

SIRA Brown Bag Talk



Title: Geometry and Topology in the Era of Deep Learning: Revisiting “The Bitter Lesson”
Speaker: Bastian Grossenbacher Rieck, University of Fribourg
Date: Friday May 29, 2026 12:00–13:00 CEST
Place: Online – <https://uzh.zoom.us/j/64841027306?pwd=T8cVfpel2xRNQeUttvT7iff6Ppl8vb.1>

Abstract

The last years have served as an ample demonstration of the wisdom of Richard Sutton's “The Bitter Lesson,” i.e., the claim that, in the long run, general methods that are capable of better leveraging computational resources outperform methods that predominantly rely on “human-encoded” knowledge.

Against this backdrop, I will introduce the fields of geometric and topological deep learning, which are concerned with extending deep learning to other domains such as higher-order complexes, thus enabling models to leverage relationships beyond pairwise ones. This makes them a natural fit for a manifolds, meshes, and molecules.

After a brief overview of current research directions, successes, and failures, I will present my vision of a “Better Lesson” concerning future paradigms in deep learning.

Bio



BASTIAN GROSSENBACHER RIECK, M.Sc., Ph.D., is Professor of Machine Learning at the University of Fribourg and the Principal Investigator of the AIDOS Lab, which develops novel machine learning methods driven by geometry and topology.

Dr. Rieck is the recipient of multiple competitive grants, including an ERC Starting Grant. His research appears in leading venues like ICLR, ICML, and NeurIPS, where it has been recognized with spotlight presentations and best paper awards. He serves the community by being an area chair for major conferences, a role in which he has been distinguished several times for outstanding service.

Dr. Rieck is a member of ELLIS, the European Laboratory for Learning and Intelligent Systems, and AI-LIFE, the International Network of Artificial Intelligence for the Life Sciences. Moreover, Dr. Rieck serves as a co-director of AATRAN, the Applied Algebraic Topology Research Network. He received his M.Sc. degree in mathematics, as well as his Ph.D. in computer science, from Heidelberg University in Germany, graduating both times with distinction.