

Emilien Seiler

PhD Student in Computer Vision | Computer Vision Laboratory (CVLab), EPFL

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PhD student at EPFL (Computer Vision Laboratory) working on 3D generative models, shape representation and shape optimization, with a first-author paper at **NeurIPS 2026**. Seeking a **research internship in 2027**.

Education

- 2025 – present **Ph.D. in Computer and Communication Sciences (EDIC)** | EPFL, Computer Vision Laboratory
- ▶ Advisor: Prof. Pascal Fua. Supported by the EDIC Fellowship.
 - ▶ First author of **Flow-Corrected Shape Optimization (NeurIPS 2026)**, a state-of-the-art framework for shape optimization in high-dimensional 3D generative models that leverages flow matching.
- 2023 – 2024 **Master's Thesis** | Harvard University, IACS
- ▶ Advisor: Prof. Pavlos Protopapas.
 - ▶ Developed a transfer-learning method that lets physics-informed neural networks solve stiff equations, published as **Stiff Transfer Learning for Physics-Informed Neural Networks**.
- 2021 – 2024 **M.Sc. in Computational Science and Engineering** | EPFL
- 2018 – 2021 **B.Sc. in Environmental Sciences and Engineering** | EPFL

Selected Publications

- 2026 **Flow-Corrected Shape Optimization: Taming Manifold Drift in High-Dimensional 3D Models**
Emilien Seiler, Nicolas Talabot, Yingxuan You, Federico Stella, Pascal Fua
NeurIPS 2026
- 2025 **Stiff Transfer Learning for Physics-Informed Neural Networks**
Emilien Seiler, Wanzhou Lei, Pavlos Protopapas
arXiv, 2025
- 2024 **Importance of OCT-derived biomarkers for the recurrence of central serous chorioretinopathy using statistics and predictive modelling**
Emilien Seiler, Léon Delachaux, Jennifer Cattaneo, Ali Garjani, Thibaud Martin, et al.
Scientific Reports, 2024
- [See all publications →](#)

Experience

- 2025 **Data Engineering Intern** | Liom
- ▶ Co-architected and deployed an end-to-end cloud data platform automating data pipelines for non-invasive glucose monitoring R&D.
- 2022 – 2023 **Data Science Intern** | Jules-Gonin Eye Hospital
- ▶ Engineered deep learning models on high-resolution OCT scans to discover 9 clinical biomarkers of CSCR recurrence; published as first author in **Scientific Reports (2024)**.
- 2021 – 2022 **Research Assistant** | EPFL
- ▶ NLP Lab: Trained T5 transformers via actor-critic reinforcement learning.
 - ▶ CVLab & SPC: Predicted nuclear fusion disruptions with deep learning.

Teaching & Supervision

- 2025 – present **Research Project Supervisor** | EPFL
- ▶ Supervised students on research semester projects at the Computer Vision Laboratory.

Skills

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| Research | 3D generative models · Flow matching & diffusion · Latent-space optimization · Shape representation (SDF, meshes, point clouds) · Differentiable rendering · Physics-informed ML |
| ML & Training | PyTorch · Hugging Face · Multi-GPU training (DDP) · SLURM / HPC clusters |
| 3D | PyTorch3D · nvdiffrast · trimesh · Open3D · Blender (Python) |
| Engineering | Python · C++ · CUDA · Linux · Git · Docker · GCP |
| Languages | French (native) · English (fluent, C1) |