Eric Mink
Switzerland

I am a curious, independent, and reliable Software Engineer specializing in Computer Vision Research and Development.

Education

2020 – 2023	**ETH** Zürich, **Master of Computer Science**, with a focus on **Computer Vision**
2023	Master's thesis "A Learned Style Representation"
	Research on **Style Transfer**, in collaboration with Disney Research.
2022	Semester Project in 3D Vision: "Semantic SLAM with Quality-Adaptive Properties"
2021	Semester thesis "Flexible Image Enhancement" with Disney Research.
	Deinterlacing with the use of Machine Learning.
2015 – 2019	ETH Zürich, Bachelor of Computer Science (BSc ETH CS)

Work Experience

2024 – Present	**Computer Vision** Software Engineer **R&D** at Lusee (C++, Python)
	Object Recognition, Research, Development, Refactoring, Documentation, DevOps.
	We turn a wooden table into a real-time interactive device with the help of a projector and infrared camera, with on-device detection of tokens and touches.
	Co-inventor of a patent (pending)
2021	Student **Teaching Assistant** for the *Information Security Lab* (Master's Level in CS)
2019 – 2020	Zivildienstleistender Klassenassistenz at Schule Russikon
2019 Mar – May	**Software Engineering** Internship at MP Technology AG (Xamarin, C#)
2019 Jan – Feb	Software-Engineering Internship at Ubique Innovation AG (Android)
2018	Bachelor's Thesis in collaboration with Autoform in the field of Computer Vision
2014 – 2017	Freelancing Webmaster for artists, and for the local political party "FDP-Russikon"

Background

2020 – Present	Founding member of the CTF team "Organizers". **1st Place worldwide** in 2022.
	We have regularly been invited to international Cybersecurity competitions and were granted a National Interest Exception by the U.S. Embassy. I have been involved in organizational tasks, infrastructure, in- and external communications, and mainly work on the challenge category "Misc".
2023	In the **top 7% users on stackoverflow**.com (all-time), top 13% on askubuntu.com.
2020 – Present	CTF-Committee Member. "Flagbot" was the best team in Switzerland in 2020 and the second-best after "Organizers" (our international team) in 2021. I authored CTF challenges to teach beginners in our Monday Meetings and for our own events.
2009	Started learning how to code in C# as a Hobby.

Volunteering

2019 – 2021	Certified "J+S-Coach", supervised the organizational committee of youth camps (CEVI Herbstlager) for safety, compliance, fun, sports, and education.
2018 – 2023	VIS Design Committee Member, and for a semester President
2012 – 2021	Group lead and camp organizer at YMCA youth organization (CEVI)
	Certifications: "J+S **Lagerleiter** LS/T", "J+S Jugendsport LS/T", "J+S Kindersport"
	Team Lead for organizing wastepaper collections, print communications, and selling volunteer-made braids on Mother's Day in collaboration with a Bakery.

Languages: Fluent: German, English, Swiss German   Almost fluent: French   Beginner: Russian (A2.2)

Programming Languages
Preferred: Python, Rust, C++, and C#
Experience with: C++ (+OpenCV), Python (+pytorch), Rust (+bevy), Java (+Android), C# (+Xamarin), bash, C, Haskell, JavaScript, Kotlin, pwsh7, Godot, Google Dart, Eiffel, Assembly, MySQL, Excel VBA, and more.

Free-time Projects   https://github.com/lucidBrot
My current hobby project is a 2d Metroidvania written in Rust with the Bevy ECS (Entity-Component System). Along the way I sidetracked into making *hexgridspiral*, a crate that provides **a hexagonal grid** with some interesting geometric properties, which has already been **downloaded 8'000 times**.

I have created many hacking-challenges for Flagbot training sessions and BjörnCTF. Aside from that and from playing CTF, I enjoy creating in my free time. I e.g. spent a week of vacation with a friend implementing custom lighting in Godot to obtain shadows the player can physically interact with.

Another project is MineDeeper, a C#/Unity program that we created on a 31-work-hours-weekend. It's **a deterministically solvable Minesweeper in 3D**, and it can give you hints that not only tell you what you can find out, but also by what logic you could get there.

I wrote an MS Excel VBA Macro forever ago that worked around the shortcomings of the CEVI (YMCA) database. To adapt to new requirements, I completely rewrote it in Rust in 2019. It is more intuitive to use, reports and fixes malformed database content, merges addresses from the same household and generates a PDF of envelopes that also contain valuable information to speed up the team that fills (and used to sort) said envelopes manually, saving us hours every time.

A Telegram bot I wrote in python allowed you to search a huge compilation of leaked credentials. Enter your e-mail address, possibly get your password in clear text. It had over **24'000 unique users**.

Brotkeys.js is a JavaScript library that makes it easy to feature keyboard-based navigation in a Vimium-like way, on your website instead of as a browser addon.

I spent a lot of my time in 2020 setting up my ubuntu laptop with encrypted ZFS root and fixing its many fascinating issues. The speakers used to work only if I rebooted from windows to Linux without a full shutdown, for example. And DNS resolution failed only when I had previously locked the laptop while leaving the house. Nowadays I am using Debian Testing.

Educational Projects at ETH – An Overview
An android UNO game for *Distributed Systems*, Sobel & Canny Edge Detection for *Visual Computing*, and some code optimization tasks for *High Performance Computing*.
I wrote a compiler for a subset of the Java language for *Compiler Design* and some cross-validation for finding the best parameters in *Intro To Machine Learning*.
Information Security Lab covered the breadth of the field, including Elliptic Curve Cryptography, implementing TLS 1.3, Cryptographic Reductions, and Software Security.
In *Algolab,* I got familiar with the CGAL and Boost C++ libraries by solving competitive algorithmic problems focused on runtime and correctness.
In *Mathematical foundations of Computer Graphics and Vision* I implemented RANSAC, Similarity Image Deformation, Super Resolution, and Image Recoloring by Optimal Transport. For *Shape Modeling* I constructed meshes from implicit surfaces, smoothed them, minimized texture distortion, and deformed them in real-time.
In *Computer Vision* I implemented Object Tracking, Image Classification, Camera Calibration, Structure-From-Motion, Multi-View Stereo, and Neural Image Segmentation.
For the *3D Vision* project, we sped up Dense SLAM Reconstruction by using semantic properties and for another small semester project I researched the use of Spatial Relations for Object Discovery. The paper "Manipulating Attributes of Natural Scenes […]" mentions me on their website.

My Semester Project on Neural Video Deinterlacing outperformed State of the Art, and my Master Thesis on Image Style Transfer resulted in an interpolable latent Style Space that preserves Content.