Michel Zeller

ML Engineer

I am particularly interested in solving real-world problems in the captivating fields of (3D) computer vision, digital humans & human-centric AI. I am open to challenges, solution-oriented, well organised and a team player.

Education

ETH Zurich, D-MAVT **Sept. 2022 - Sept. 2024**
Master of Science in Mechanical Engineering
Research-centred program with a focus on deep learning for computer vision and robotics
Final Thesis: Reconstructing Hand-Object Interactions in 3D from Monocular Video with 3DGS

ETH Zurich, D-MAVT **Sept. 2017 - Sept. 2021**
Bachelor of Science in Mechanical Engineering
Final Thesis: Drone Tracking in Challenging Conditions

Employment

meshcapade R&D **Oct. 2024 - Mar. 2025**
Research Scientist Intern

At meshcapade, I built a robust data pre-processing pipeline to regress human & object poses from RGB video & optimize their relative position in a canonical space. This then served as input to the extended 3DGS-based training pipeline to efficiently (& explicitly) learn the scene's appearance models, which allows for further optimization and spatial understanding.

LOGIBLOX AG **Apr. 2022 - Dec. 2023**
(Full-Stack) Software Engineer

I mainly researched and implemented software solutions, i.e. for the in-house graph compiler, the data-science or AI modules as well as the UI of the platform. The tech stack consisted of a Python backend with Flask combined with the Angular frontend framework. [Reference Letter]

MeteoSwiss Dep. Analysis & Numerical Predictions **Sept. 2021 - Mar. 2022**
Software Engineer - Civil Service

My main task at MeteoSwiss was developing CLI tools to visualise their global air-trajectory data using Python. Ultimately, my work replaced the previously used, pricey software and is still in production at github.com/MeteoSwiss-APN/pytrajplot. With this experience, I concluded my civil service duties. [Reference Letter]

Fit4School **Sept. 2019 - Mar. 2021**
Tutor

Next to my studies, I worked at a fit4school learning center as a tutor in English, maths and physics.

Day Centre & Kindergarden Bilten **Sept. 2016 - Mar. 2017**
Carer - Civil Service

Instead of serving in the Swiss military I decided to do *Civil Service* and focus on care & assistance. I concluded my first service at a day centre supporting the team in their daily tasks. [Reference Letter]

Selected Projects

Understanding Human-Object Interactions in more Detail meshcapade

- → Model human-object interactions in 3D using from monocular RGB
- → Neural Rendering with 3D Gaussian Splatting
- → build involved data processing pipeline for initialization Gaussain models

HOLD-GS: Reconstructing Hand-Object Interactions in 3D from Monocular Video using Gaussian Splatting [Report] AIT

- → Model hand-object interactions in 3D using from monocular RGB
- → Extending HOLD with 3D Gaussian Splatting for real-time rendering

Adaptive Visual Pose Estimation for Multi-Robot Registration [Github, Report] CVG

- → Deep Learning in Computer Vision, Dense Tracking
- → Continual Learning & Adaptive Geometry for Pose Estimation

Monocular Pose Estimation for Human-Robot Co-Localization [Github, Report] CVG

- → Creating a synthetic data pipeline using BlenderProc2
- → Adapting OnePose++ to train a SPOT pose estimation model

Combining 3D Scene Reconstruction & Human Motion Capture [Github, Report] VLG

- → Human Motion Capture using EasyMocap; SMPL
- → Novel view synthesis from RGB videos
- → 3D Scene Reconstruction using Nerfstudio

Skills

Proficient	PyTorch, Python, Bash, Git, OpenCV, NumPy, SciPy, LaTeX
Moderate	Blender, Docker, Adobe CS, DaVinci Resolve
Prior Experience	C++, MATLAB, RUST, TypeScript, Julia, HTML/CSS, Angular, REST, SQL
Languages	Swiss-German (Native), English (C2), French (Read/Write)

Thank you for your time.