Sacha Lewin

Montefiore Institute
University of Liège (Belgium)

Email: sacha.lewin@uliege.be
Scholar: rhsrPqIAAAAJ
ORCID: 0009-0006-4899-2207
Website: isach.be
GitHub: @iSach

Passionate about computer science, mathematics, and physics since my youth, I have been actively involved in open-source software development since the age of 13. This early interest guided my academic path, leading to my Master's thesis, where I conducted research on neural radiance fields for reconstructing dynamic 3D environments from images. I am currently pursuing a Ph.D. in deep learning at the AI for Science lab at ULiège, where my focus lies in developing infinite-dimensional generative models to enhance the representation of continuous spatiotemporal phenomena. My goal is to combine recent advancements in functional representations, such as neural operators and implicit neural representations, with generative modeling techniques to construct large-scale models that are well-suited for various scientific tasks, including inference, forecasting, and reanalysis.

EDUCATION

2023-Present **Ph.D. in Deep Learning** · University of Liège (Belgium)
Thesis: Infinite-dimensional Deep Generative Models for Spatiotemporal Data.
Advisor: Gilles Louppe.

2021-2023 **M.Sc. in Data Science & Engineering** · University of Liège (Belgium)
Thesis: Exploring Dynamic NeRFs for Reconstructing Soccer Scenes.
Advisor: Gilles Louppe.
Summa Cum Laude. Ranked 1st.

2018-2021 **B.Sc. in Engineering** · University of Liège (Belgium)
Major in computer science, minor in electronics.
Magna Cum Laude. Ranked 3rd.

WORK EXPERIENCE

2023 **Research Intern** · EVS Broadcast Equipment
Internship in the computer vision and graphics department for 3D reconstruction.

2020-2023 **Student instructor** · University of Liège (Belgium)
Mentoring of undergraduate students (Algebra, Calculus I & II, Data Structures & Algorithms, Advanced Computer Science).

PUBLICATIONS

2023 [1] **Dynamic NeRFs for Soccer Scenes** · [PDF, Code, Website]
Sacha Lewin, Maxime Vandegar, Thomas Hoyoux, Olivier Barnich, Gilles Louppe.
Proceedings of the 6th International Workshop on Multimedia Content Analysis in Sports.
2023.

FREE & OPEN-SOURCE SOFTWARE

2024-Present **VANO** · [Code]
Public reimplementation of Variational Autoencoding Neural Operators (Seidman et al.)

2023-Present **Nerfstudio** · [Code, Website]
Contributions to the NeRF framework Nerfstudio, notably the implementation of several dynamic models and losses, video datasets and parsers, and video synthesis features in the live interface.

2015-2021 **Ultra Cosmetics** · [Code, Website]
My first large-scale software project. Large open-source community & over 300,000 users. Allows Minecraft server owners to legally monetize their content.

AWARDS

2023 **Best Master's Thesis**, Montefiore Engineers Association (AIM).
2023 **Best Master's Thesis**, University of Liège & Toyota.