Neuenschwander **Didier**

Master's Graduate in Robotics (EPFL)

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Summary

Master's graduate in Robotics from EPFL with a strong background in computer vision and data science. My experience spans industrial automation at Rolex, where I applied deep learning to computer vision systems, and research at Harvard Medical School, where I worked on AI-driven computer vision and robotics projects.

Education

Feb. 2023 – Sept. 2025	**Master's at EPFL** in Robotics
Sept. 2018 – July 2022	**Bachelor's at EPFL** in Mechanical Engineering
Aug. 2014 – July 2018	**High School Diploma** in Physics and Mathematics

Professional Experience

Feb. 2026 – Present	**Research Engineer – Neuro Robotics, ARTORG Center for Biomedical Engineering Research, University of Bern** *(Swiss civil service)* Working on 3D computer vision for neurosurgical applications. Integrating robotic and imaging systems using ROS 2; developing 3D reconstruction and surface digitization pipelines from intra-operative data.
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. • Helped with Unitree quadruped and humanoid experiments.
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, grade 5.5/6) 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 (C1)
- German — Intermediate (B1)

Personal & Interests

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