

Education

Oct 2017 — Present	ETHZ	Zürich, Switzerland
<ul style="list-style-type: none"> • PhD in tensor algebra application for learning on visual data 		
Sep 2015 — Jul 2017	MIPT - National Research University	Moscow, Russia
<ul style="list-style-type: none"> • MSc in Computer Science. GPA: 4.75 / 5.0 • Coursework: Linux Kernel Development, Windows Kernel Development 		
Sep 2015 — Jun 2017	Skoltech	Moscow, Russia
<ul style="list-style-type: none"> • MSc in Computer Science. GPA: 4.57 / 5.0 • Coursework: Numerical Linear Algebra, Bayesian Methods, Optimization Methods, Neural Networks, Machine Learning 		
Sep 2014 — Jun 2015	Innopolis University	Kazan, Russia
<ul style="list-style-type: none"> • BSc in Computer Science, 2015. GPA: 4.92 / 5.0 		
Sep 2010 — Jul 2014	Ural Federal University	Yekaterinburg, Russia
<ul style="list-style-type: none"> • BSc in Electrical Engineering, 2014. GPA: 4.96 / 5.0 		

Awards

2017	Awarded	Diploma with honors, Moscow Institute of Physics and Technology
2014	Awarded	Diploma with honors, Ural Federal University
2012	Finalist	Russian Math Olympiad
2011	Finalist	Russian Math Olympiad
2010	Winner	Student Math Olympiad, Ural Federal University

Selected Publications

- **Usvyatsov M.**, Makarova A., Ballester-Ripoll R., Rakhuba M., Krause A., Schindler K. C-Pic Gradients: Learning Low-Rank Embeddings of Visual Data via Differentiable Cross-Approximation. ICCV, 2021
- Huang S., Gojcic Z., **Usvyatsov M.**, Wieser A., Schindler K. PREDATOR: Registration of 3D Point Clouds with Low Overlap. CVPR, 2021
- Huang S., **Usvyatsov M.**, Schindler K. Indoor Scene Recognition in 3D. IROS, 2020
- Hackel T., **Usvyatsov M.**, Galliani S., Wegner J.D., Schindler K. Inference, Learning and Attention Mechanisms that Exploit and Preserve Sparsity in Convolutional Networks. IJCV, 2020
- **Usvyatsov M.**, Schindler K. Visual recognition in the wild by sampling deep similarity functions. ICRA 2019
- Borisyak M., **Usvyatsov M.**, Mulhearn M., Shimmin C., Ustuzhanin A. Muon trigger for mobile phones. Journal of Physics: Conference Series, 2017

Summer Schools & Hackathons

Oct 2019	“Brainhack” Worked on classifying raw EEG data. Python, Pytorch.	ETHZ (Zürich, Switzerland)
Aug 2017	“Deep Bayes” Discussed Bayesian techniques in deep learning methods.	HSE - National Research University (Moscow, Russia)
Jul 2017	“Pre-doc summer school on learning systems” Discussed the basics of learning theory.	ETHZ (Zürich, Switzerland)
Jul 2016	“Mathematical methods for high-dimensional data analysis” Learned topological data analysis, sketching and streaming.	Technical University of Munich (Munich, Germany)

Employment

Research Intern <ul style="list-style-type: none">• Research Intern at Mobile Vision Group	Google	July — Oct 2021, online
ML Intern <ul style="list-style-type: none">• Research Intern at Special Projects Group	Apple	Apr — Aug 2020, Zürich, Switzerland
Software Engineering Intern <ul style="list-style-type: none">• Applied LSH for SPAM detection• Developed emails import/export system	ProtonMail	Jun — Aug 2017, online
Research Intern <p>Worked with Prof. Andrey Ustyuzhanin in close collaboration with CERN.</p> <ul style="list-style-type: none">• Worked on muon tracks simulation with Generative Adversarial Networks• Developed efficient architecture (50x to 30% FLOPS speedup, depending on the problem)	Yandex	Jun 2016 — Jun 2017, Moscow, Russia

Teaching

Teaching assistant of **Prof. Konrad Schindler**.

- Image Interpretation, Fall 2017, 2018, 2019, 2020, Zürich, Switzerland

Course instructor.

- Introduction to Deep Learning, May 2017, April 2021, Yerevan, Armenia
- Introduction to Scientific Computing, Fall 2018, 2019, 2020, Zürich, Switzerland

Teaching assistant of **Prof. Stamatios Lefkimmiatis**.

- Signal and Image Processing, Feb — Apr 2017, Moscow, Russia

Research Intern <p>Worked with Prof. Evgeni Magid at Intelligent Robotic Systems Lab.</p> <ul style="list-style-type: none">• Applied preview-control algorithm for Stable Bipedal Locomotion problem	Innopolis University	May 2015 – Jul 2015, Kazan, Russia
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Technical Skills

Experienced:

- Python • C/C++11 • Ruby • Go
- Libraries: pytorch • pybind11 • Open3D • OpenCV • Numpy/Scipy • Scikit-Learn • Pandas • Matplotlib • Tensorflow
- Development environment: Git • CMake • Bazel • Vim • Jupyter • VS Code • Visual Studio
- Other: Linux Kernel • PostgreSQL • Garmin SDK • \LaTeX

Familiar:

- Matlab • Bash • R • JS • Wolfram • Assembly • PHP
- Libraries: Cuda • Caffe • Sympy • NLTK • CVXPY
- Other: Windows Kernel • QT • SWIG • SolidWorks

Languages

- English - Advanced • Russian - Mother tongue • German - Basic