MAKSIM ZHDANOV | Curriculum Vitae

maxxxzdn@gmail.com

Research interests

- **Geometric Deep Learning**: Equivariant Deep Learning, Clifford Deep Learning.
- **Generative Modeling**: geometric latent space models, learning on non-Euclidean domains.
- **AI4Science**: physics simulations, PDE modeling, physics-inspired deep learning.

I also find causality and its intersection with category theory quite interesting.

Experience

RESEARCH ASSISTANT — 04/2022 - ongoing
Helmholtz AI @ Helmholtz-Zentrum Dresden-Rossendorf

STUDENT ASSISTANT — 09/2020 - 03/2022
Helmholtz AI @ Helmholtz-Zentrum Dresden-Rossendorf

STUDENT ASSISTANT — 05/2020 - 12/2020
The Institute for Medical Informatics and Biometry

Education

TU DRESDEN — 10/2019 - 3/2022
M.Sc. in Computer Science, GPA: 1.4. — Dresden, Germany
Major: Machine Learning for Life sciences

SAINT PETERSBURG STATE UNIVERSITY — 9/2015 - 7/2019
B.Sc. in Physics, GPA: 1.2, with honours. — Saint Petersburg, Russia
Major: Molecular Biophysics

Conference proceedings

- **Zhdanov, M.**, Steinmann, S., & Hoffmann, N. (2022). Investigating Brain Connectivity with Graph Neural Networks and GNNExplainer, ICPR 2022 (Oral).

Workshop contributions

- **Zhdanov, M.**, Steinmann, S., & Hoffmann, N. (2022). Learning Generative Factors of EEG Data with Variational auto-encoders, Deep Generative Models workshop @ MICCAI (Oral).

Other publications & preprints

- **Zhdanov, M.**, Hoffmann, N. & Cesa, G. (2022). Implicit Neural Filters for Steerable CNNs (in progress)
- **Zhdanov, M.**, Randolph, L., Kluge, T., Motoaki, N., Gutt, C., Ganeva, M. & Hoffmann, N. (2022). Amortized Bayesian Inference of GISAXS Data with Normalizing Flows
- **Zhdanov, M.** (2022). Analyzing Generative Factors of Functional Connectivity with Variational Autoencoders, Master thesis.

Selected projects

- Implicit neural filters for steerable CNNs with application to point cloud data (in progress).
- Simulation-based inference for inverse scattering problems.
- Disentangled representation learning with graph VAEs for neuroimaging problems.
- Learning PDE from thermoimaging data with physics-informed NNs.

Skills

PROGRAMMING LANGUAGE	Python | C++ | R
FRAMEWORKS & TOOLS	Git | GROMACS | AutoDock Vina
LIBRARIES	PyTorch | escnn | PyTorch Geometric | NumPy | Pandas
CONTRIBUTED TO	Neural Solvers
LANGUAGES	**Native:** Russian | **Fluent:** English | **Intermediate:** German

Community service

MACHINE LEARNING AND THE PHYSICAL SCIENCES WORKSHOP @ NEURIPS 2022 — 09/2022
reviewer — online, USA

SYMMETRY AND GEOMETRY IN NEURAL REPRESENTATIONS WORKSHOP @ NEURIPS 2022 — 09/2022
reviewer — online, USA

ICPR 2022 — 05/2022
reviewer — online, Canada

Extracurricular activities

SNI 2022 CONFERENCE — 09/2022
poster presentation — Berlin, Germany

LONDON GEOMETRY AND MACHINE LEARNING SUMMER SCHOOL — 07/2022
poster presentation + project — online, UK

SWISS EQUIVARIANT WORKSHOP — 07/2022
participant — Lausanne, Switzerland

MACHINE LEARNING SUMMER SCHOOL — 07/2022
poster presentation — Krakow, Poland

HZDR MACHINE LEARNING JOURNAL CLUB — 09/2020 - ongoing
active participant — Dresden, Germany

HELMHOLTZ AI CONFERENCE — 06/2022
poster presentation — Dresden, Germany

INTERNATIONAL AI ARCHEOLOGY CHALLENGE — 04/2022
3rd place — online, Israel

5. WORKSHOP BIOINFORMATICS MEETS MACHINE LEARNING — 12/2021
Talk: "Investigating Brain Connectivity with Graph Neural Networks and GNNExplainer" — online, Germany

MACHINE LEARNING SUMMER SCHOOL — 08/2021
participant — online, Taiwan

CASUS WORKSHOP — 09/2021
Talk: "Investigating Brain Connectivity with Graph Neural Networks and GNNExplainer" — Gorlitz, Germany

HIDA COVID-DATA CHALLENGE
participant

04/2021
online, Germany