

# 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 0.0, 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: **2650**.

Not including publications in Russian prior to 2015.

## Referred papers

1. 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
2. M. Tatarchenko, K. Rambach "Histogram-based Deep Learning for Automotive Radar." In *RadarConf*, 2023
3. 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
4. S. Mittal, M. Tatarchenko and T. Brox. "Semi-supervised semantic segmentation with high- and low-level consistency." In *TPAMI*, 2019
5. O. Mees, M. Tatarchenko, T. Brox and W. Burgard. "Self-supervised 3d shape and viewpoint estimation from single images." In *IROS*, 2019
6. 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
7. A. Böhm, M. Tatarchenko, and T. Falk. "ISOO<sup>V2</sup>\_DL - semantic instance segmentation of touching and overlapping objects." In *ISBI*, 2019
8. M. Tatarchenko, J. Park, V. Koltun, and Q.-Y. Zhou. "Tangent convolutions for dense prediction in 3d." In *CVPR*, 2018 **(Selected for spotlight oral)**
9. A. Dosovitskiy, J. T. Springenberg, M. Tatarchenko, and T. Brox. "Learning to generate chairs, tables and cars with convolutional networks." *TPAMI*, Apr 2017
10. M. Tatarchenko, A. Dosovitskiy, and T. Brox. "Octree generating networks: Efficient convolutional architectures for high-resolution 3d outputs." In *ICCV*, 2017
11. 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)**
12. B. Frank, M. Ruhnke, M. Tatarchenko, and W. Burgard. "3d-reconstruction of indoor environments from human activity." In *ICRA*, 2015

## Preprints

1. 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 — now  
*Generative modelling for 3D reconstruction*  
University of Amsterdam and Bosch Delta Lab 2

**Ronny Xavier Velastegui Sandoval** Oct. 2022 — now  
*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.

|   |                  |
|---|------------------|
| <b>3D deep learning: methods and applications</b><br><i>PhD defence, Freiburg, Germany</i>  | <i>Jul. 2020</i> |
| <b>3D deep learning: methods and applications</b><br><i>5th Christmas Colloquium on Computer Vision, Yandex, Moscow</i>                             | <i>Dec. 2019</i> |
| <b>What do single-view 3d reconstruction networks learn?</b><br><i>Dynamic Vision workshop, CVPR, Long Beach</i>                                    | <i>Jul. 2019</i> |
| <b>Problems of single-image 3d reconstruction</b><br><i>Intel Network on Intelligent Systems Workshop, Munich</i>                                   | <i>Sep. 2018</i> |
| <b>Deep learning in computer vision and its applications to 3D data</b><br><i>Optics Colloquium, University of Freiburg</i>                         | <i>Jun. 2018</i> |
| <b>Multi-view 3D models from single images with a convolutional network</b><br><i>2nd Christmas Colloquium on Computer Vision, Skoltech, Moscow</i> | <i>Dec. 2016</i> |
| <b>Multi-view 3D models from single images with a convolutional network</b><br><i>ECCV, Amsterdam</i>   | <i>Oct. 2016</i> |
| <b>Graduation speech</b><br><i>Graduation ceremony, University of Freiburg</i>  | <i>Jul. 2016</i> |

## VOLUNTEERING ACTIVITIES

|   |                        |
|---|------------------------|
| <b>Robotics workshop for Ukrainian kids</b><br><i>Organizer</i> | <i>May. 2022 — now</i> |
| <b>Youth hackathon Freiburg</b><br><i>Mentor</i>                | <i>Nov. 2019</i>       |