SERGEY PROKUDIN

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Universitätstrasse 6, Zürich, Switzerland, 8092
Homepage Google Scholar GitHub

APPOINTMENTS

Eidgenössische Technische Hochschule (ETH), Zürich
Senior Scientist and Lecturer — *March 2024 – Present*
Postdoctoral Researcher — *January 2021 – March 2024*
Computer Vision and Learning Group (Prof. Dr. Siyu Tang)

EDUCATION

Max Planck Institute for Intelligent Systems, Tübingen — *January 2016 – December 2020*
PhD, thesis: "Robust and Efficient Deep Visual Learning"
Perceiving Systems Department (Prof. Dr. Michael J. Black)
Supervisors: Dr. Peter Gehler, Dr. Sebastian Nowozin

Lomonosov Moscow State University — *September 2005 – June 2010*
Diploma of Higher Education (MSc equivalent)
Faculty of Computational Mathematics and Cybernetics

RESEARCH STATEMENT

I work across computer vision, computer graphics, and machine learning. My research focuses on representations of real-world 3D and 4D phenomena: reconstructing geometry, modelling motion, rendering photorealistic scenes, and extracting structure from visual observations.

I am increasingly focused on spatial intelligence: the bridge between geometric reconstruction and higher-level reasoning. My goal is to build models that form and update internal maps to answer three questions: what is where, what changes, and how a machine can interact with its environment.

SELECTED PUBLICATIONS

Full list on Google Scholar.

[1] J. Gajardo, M. Volpi, M. Mihajlovic, Siyu Tang, L. Roth, and **Sergey Prokudin**. "GrowFields: Compositional 4D Neural Fields for Topology-Changing Plant Growth." *European Conference on Computer Vision (ECCV)*, 2026.

[2] Y. Chen, Y. Wang, X. Zhang, **Sergey Prokudin**, and Siyu Tang. "GGPT: Geometry-Grounded Point Transformer." *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2026.

[3] F. Rajič, H. Xu, M. Mihajlovic, S. Li, I. Demir, E. Gündoğdu, L. Ke, **Sergey Prokudin**, Marc Pollefeys, and Siyu Tang. "Multi-view 3D Point Tracking." *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2025. **(Oral)**

[4] Y. Chen, M. Mihajlovic, X. Chen, Y. Wang, **Sergey Prokudin**, and Siyu Tang. "SplatFormer: Point Transformer for Robust 3D Gaussian Splatting." *International Conference on Learning Representations (ICLR)*, 2025. **(Spotlight)**

[5] M. Mihajlovic, **Sergey Prokudin**, Siyu Tang, R. Maier, F. Bogo, T. Tung, and E. Boyer. "SplatFields: Neural Gaussian Splats for Sparse 3D and 4D Reconstruction." *European Conference on Computer Vision (ECCV)*, 2024.

[6] X. Chen, M. Mihajlovic, S. Wang, **Sergey Prokudin**, and Siyu Tang. "Morphable Diffusion: 3D-Consistent Diffusion for Single-image Avatar Creation." *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.

[7] M. Mihajlovic, **Sergey Prokudin**, Marc Pollefeys, and Siyu Tang. "ResFields: Residual Neural Fields for Spatiotemporal Signals." *International Conference on Learning Representations (ICLR)*, 2024. **(Spotlight)**

[8] **Sergey Prokudin**, Qianli Ma, Maxime Raafat, Julien Valentin, and Siyu Tang. "Dynamic Point Fields." *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2023. **(Oral)**

[9] K. Karunratanakul, **Sergey Prokudin**, Otmar Hilliges, and Siyu Tang. "HARP: Personalized Hand Reconstruction from a Monocular RGB Video." *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.

[10] **Sergey Prokudin**, Michael J. Black, and Javier Romero. "SMPLpix: Neural Avatars from 3D Human Models." *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2021.

[11] **Sergey Prokudin**, Christoph Lassner, and Javier Romero. "Efficient Learning on Point Clouds with Basis Point Sets." *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2019.

[12] **Sergey Prokudin**, Peter Gehler, and Sebastian Nowozin. "Deep Directional Statistics: Pose Estimation with Uncertainty Quantification." *European Conference on Computer Vision (ECCV)*, 2018.

SUPERVISION & LEADERSHIP

Project Leader: "Surgical Digital Twins" subproject of PROFICIENCY, an Innosuisse Flagship Project on data-driven surgical training. Led the research concept for the SurgiScope 3D training platform, developed with ZHAW and Balgrist.

Student Supervision: co-supervised PhD students and 20+ MSc, BSc, and semester projects at ETH Zürich, several resulting in publications: Marko Mihajlovic [5, 7], Yutong Chen [2, 4], Xiyi Chen [6], Frano Rajič [3], and Joaquin Gajardo [1].

TEACHING EXPERIENCE

Lecturer:
"Computer Vision" *Autumn Semester 2024, 2025*
"Digital Humans" *Spring Semester 2024, 2025, 2026*

Lead Teaching Assistant:
"Digital Humans" *Spring Semester 2023*

Teaching Assistant:
"Linear Algebra" *Autumn Semester 2021 – 2023*

INDUSTRY EXPERIENCE

Amazon, Body Labs *July 2019 – December 2019*
Applied Science Intern: neural human avatar rendering (publication [10]).

Amazon, Body Labs *August 2018 – January 2019*
Applied Science Intern: point-cloud encoding for 3D shape analysis (publication [11]).

Kaspersky Lab, Detection Methods Analysis Team
Senior Research Developer — *April 2013 – December 2015*
Research Developer — *April 2011 – March 2013*
Malware Analyst — *July 2008 – March 2011*
Built machine learning systems for automated malware detection: a decision-tree system for in-lab software classification and clustering, antivirus signature technology based on locality-sensitive hashing, and an early false-positive detection system, deployed on millions of devices.

SELECTED PATENTS

[P1] M. Zaiss, F. Glang, **Sergey Prokudin**, and K. Scheffler. "Machine learning based processing of magnetic resonance data, including uncertainty quantification." *U.S. Patent No. 11,965,946.* 2024.

[P2] **Sergey Prokudin**, J. Romero Gonzalez-Nicolas, and Michael J. Black. "Image generation from 3D model using neural network." *U.S. Patent No. 11,403,800.* 2022.

[P3] J. Romero Gonzalez-Nicolas, **Sergey Prokudin**, and Christoph Lassner. "Rapid point cloud alignment and classification with basis set learning." *U.S. Patent No. 11,176,693.* 2021.

[P4] **Sergey Prokudin**, and Alexey Romanenko. "System and method for distributing antivirus records to user devices." *U.S. Patent No. 9,578,065.* 2017.

[P5] Alexey Romanenko, Ilya Tolstikhin, and **Sergey Prokudin**. "System and method for evaluating malware detection rules." *U.S. Patent No. 9,171,155.* 2015.

PROFESSIONAL SERVICE

Area Chair: CVPR 2025.

Reviewer: CVPR (Outstanding Reviewer Award, 2023), ECCV, ICCV, ICLR, ICML, AISTATS, TPAMI, 3DV.

Workshop Organiser: "Uncertainty and Robustness in Deep Visual Learning" (CVPR 2019).

HONOURS & AWARDS

ETH Postdoctoral Fellowship — *2021–2022*
Microsoft Research PhD Scholarship — *2016*
Winner, Moscow State University Mathematics Olympiad — *2005*

PROGRAMMING SKILLS

Current: Python, PyTorch
Earlier: TensorFlow, C#, Microsoft SQL, x86 Assembler

LANGUAGE SKILLS

English (fluent), German (B1), Russian (native)