control Theory, Signal Processing, Algorithmic Design and Analysis. Strong abstraction capacity, ability to mathematically formulate a concrete problem.

Soft Skills, public speaking, writing and team management learned in the context student associations, French (native proficiency), English (full proficiency), German (B2)

Relevant Courses

Course (grade is denoted by ? when it is pending)	Grade
Visual Intelligence, Machines and Minds (CS-503)	?/6
Legged Robotics (MICRO-507)	?/6
Model Predictive Control (ME-425)	5.75/6
Algorithms (CS-250)	5.5/6
Advanced Algorithms (CS-450)	6/6
Artificial Neural Networks (CS-456)	5.75/6
Aerial Robotics (MICRO-502)	5/6
Computer Vision (CS-442)	5.5/6
Distributed Intelligent Systems (ENG-466)	5/6

Teaching Experience

Student-Assistant at EPFL

Artificial Neural Networks

2022

For the Computer Science and Data Science students.

"Physique Générale 1" (Newtonian Mechanics)

2018-2021

For the PH-101(b) (Microengineering, Electrical Engineering and Material Sciences sections) and PH-101(d) courses (for the Mechanical Engineering section).

"Microinformatique" (basics of embedded systems programming)

2019

For the Microengineering students.

Basics of Robotics

2018

For the Microengineering students.

Material Sciences Practicals

2018

For the Microengineering and Material sciences students.

Volunteer Experience

Unipoly, student's association for sustainability at EPFL.

2019-2022

Board member in an association of approximately 300 membres with a 20'000 CHF annual budget.

Président

2021-2022

Experience with team management and budgets.

Responsable Politique,

2020-2021

Experience in interactions with stakeholders and EPFL's direction on matters of sustainability on campus.

Responsible of Events for the 2020 sustainability week on EPFL campus

2019-2020

Management and coordination of about 30 events (conferences, workshops) on EPFL and UNIL's campuses.

Writer for Unipoly's Journal

2019-2021

One to two articles per year.

European Youth Parliament, Switzerland

2015-2016

English language public speaking experience.