

Normand Overney

Senior Research Software Engineer

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GIS & remote sensing | Applied ML | Scientific data platforms | HPC



Profile

Research software engineer and GIS engineer with 8+ years designing data-intensive systems for environmental research, remote sensing, and computational biology. Builds large geospatial pipelines, orthophoto and drone-data applications, GPU infrastructure, and ontology-driven cloud platforms from prototype through reliable operation. Delivered **150+ TB** research infrastructure, cut distributed model training from **weeks to hours**, and secured **EUR 220K** for product R&D.

Experience

ETH Zurich GIS Engineer / Scientific Programmer Mar 2023 - present
Forest Resources Management, Zurich, Switzerland

- Architect and deliver **ForestStudio and the SNSF-funded UPSCALE platform** as GIS and remote-sensing applications for forest research, spatial analysis, and interactive decision support.
- Build large geospatial pipelines for nationwide SWISSIMAGE orthophotos (10–25 cm ground resolution), high-resolution drone imagery, LiDAR, satellite, and multispectral data using Python, QGIS, ArcGIS, and SLURM.
- Designed and operate bare-metal GPU servers and containerized TrueNAS SCALE infrastructure for **150+ TB** of imagery, point clouds, climate models, and AI training data.
- Cut distributed deep-learning workflows from **weeks to hours** and established reproducible orthomosaic, photogrammetry, 3D-reconstruction, and virtual-forest processing for biodiversity research.

Colomba Link GmbH Co-founder & CEO Feb 2021 - Oct 2025
Basel, Switzerland

- Co-founded and led development of ontology-driven cloud applications: Monidas for live industrial data and CollMap for collaborative geospatial decisions.
- Architected production cloud services for live sensor ingestion, ontology-based data models, monitoring, analytics, and MLOps across 3+ industrial clients with **99.99% uptime**.
- Deployed real-time services and reusable React/TypeScript applications to Azure using Kubernetes and Terraform; optimized compute-heavy data pipelines for memory use and execution time.
- Secured **EUR 220K** through NGI DAPSI and KYKLOS 4.0, leading funded R&D from proposal through production; Dybli Core later received DAPSI Hall of Fame recognition.

Biognosys AG Bioinformatics Engineer Jan 2021 - Aug 2022
Schlieren, Switzerland

- Developed Avalon, an ML module integrated into Spectronaut; evaluated eight classifiers and used genetic algorithms to tune a gradient-boosting model and its feature set.
- First-authored and presented Avalon at ASMS 2021; improved peptide-precursor identifications by **20–40%** on 60-200 samples/day dia-PASEF data with comparable empirical false-discovery-rate performance.
- Migrated production proteomics algorithms from R/C++ to C#, deployed SLURM GPU infrastructure, and strengthened cross-platform release validation.

Earlier Bioinformatics & Genomics Experience

DNAexus	Software Engineer Intern	Jul 2019 - Sep 2019
Shipped 15+ backend features for a cloud genomics platform processing petabyte-scale sequencing data.		
Genentech	Data Analyst	Feb 2018 - Jul 2018
Built parallel methylation pipelines and R Shiny tools for multidimensional genomic analysis by bench scientists.		
Illumina	Bioinformatics Engineer	Mar 2017 - Dec 2017
Automated Python/C# validation and parallel Jenkins testing for genomic analysis software.		

Selected Research & Presentation

3D dataset generation using virtual reality for forest biodiversity	2024
International Journal of Digital Earth, 17(1). doi:10.1080/17538947.2024.2422984	
Systematic synthesis of scale levels and digital representation for virtual forests	2024
International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences. doi:10.5194/isprs-archives-XLVIII-2-W8-2024-343-2024	
Project Avalon: An Extended Machine Learning Framework for Spectronaut	2021
First author and presenter, 69th ASMS Conference on Mass Spectrometry and Allied Topics. Biognosys abstract ID 307106	

Education

MSc Computer Science, Artificial Intelligence specialization	2020
University of Basel	Basel, Switzerland
Thesis: Analyzing Short-term Patterns in EEG Data	
BSc Computer Science, Bioinformatics track	2016
University of California San Diego	La Jolla, CA, USA

Technical Skills

Languages	Python, C#, C/C++, TypeScript/JavaScript, SQL, R, Bash
ML & scientific computing	PyTorch, TensorFlow, scikit-learn, gradient boosting, OpenCV, Jupyter
GIS & remote sensing	QGIS, ArcGIS, orthophotos, SWISSIMAGE, drone imagery, LiDAR, multispectral data, photogrammetry
Platforms & infrastructure	Bare-metal GPU servers, Docker, Kubernetes, SLURM, Azure, Terraform, TrueNAS SCALE, Linux
Domains	Geospatial data pipelines, remote sensing, bioinformatics, proteomics, HPC, MLOps, industrial IoT, ontologies

Languages

English and Chinese (fluent) | German (professional proficiency) | Japanese (basic)