Switzerland

Mikhail (Misha Gutman) Usvyatsov

aelphy.github.io

Technical Skills

Experienced:

- Python • C/C++11 • Ruby • Go
- Libraries: Halide • pytorch • jax/flax • Tensorflow • pybind11 • Open3D • OpenCV • Numpy/Scipy • Matplotlib
- 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 • Scikit-Learn • Pandas • NLTK • CVXPY
- Other: Windows Kernel • QT • SWIG • SolidWorks

Employment

Software Engineer — Google — **Nov 2022 — Present, Zürich, Switzerland**

- Software Engineer at On-Device Performance Group, NDA

Research Intern — Google — **July — Oct 2021, online**

- Research Intern at Mobile Vision Group, NDA

ML Intern — **Apple** — **Apr — Aug 2020, Zürich, Switzerland**

- ML Intern at Special Projects Group, NDA

Software Engineering Intern — **ProtonMail** — **Jun — Aug 2017, online**

- Applied LSH for SPAM detection
- Developed emails import/export system

Research Intern — **Yandex** — **Jun 2016 — Jun 2017, Moscow, Russia**

Worked with **Prof. Andrey Ustyuzhanin** in close collaboration with CERN.

- Worked on muon tracks simulation with Generative Adversarial Networks
- Developed efficient architecture (50x to 30% FLOPS speedup, depending on the problem)

Research Intern — **Innopolis University** — **May 2015 — Jul 2015, Kazan, Russia**

Worked with **Prof. Evgeni Magid** at Intelligent Robotic Systems Lab.

- Applied preview-control algorithm for Stable Bipedal Locomotion problem

Teaching

Teaching assistant of:

- **Prof. Konrad Schindler**: Image Interpretation, Fall 2017-2021 Zürich, Switzerland
- **Prof. Stamatios Lefkimmiatis**: Signal and Image Processing, Feb-Apr 2017, Moscow, Russia

Course instructor:

- Introduction to Deep Learning, May 2017, April 2021, Yerevan, Armenia
- Introduction to Scientific Computing, Fall 2018-2023 Zürich, Switzerland

Awards

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

Selected Publications

- **Usvyatsov M.,** Ballester-Rippol R., Bashaeva L., Schindler K., Ferrer G., Oseledets I. T4DT: Tensorizing Time for Learning Temporal 3D Visual Data. BMVC, 2022.
- **Usvyatsov M.,** Ballester-Rippol R., Schindler K. tntorch: Tensor Network Learning with PyTorch. JMLR, 2022.
- **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 & Hackhathons

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)

Education

Oct 2017 — Nov 2022 **ETH Zürich** **Zürich, Switzerland**

- **PhD** in tensor algebra applications for learning on visual data

Sep 2015 — Jul 2017 **MIPT - National Research University** **Moscow, Russia**

- **MSc** in Computer Science. GPA: 4.75 / 5.0
- Coursework: Linux Kernel Development, Windows Kernel Development

Sep 2015 — Jun 2017 **Skoltech** **Moscow, Russia**

- **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**

- **BSc** in Computer Science, 2015. GPA: 4.92 / 5.0

Sep 2010 — Jul 2014 **Ural Federal University** **Yekaterinburg, Russia**

- **BSc** in Electrical Engineering, 2014. GPA: 4.96 / 5.0

Languages

• English - Advanced • Russian - Native • German - Intermediate • Hebrew - Elementary