

Colloquium

The Curious Geometry of Neural Network Manifolds

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Host: Julian Fischer & Tamas Hausel

Fix a neural network architecture and consider the set of functions obtained by varying its parameters. The resulting "manifold" is a rather peculiar geometric object: its parametrization is non-injective (due to overparametrization), it has evil singularities, and it is not even a closed set. A complete mathematical theory for such objects is still lacking, and these geometric peculiarities give rise to all sorts of "funny" behaviors and troubles at the computational level. In this talk, I will share some insights into the geometry of this manifold and discuss how to deal with its structure in a principled manner to solve gradient flow equations.

Wednesday, December 9, 2026 02:15pm - 05:30pm
Raiffeisen Lecture Hall, Central Building

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