# 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*