Neuenschwander **Didier**

MASTER'S STUDENT IN ROBOTICS EPFL · RESEARCH ASSISTANT HARVARD OPHTAMOLOGY AI LAB

Grands-Champs 10, 1400 Cheseaux-Noréaz, Switzerland

☐ (+41) 78 699 45 50 | ✉ didier.neuenschwander@epfl.ch | 🏠 didierne.github.io | 💻 DidierNe | 💼 Didier

Summary

Master's student in Robotics at EPFL with a strong focus on applied machine learning and computer vision. Passionate about real-world applications—from industrial inspection to medical imaging. Currently completing my Master's thesis at Harvard Ophthalmology AI Lab. Previous experience in computer vision during an internship at Rolex. Also enthusiastic about control systems and electronics, with hands-on experience in embedded robotics and sensor design.

Education

Feb. 2023 – Present	**Master's at EPFL** in Robotics
Sept. 2018 – July 2022	**Bachelor's at EPFL** in Mechanical Engineering with strong interest in control theory
Aug. 2014 – July 2018	**High School Diploma** in Physics and Mathematics

Professional Experience

Feb. 2025 – Aug. 2025	**Researcher – Harvard Ophthalmology AI Lab (Master's Thesis)**

Developed a multi-module deep learning pipeline to denoise visual field data in glaucoma.
Contributed to several side projects in the lab:
- Supervised undergraduates working on Meta Aria AR glasses for research.
- Assisted with experiments involving a Unitree quadruped and uFactory robotic arm.

Aug. 2024 – Jan. 2025	**Internship – Data Science and Applied Mathematics, Rolex**

Worked on computer vision in a confidential industrial setting.
Focused on data acquisition, preprocessing, and semi-supervised deep learning model development.

Feb. 2024 – July 2024	**Teaching Assistant – Computational Motor Control at EPFL (BioRob Lab, Prof. Ijspeert)**

Assisted students with course exercises and supported programming projects on neural models (CPGs) and sensory-motor systems in Python using MuJoCo.

Aug. 2021 – July 2024	**Electrical Support – Vocational Youth Program (Private Organization)**

Provided technical guidance to a group of four trainees.

Projects

Master's Thesis – Visual Field Denoising (30 ECTS, ongoing) Harvard Ophthalmology AI Lab 2025 Boston, USA

- Developing a multimodal deep learning pipeline to denoise visual fields using OCT and perimetry data.

- Goal: improve signal fidelity for glaucoma diagnosis; exploring unsupervised and semi-supervised learning.

- Evaluation focuses on reconstruction fidelity, robust regression metrics, and longitudinal consistency with anatomical structures.

- *Tools: PyTorch, multimodal pipelines, longitudinal consistency metrics.*

Amphibious Locomotion Measurement Setup (10 ECTS, grade 6/6)

- Designed a waterproof system to measure 3D ground reaction forces during amphibious locomotion in salamanders.

- This setup enabled detailed analysis of the physical interactions between the salamanders and their environment.
- *Skills: Embedded Systems, Data Acquisition, Prototyping.*

Microrobot Tendon Control (10 ECTS, grade 5.75/6)

- Control interface for a tendon-driven microrobot designed for brain navigation.
- *Tools: C++, GUI, control systems, electronics.*

Mini-Segway Robot (Bachelor project in a group of 4 – 5 ECTS, grade 5.75/6)

- Built a self-balancing robot with a full control stack and embedded electronics.
- *Skills: Control theory, prototyping.*

Additional Group Projects

- *Hate Speech Detection:* fine-tuned DistilBERT on multilingual datasets to identify hate speech with dataset debiasing. *Skills: BERT, Transfer Learning, NLP, Model Interpretability.*
- Locomotor Model of Simulated Salamander (4 ECTS, grade 5.5/6): implemented neuro-motor models in MuJoCo for bio-inspired control.
- Human Gait Analysis (4 ECTS, grade 5.5/6): compared kinematic/EMG patterns across healthy and pathological datasets.
- Sudoku Solver from Image (3 ECTS, grade 5.75/6): pipeline to extract and solve grids using Matlab, C and LabVIEW.
- Wheelchair Accessory Design (4 ECTS, grade 6/6): designed and prototyped a modular add-on to enhance user mobility.

Skills and Languages

Expertise: Deep Learning (TensorFlow, PyTorch), Computer Vision, Mechatronics, Control Systems, Medical Imaging, Linux, ROS

Programming: Python, C++, C, Matlab, LabVIEW

Tools: Dataiku, Halcon, CATIA, Abaqus, OpenSim

Languages:

- French — Native
- English — Fluent (B2–C1)
- German — Intermediate (B1)

Personal & Interests

- **Date of Birth:** October 3, 1997
- **Nationality:** Swiss
- **Civil Status:** Single, no children
- **Hobbies:** Skateboarding, running, tinkering with electronics