

# ARTEM MOSKALEV

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## EDUCATION

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### University of Amsterdam, Delta Lab

PhD in Machine Learning

*Advisor:* prof. Arnold Smeulders

*Research agenda:* self-supervised learning, equivariant representations, modeling inductive biases in neural networks

**Amsterdam**

August 2019 - present

### Skolkovo Institute of Science and Technology

MSc in Applied Mathematics

*Advisor:* prof. Anh-Huy Phan

*Research agenda:* inverse problems, signal processing, computational imaging

*Thesis:* Trainable regularization for Wiener filter deconvolution

**Moscow**

September 2017 - June 2019

## SELECTED PUBLICATIONS

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- [1] Artem Moskalev et al. “Contrasting quadratic assignments for set-based representation learning”. In: *European Conference on Computer Vision (ECCV)*. 2022.
- [2] Artem Moskalev et al. “LieGG: Studying Learned Lie Group Generators”. In: *Advances in Neural Information Processing Systems (NeurIPS)*. 2022.
- [3] 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>.
- [4] Ivan Sosnovik, Artem Moskalev, and Arnold Smeulders. “DISCO: accurate Discrete Scale Convolutions (**Best Paper Award**)”. In: *British Machine Vision Conference (BMVC)*. 2021.
- [5] Ivan Sosnovik, Artem Moskalev, and Arnold W.M. Smeulders. “How to Transform Kernels for Scale-Convolutions”. In: *2nd Visual Inductive Priors for Data-Efficient Deep Learning Workshop*. 2021. URL: [https://openreview.net/forum?id=rTpTF\\_-f0wm](https://openreview.net/forum?id=rTpTF_-f0wm).
- [6] 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.

## TEACHING EXPERIENCE

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### 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

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

## STUDENT SUPERVISION

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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

## WORK EXPERIENCE

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### Samsung RnD Institute

*Machine Learning Intern*

**AI Algorithms Lab, Moscow**

June 2018 - August 2018

The main direction of my work in Samsung included computer vision and image processing. In particular, we worked on the problem of image enhancement with generative models.

### Otkritie FC

*Data Science Intern*

**Department of Statistical Analysis, Moscow**

May - September 2017

My work included statistical analysis and anomaly detection. I was responsible for the adaptation and deployment of the machine learning algorithms and statistical models.

### Moscow State University of Medicine

*External Research Assistant*

**Moscow**

February 2016 - March 2017

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

## RELEVANT SKILLS

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### Programming and Computing

- Languages:
  - Python, R, SQL, Bash, C++ (basic)
- Frameworks:
  - Pytorch, JAX, Sklearn, Cvxpy, Amplide
- Systems:
  - Comfortable in GNU/Linux and Microsoft Windows environments
- GitHub profile: [github.com/amoskalev](https://github.com/amoskalev)
- Google Scholar: [scholar.google.com/citations?user=mh1CSCEAAAAJ&hl](https://scholar.google.com/citations?user=mh1CSCEAAAAJ&hl)

### Languages

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- Fluent in English and Russian

## ADDITIONAL ACHIEVEMENTS

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- Reviewer at ECCV/ICCV, BMVC, WACV, Computer Vision and Image Understanding Journal
- Best paper award BMVC 2021
- Skoltech graduate merit scholarship
- Finalist of all-Russian "Umnik" innovative projects contest

## REFERENCES

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*Available upon request.*