Maxim Tatarchenko

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EDUCATION

Albert-Ludwigs-Universität Freiburg *Jan. 2016 — Feb. 2020*
PhD (summa cum laude) in Computer Science
Computer Vision Lab, advisor Prof. Dr.-Ing. Thomas Brox
Final grade 0.0, with distinction

Albert-Ludwigs-Universität Freiburg *Oct. 2012 — Mar. 2013*
Master in Computer Science *Apr. 2014 — Dec. 2015*
Final grade 1.0, with distinction

"MATI" - K. I. Tsiolkovsky Russian State Technological University
Bachelor in Applied Mathematics and Informatics *Oct. 2012 — Mar. 2013*
Final grade 4,8, with distinction

PROFESSIONAL EXPERIENCE

Bosch, Renningen, Germany *Nov. 2023 — now*
Lead Research Scientist
AI Research Department

Bosch, Renningen, Germany *May. 2020 — Oct. 2023*
Research Scientist
AI Research Department

Albert-Ludwigs-Universität Freiburg, Germany *Jan. 2016 — Feb. 2020*
Research Assistant
Computer Vision Lab

Intel Labs, Santa Clara, USA *May. 2017 — Nov. 2017*
Research Intern
Intelligent Systems Lab, advisor Dr. Vladlen Koltun

Albert-Ludwigs-Universität Freiburg, Germany *Jun. 2014 — Dec. 2015*
Student Research Assistant
Autonomous Intelligent Systems Lab

GPSCOM, Moscow, Russia *Dec. 2011 — Apr. 2014*
Software Engineer

Crechet corp., Moscow, Russia *Jun. 2011 — Dec. 2011*
Software Developer

PUBLICATIONS

Google scholar citations: **4122**.

Not including publications in Russian prior to 2015.

Referred papers

1. B. M. Öcal, M. Tatarchenko, S. Karaoğlu and T. Gevers "SceneTeller: Language-to-3D Scene Generation" In *ECCV*, 2024

2. R. Velastegui, M. Tatarchenko, S. Karaoğlu and T. Gevers "Image semantic segmentation of indoor scenes: A survey" In *CVIU*, 2024

3. J. Kälble, S. Wirges, M. Tatarchenko and E. Ilg "Accurate Training Data for Occupancy Map Prediction in Automated Driving using Evidence Theory" In *CVPR*, 2024

4. M. Tatarchenko, K. Rambach "Histogram-based Deep Learning for Automotive Radar." In *RadarConf*, 2023

5. J. Bechtold, M. Tatarchenko, V. Fischer and T. Brox "Fostering Generalization in Single-view 3D Reconstruction by Learning a Hierarchy of Local and Global Shape Priors." In *CVPR*, 2021

6. S. Mittal, M. Tatarchenko and T. Brox. "Semi-supervised semantic segmentation with high- and low-level consistency." In *TPAMI*, 2019

7. O. Mees, M. Tatarchenko, T. Brox and W. Burgard. "Self-supervised 3d shape and viewpoint estimation from single images." In *IROS*, 2019

8. M. Tatarchenko*, S. R. Richter*, R. Ranftl, Z. Li, V. Koltun, and T. Brox. "What do single-view 3d reconstruction networks learn?" In *CVPR*, 2019

9. A. Böhm, M. Tatarchenko, and T. Falk. "ISOO^V2_DL - semantic instance segmentation of touching and overlapping objects." In *ISBI*, 2019

10. M. Tatarchenko*, J. Park*, V. Koltun, and Q.-Y. Zhou. "Tangent convolutions for dense prediction in 3d." In *CVPR*, 2018 **(Selected for spotlight oral)**

11. A. Dosovitskiy, J. T. Springenberg, M. Tatarchenko, and T. Brox. "Learning to generate chairs, tables and cars with convolutional networks." *TPAMI*, Apr 2017

12. M. Tatarchenko, A. Dosovitskiy, and T. Brox. "Octree generating networks: Efficient convolutional architectures for high-resolution 3d outputs." In *ICCV*, 2017

13. M. Tatarchenko, A. Dosovitskiy, and T. Brox. "Multi-view 3d models from single images with a convolutional network." In ECCV, 2016 **(Selected for spotlight oral)**

14. B. Frank, M. Ruhnke, M. Tatarchenko, and W. Burgard. "3d-reconstruction of indoor environments from human activity." In *ICRA*, 2015

Preprints

1. B. M. Öcal, M. Tatarchenko, S. Karaoğlu and T. Gevers "RealDiff: Real-world 3D Shape Completion using Self-Supervised Diffusion Models" In *arXiv:2409.10180*, 2024

