

DR. ARTEM MOSKALEV

✉ ammoskalevartem@gmail.com | 🌐 amoskalev.github.io | ☎ +31 6 2711 7492

My research focuses on geometric deep learning and language models, with a keen interest in developing geometry-aware methods that efficiently learn from unlabeled data. I am driven by the challenge of scaling AI to tackle complex scientific problems that conventional methods struggle to solve.

EDUCATION

University of Amsterdam

Amsterdam

Degree: PhD in Machine Learning

August 2019 - September 2023

Advisor: prof. Arnold Smeulders

Research: geometric deep learning, self-supervised learning, inductive biases

Thesis: Representation Learning with Structured Invariance

Skolkovo Institute of Science and Technology

Moscow

Degree: MSc in Applied Mathematics

September 2017 - June 2019

Advisor: prof. Anh-Huy Phan

Research: inverse problems, signal processing, computational imaging

Thesis: Trainable regularization for Wiener filter deconvolution (top 3%)

WORK EXPERIENCE

Johnson and Johnson

AI/ML for Drug Discovery

Research Scientist

April 2024 - Current

Postdoctoral Researcher

September 2023 - April 2024

In JnJ, I work on combining geometric neural networks and large language models for molecule generation and representation learning.

Samsung

AI Algorithms

Machine Learning Intern

May 2018 - August 2018

In Samsung I worked on computer vision and image processing. In particular, we tackled image enhancement and restoration with generative models.

Moscow State University

Neuroscience Department

External Research Assistant

February 2016 - March 2017

My work as a research assistant involved mathematical modeling and embedded software engineering. I implemented PDE models to describe the behavior of the neurons under the mechanical influence.

SELECTED PUBLICATIONS

- [1] Artem Moskalev et al. “SE(3)-Hyena Operator for Scalable Equivariant Learning (**Best Paper Award**)”. In: *ICML workshop on Geometry-grounded Representation Learning and Generative Modeling (ICML-GRaM)*. 2024.

DR. ARTEM MOSKALEV

✉ ammoskalevartem@gmail.com | 🌐 amoskalev.github.io | ☎ +31 6 2711 7492

- [2] Junjie Xu* and Artem Moskalev* et al. “Beyond Sequence: Impact of Geometric Context for RNA Property Prediction”. In: *Under review. arxiv preprint: 2410.11933*. 2024.
- [3] Mehdi Yazdani-Jahromi and Artem Moskalev et al. “HELM: Hierarchical Encoding for mRNA Language Modeling”. In: *Under review. arxiv preprint: 2410.12459*. 2024.
- [4] Artem Moskalev et al. “On genuine invariance learning without weight-tying”. In: *ICML workshop on Topology, Algebra, and Geometry in Machine Learning (ICML TAG-ML)*. 2023.
- [5] Artem Moskalev et al. “Contrasting quadratic assignments for set-based representation learning”. In: *European Conference on Computer Vision (ECCV)*. 2022.
- [6] Artem Moskalev et al. “LieGG: Studying Learned Lie Group Generators (**Spotlight**)”. In: *Advances in Neural Information Processing Systems (NeurIPS)*. 2022.
- [7] Artem Moskalev, Ivan Sosnovik, and Arnold W.M. Smeulders. “Relational Prior for Multi-Object Tracking (**Oral**)”. In: *2nd Visual Inductive Priors for Data-Efficient Deep Learning Workshop*. 2021. URL: <https://openreview.net/forum?id=1MZnMuu8mg4>.
- [8] Ivan Sosnovik, Artem Moskalev, and Arnold Smeulders. “DISCO: accurate Discrete Scale Convolutions (**Best Paper Award**)”. In: *British Machine Vision Conference (BMVC)*. 2021.
- [9] Ivan Sosnovik*, Artem Moskalev*, and Arnold W.M. Smeulders. “Scale Equivariance Improves Siamese Tracking”. In: *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*. 2021.

RELEVANT SKILLS

Programming and Computing

- Code: python, bash, R, SQL, C++ (basic)
- Frameworks: pytorch, huggingface, pytorch-geometric, e3nn, jax, sklearn, cvxpy, amplide
- Scholar: scholar.google.com/citations?user=mh1CSCEAAAAJ&hl
- GitHub: github.com/amoskalev

Languages

- Fluent in English and Russian

TEACHING EXPERIENCE

Statistics, Simulation and Optimization

Teaching Assistant, 6EC

University of Amsterdam

2019 - 2022

Introduction to Image Processing


Lecturer

Skolkovo Institute of Science and Technology

February 2019 - March 2019

A mini-course for graduate students to introduce the basics of digital image processing.

DR. ARTEM MOSKALEV

✉ ammoskalevartem@gmail.com |  amoskalev.github.io | ☎ +31 6 2711 7492

INTERN AND STUDENT SUPERVISION

Junjie Xu: Beyond Sequence: Impact of Geometric Context for RNA Property Prediction

Mehdi Yazdani-Jahromi: HELM: Hierarchical Encoding for mRNA Language Modeling

Evgenia Ilia: Efficient self-supervised learning for real-world tabular data

Harm Manders: Dense contrastive learning for microscopy cell segmentation

Lotte Bottema: Deep sequence modeling for trajectory forecasting

Nadia Isiboukaren: Space-Time-Slot correspondence for video object segmentation

Jorrit Ypenga: Domain-regularization for siamese object tracking

ADDITIONAL ACHIEVEMENTS

- Best paper/Spotlight/Oral at BMVC 2021, VIP@ICCV 2021, NeurIPS 2022, GRaM@ICML 2024
- Reviewer at NeurIPS, ICML, ECCV/ICCV, ICLR
- Skoltech graduate merit scholarship

REFERENCES

Available upon request.