

Ivan Sosnovik

PhD student,
University of Amsterdam

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Research Interests

Computer Vision, Machine Learning, Invariance and Equivariance in Neural Networks, Representation Learning, Structured Neural Networks

Education

2017 – Present	PhD, Computer Vision , University of Amsterdam, Amsterdam, The Netherlands <i>“Leaning Symmetries in Computer Vision”</i>
2015 – 2017	MSc with Honors, Applied Mathematics and Physics , Moscow Institute of Physics and Technology, Moscow, Russia Skolkovo Institute of Science and Technology, Moscow, Russia <i>“Neural Networks for Topology Optimization”</i>
2011 – 2015	BSc with Honors, Applied Mathematics and Physics , Moscow Institute of Physics and Technology, Moscow, Russia <i>“Two-dimensional system for the prior positioning of the STM”</i>

Highlights

Scholarships	<i>“Foundation for the Development of Innovation Education”</i> (2012 – 2014)
Awards	Kaggle <i>“Leaf Classification”</i> competition [interview] National Physics Olympiad for Students 2013 Moscow Physics Olympiad 2011 Phystech Mathematical Olympiad 2011 Phystech Physics Olympiad 2011 Moscow Mathematical Olympiad 2010 Moscow Physics Olympiad 2010

Academic Experience

Teaching	MSc course Applied Machine Learning , University of Amsterdam, 2017 – 2020 MSc, PhD course iOS Game Development , Skolkovo Institute of Science and Technology, 2016
Reviewing	CVPR 2018, Computer Methods in Applied Mechanics and Engineering
Supervision	Jan Jetze Beitler, Michał Szmaja, Gongze Cao, Daan Ferdinandusse, Jonne Goedhart

Work Experience

- 08.2016 – 09.2016 **Intern, SAP Labs**
Developed prototypes for a smart fleet management system. Used SAP HCP for the data aggregation and analysis. Designed software and hardware solutions for tracking the engine's and vehicle's parameters.
- 02.2016 – 08.2016 **iOS Developer, Teachbase**
Developed a client-server iOS application. Provided users with an opportunity of watching educational courses. Developed a platform for testing. [\[link\]](#)
- 09.2014 – 06.2015 **Laboratory Assistant, P.L. Kapitza Institute for Physical Problems**
Studied nano-structured materials. Designed a system for the prior positioning of a needle of the scanning tunneling microscope. Developed software for data analysis and control.

Skills

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| Coding | Python, Objective-C, Swift, C |
| Technical | Cryogenics, Vacuum Equipment, Scanning Tunneling Microscopy |

Publications

- 2020 I. Sosnovik*, A. Moskalev*, A. Smeulders, “*Scale Equivariance Improves Siamese Tracking*”, Under Submission, [\[pdf\]](#)
- 2019 I. Sosnovik, M. Szmaja, A. Smeulders, “*Scale-Equivariant Steerable Networks*”, ICLR 2020, [\[pdf\]](#)[\[code\]](#)
- A. Atanov, A. Volokhova, A. Ashukha, I. Sosnovik, D. Vetrov, “*Semi-Conditional Normalizing Flows for Semi-Supervised Learning*”, ICML INNF 2019, [\[pdf\]](#)[\[code\]](#)
- I. Sosnovik, I. Oseledets, “*Neural Networks for Topology Optimization*”, Russian Journal of Numerical Analysis and Mathematical Modelling, 34(4) [\[pdf\]](#)[\[code\]](#)
- 2018 J.J. Beitler, I. Sosnovik, A. Smeulders, “*PIE: Pseudo-Invertible Encoder*”, [\[pdf\]](#)