Mathias Vogel

Personal info

- 26/10/1997
- +41 78 209 77 41
- mathias.vogel@hotmail.ch
- Zürich

Links

- Portfolio
- Linkedin

Skills

- C++, C, Python, SQL, Matlab
- PyTorch, Tensorflow, Scikit-Learn, OpenCV, Pandas, Git, WANDB, Flask, Tensorflow-Lite,
- Computer Vision, 3D Vision, Diffusion Models, Distributed Training, Audio

Languages

- German (mother tongue)
- English (fluent)
- French (fluent)

Work Experience

EthonAI AG
Machine Learning Engineering Intern (Research), Full-time
Jul 2024 – Mar 2025

- Leading the development of a new vision-based industrial anomaly detection approach in a fast-paced environment.
- Developed an internal library to unify training and evaluation pipelines, boosting efficiency and reproducibility.

BlueOcean SWS
Data Scientist, Part-time
Mar 2023 – Mai 2024

- Used automated crawling and machine learning to enhance consumer insights software, leading to a substantial growth of customers.
- Improved data analysis software by adding Microsoft OCR and image-classification pipelines, enhancing user experience.

Media Technology Center ETHZ
Research Assistant, Part-time
Jun 2023 – Oct 2023

- Aimed to refine Text-to-Speech systems to sound more human-like in intonation and emotion.
- Participated in the development of a Swiss-German TTS system now used in major Swiss media companies.

Education

MSc Machine Learning & Signal Processing ETHZ
Zürich Sep 2021 – Apr 2024

- Strong focus on computer vision, specifically generative models such as diffusion models, flows, or auto-encoders.
- Relevant Subjects: Advanced Machine Learning, Deep Learning, Probabilistic AI, Computer Vision, 3D Vision, Big Data

BSc Electrical & Electronics Engineering EPFL
Lausanne Sep 2017 – Sep 2021

- Focus on signal processing and traditional machine learning.
- Participated in an ERASMUS exchange at TU Dresden, specializing in acoustics and advanced signal processing techniques.

Projects

Diffusion Models for 3D Point Cloud Denoising
Master's Thesis Google & ETHZ

- Developed a novel approach based on Diffusion Models for 3D point cloud denoising with potential applications in VR/AR or autonomous driving.
- The method achieved state-of-the-art results on established datasets.
- The resulting research paper was accepted to ECCV 2024.

Audio-Based Talking Head Generation
Semester Thesis Disney Research Studios Zürich

- Research in the field of audio-driven talking head generation for improved dubbing in movies.
- Created a multimodal generative model that can generate a video clip of lip movements from a speech recording.

Projects

Generative AI to Raise Climate-Change-Awareness

Datathon ETHZ Analytics Club

- Participated in a hackathon as part of a team, aiming to develop an app using AWS to raise awareness on climate change using generative image models.
- We developed a web application that demonstrates the effects of global warming, such as drought or rising sea levels, leveraging diffusion models powered by AWS solutions, including Sagemaker and Lambda.

Publications

P2P-Bridge: Diffusion Bridges for 3D Point Cloud Denoising

Mathias Vogel, Keisuke Tateno, Marc Pollefeys, Federico Tombari, Marie-Julie Rakotosaona, Francis Engelmann

European Conference on Computer Vision (ECCV) 2024

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Hobbies

- Music Production
- Electronics
- Trekking

References

Francis Engelmann

Google, ETHZ

francis.engelmann@ai.ethz.ch

Marie-Julie Rakotosaona

Google

mrakotosaona@google.com

Christian Henning

EthonAI AG

christian.henning@ethon.ai