Artem Moskalev

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Education

University of Amsterdam, Delta Lab **Amsterdam**
PhD in Machine Learning August 2019 - present
Advisor: prof. Arnold Smeulders
Research agenda: self-supervised learning, equivariant representations, modeling inductive biases in neural networks

Skolkovo Institute of Science and Technology **Moscow**
MSc in Applied Mathematics September 2017 - June 2019
Advisor: prof. Anh-Huy Phan
Research agenda: inverse problems, signal processing, computational imaging
Thesis: Trainable regularization for Wiener filter deconvolution

Selected Publications

[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 **(Spotlight)**". 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_-fOwm.

[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

Statistics, Simulation and Optimization **University of Amsterdam**
Teaching Assistant, 6EC 2019 - 2022

Introduction to Image Processing **Skolkovo Institute of Science and Technology**
Lecturer February 2019 - March 2019
A mini-course for graduate students to introduce the basics of digital image processing.

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Student Supervision

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

Samsung RnD Institute **AI Algorithms Lab, Moscow**
Machine Learning Intern 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 **Department of Statistical Analysis, Moscow**
Data Science Intern 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 **Moscow**
External Research Assistant 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

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
- Google Scholar: scholar.google.com/citations?user=mh1CSCEAAAAJ&hl

Languages

- Fluent in English and Russian

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Additional Achievements

- Reviewer at ECCV/ICCV, BMVC, WACV, Computer Vision and Image Understanding Journal
- Best paper award BMVC 2021
- Skoltech graduate merit scholarship

References

Available upon request.