

Lukas Röllin

✉ roellin.lukas@hotmail.com | ☎ +41 79 630 62 72

EDUCATION

Doctor of Science in Electrical Engineering and Information Technology

ETH Zürich

Mar. 2024 – now

Expected Graduation: 08/28

- *Research:* Sustainable Networking, Optical Networking, Network Device Architecture

Master of Science in Electrical Engineering and Information Technology

ETH Zürich

Sep. 2020 – Dez. 2023

- ETH - D-ITET Scholarship recipient / Graduated with honors
- *Selected Coursework:* Network Security, System Security, Optical Communication Fundamentals

Exchange Semester

Massachusetts Institute of Technology

Jan. 2022 – May. 2022

- *Selected Coursework:* Optical Networks, Power Electronics, Parallel Computing and Machine Learning

Bachelor of Science in Electrical Engineering and Information Technology

ETH Zürich

Sep. 2017 – Aug. 2020

- Graduated with honors
- *Selected Coursework:* Communication Networks, Intro to Machine Learning, Embedded Systems

WORK EXPERIENCE

Duagon

Hardware Engineering Intern

Sep. 2020 – Dez. 2020

Dietikon, Switzerland

- Designed an automated test platform for CAN interface compliance
- Designed the PCB and made sure it could be manufactured in the assembly line
- Coded the microcontroller firmware in C and automation software with python

ETH Zürich D-ITET

Teaching Assistant

2018 – 2022

Zürich, Switzerland

- **Courses:** Digital Circuits (Fall 18), Communication Networks (Spring 21) and Adv. Top. in Comm. Networks (Fall 22)
- Answered questions in weekly review sessions for ~ 40 students and debugged problems in the project infrastructure
- Obtained the didactics certificate for teaching assistants

PUBLICATIONS

Slow-And-Wide Transceivers Shouldn't Be Color Blind

HotOptics '26

It Is Time to Address Network Power Proportionality

HotNets '25

Fantastic Joules and Where to Find Them. Modeling and Optimizing Router Energy Demand

IMC '25

Second Author

A Sleep Study for ISP Networks: Evaluating Link Sleeping on Real World Data

HotCarbon '24

Best Paper Award

PROJECTS

Thesis/Semester Project

- **Master's Thesis:** *How Fast Can it Wake Up? Putting Link Sleeping into Practice*
Exploring how to practically turn off network links to save power during times of low utilization.
- **Semester Project:** *Advancing Predictions for Video Streaming with Transformers*
Using modern machine learning models (transformers) to predict future network conditions.

Lecture Projects

- **Programmable Data-Plane:** Creating a custom data-plane using P4 to optimize the network's performance
- **Mini-Internet:** Operating a virtual AS, setting up OSPF and BGP using FRRouting and peering with other groups
- **Transport Layer Protocol:** Coding our own TCP implementation with the help of Scapy
- **ACME Client:** Implementing an ACME client in Python following the specifications of the RFC

SKILLS

Languages : Python (Plotly, Tensorflow, Pytorch), C, C++, Julia, Java, P4, SQL, Javascript, Bash

Tools/Technologies : Git, Docker, Routing and Switching, Wireshark, Apache Hadoop, Altium, Vivado, Grafana