

MAKSIM ZHDANOV

email · website · github · google scholar · twitter

research: scalable geometric deep learning, physics simulations in latent space

EDUCATION

PhD in Machine Learning 2023 – 2027

University of Amsterdam, AMLab

· Advisors: Max Welling & Jan-Willem van de Meent

MSc in Computer Science 2019 – 2022

TU Dresden

· GPA: 1.4 (excellent)

· Thesis: analyzing brain connectivity with generative modelling

BSc in Physics 2015 – 2019

Saint Petersburg State University

· GPA: 4.8/5.0 (with honours)

· Thesis: simulating skin with molecular dynamics

TECHNICAL SKILLS

Code: Python, C++, MATLAB

ML: JAX + Flax (projects [1](#), [2](#), [3](#)), PyTorch, HPC

PUBLICATIONS

Erwin: A Tree-based Hierarchical Transformer for Large-scale Physical Systems

Maksim Zhdanov, Max Welling, Jan-Willem van de Meent

preprint 2025 [arxiv](#) [code](#)

Clifford Steerable Convolutional Neural Networks

Maksim Zhdanov, David Ruhe, Maurice Weiler, Ana Lucic, Johannes Brandstetter, Patrick Forré

ICML 2024 [arxiv](#) [code](#) [blog](#)

Implicit Convolutional Kernels for Steerable CNNs

Maksim Zhdanov, Nico Hoffmann, Gabriele Cesa

NeurIPS 2023 [arxiv](#) [code](#) [blog](#)

Investigating Brain Connectivity with Graph Neural Networks and GNNExplainer

Maksim Zhdanov, Saskia Steinmann, Nico Hoffmann

ICPR 2022 (Oral) [arxiv](#) [code](#)

AdS-GNN – a Conformally Equivariant Graph Neural Network

Maksim Zhdanov, Nabil Iqbal, Erik Bekkers, Patrick Forré

ICLR 2025 MLMP workshop [arxiv](#) [code](#)

WORK EXPERIENCE

Research Assistant

Apr 2022 – Apr 2023

Helmholtz AI, Dresden

- generative modeling approaches for experimental physics data ([workshop paper](#))

Research Student

Sep 2020 – Apr 2022

Helmholtz AI, Dresden

- representation learning to study schizophrenia ([workshop paper](#))
- neural network-based solver for PDEs and inverse problems ([repo](#))

Research Student

May 2020 – Dec 2020

TU Dresden

- data analysis of clinical treatment of leukaemia