2. S. Mittal, M. Tatarchenko, Özgün Çiçek and T. Brox. "Parting with Illusions about Deep Active Learning." In *arXiv:1912.05361*, 2019

Theses

1. "Scalable 3D deep learning: methods and applications", *PhD thesis*, 2020
2. "Generating unseen views of objects with convolutional networks", *Master's thesis*, 2015

PROFESSIONAL SERVICES

Reviewer for IROS'18, ICCV'18, CVPR'18, CVPR'19 (outstanding reviewer), TPAMI'19, CVPR'20, IJCV'20, CVPR'21 (outstanding reviewer), RA-L'21, TPAMI'21, TPAMI'22, CVPR'23, CVPR'24

AWARDS

VDI-Förderpreis *2016*
Sponsorship award of the Association of German Engineers
Awarded for the master's thesis

MEDIA COVERAGE

3sat: Scobel *2016*
TV program about AI
Mentioned the work "Multi-view 3D models from single images with CNNs"

PATENTS

Computer-implemented method and system for reconstructing an object captured by an imaging sensor, and training method *2022*
DE patent "DE102021202711 A1""
J. Bechtold, T. Brox, V. Fischer and M. Tatarchenko

Tangent convolutions for 3D data *2019*
US patent "US2019042883 AA"
J. Park, V. Koltun, M. Tatarchenko and Q.-Y. Zhou

LANGUAGE SKILLS

Russian (mother tongue), **English** (advanced), **German** (advanced)

TEACHING EXPERIENCE

PhD student supervision

Jonas Kälble *Apr. 2023 — now*
Image-based occupancy estimation
University of Saarland and Bosch

Melis Öcal *Sep. 2022 — Mar. 2024*
Generative modelling for 3D reconstruction
University of Amsterdam and Bosch Delta Lab 2

Ronny Xavier Velastegui Sandoval *Oct. 2022 — Mar. 2024*
3D semantic segmentation
University of Amsterdam and Bosch Delta Lab 2

Jan Bechtold *Apr. 2021 — Mar. 2023*
Single-view 3D reconstruction
University of Freiburg and Bosch

Master/bachelor/intern supervision

Yuchen Tao *Oct. 2021 — Apr. 2022*
Point cloud completion via direct measurement integration
Master intern at BCAI

Olesya Tsapenko *Mar. 2019 — Sep. 2019*
Point cloud colorization using sparse convolutions
Master's thesis

Jan Bechtold *Jun. 2018 — Dec. 2018*
3D object detection using tangent convolutions
Master's thesis

Lukas Wiens *Dec. 2017 — Mar. 2018*
Implementierung der Octree Generating Networks Deep Learning Architektur in Tensorflow
Bachelor's thesis

Sudhanshu Mittal *Mar. 2017 — Nov. 2017*
Semi-supervised learning for real-world object recognition using adversarial autoencoders
Master's thesis

Vladislav Tananaev *Mar. 2017 — Jun. 2017*
Semantic segmentation in point clouds with deep networks
Master's thesis

University courses

Optimization (in German) *WS 2019 — 2020*
Lecture
Teaching assistant

Statistical pattern recognition *2018 — 2019*
Lecture, selected classes
Lecturer

Computer vision *2018*
Lecture, selected classes
Lecturer

Deep learning for biomedical image analysis *2016 — 2019*
Seminar
Supervisor

Current works in computer vision *2016 — 2019*
Seminar
Supervisor

Deep learning *SS 2016*
Lab course
Co-organizer and supervisor

Parking space detection *SS 2015*
Lab course
Co-organizer

SELECTED TALKS

Not including internal company/lab talks, not including talks prior to 2016.

3D deep learning: methods and applications *Jul. 2020*
PhD defence, Freiburg, Germany

3D deep learning: methods and applications *Dec. 2019*
5th Christmas Colloquium on Computer Vision, Yandex, Moscow

What do single-view 3d reconstruction networks learn? *Jul. 2019*
Dynamic Vision workshop, CVPR, Long Beach

Problems of single-image 3d reconstruction *Sep. 2018*
Intel Network on Intelligent Systems Workshop, Munich

Deep learning in computer vision and its applications to 3D data *Jun. 2018*
Optics Colloquium, University of Freiburg

Multi-view 3D models from single images with a convolutional network
2nd Christmas Colloquium on Computer Vision, Skoltech, Moscow *Dec. 2016*

Multi-view 3D models from single images with a convolutional network
ECCV, Amsterdam *Oct. 2016*

Graduation speech *Jul. 2016*
Graduation ceremony, University of Freiburg

VOLUNTEERING ACTIVITIES

Robotics workshop for Ukrainian kids *May. 2022 — now*
Organizer

Youth hackathon Freiburg *Nov. 2019*
Mentor