

Maximilian Durner

maximilian.durner@dlr.de | +4915256139006 | [LinkedIn](#) | [Google Scholar](#) | [Website](#)

EDUCATION

Technical University of Munich (TUM), Munich, Germany

PhD Candidate at the Chair of Computer Vision & Artificial Intelligence since June 2019

Master of Science in Electrical Engineering and Information Technology (M.Sc. GPA 1.5*) March 2016

Bachelor of Science in Electrical Engineering and Information Technology (B.Sc. 2.3*) September 2013

Universidad Nacional de Colombia, Bogotá, Colombia

August 2014 – December 2014

Visiting Student in my masters program (3rd semester)

Politecnico di Torino, Turin, Italy

October 2011 – June 2012

Visiting Student in my bachelors program (5th and 6th semester)

EXPERIENCE

German Aerospace Centre (DLR), Oberpfaffenhofen, Germany

Research Group Leader at the Institute of Robotics and Mechatronics (RMC), Perception and Cognition Department August 2022 – present

- Coordinating Research Group *Semantic Scene Analysis*
- Research on visual perception for robotic object manipulation

Research Associate at the Institute of Robotics and Mechatronics (RMC), Perception and Cognition Department

May 2016 – July 2022

- Research on class-agnostic object segmentation, scalable learning approaches for object related vision algorithms, fusion of robotic vision and manipulation
- Implementation of algorithms and integration of sensors for mobile robots

Master Student

September 2015 – March 2016

- Master's thesis topic: *Probabilistic Graphical Model for RGB-D object recognition*

Working Student

March 2015 – August 2015

- Development of an classifier ensemble for RGB-D object recognition
- Generation of a dataset of household objects for classification

Technical University of Munich (TUM), Munich, Germany

Sept 2019 – August 2021

Teaching Assistant at the Chair of Computer Vision & Artificial Intelligence

- Teaching course related exercises twice a week (~40 students)
- Lessons focus on: bayesian statistics, classical machine learning, deep learning

Working Student at the Chair for Data Science

April 2014 – August 2014

- Development of a actor-critic reinforcement learning algorithm for laser welding
- Implementation of this algorithm in C

Infineon Technologies AG, Munich, Germany

December 2013 – March 2014

Working Student at "Product development RF & Protection Devices"

- Assembly of test setups for high frequency sensors
- Execution of test series

TUM CREATE, Singapore

August 2013 – October 2013

Working Student at "Prototyping & Testbedding"

- Implementation of a controller for a personalised air condition system of a fully electrical vehicle in MATLAB Simulink
- Assistance in prototype assembly of the vehicle

SKILLS

Languages German (native speaker), English (fluent), Spanish (fluent), Italian (intermediate)

Professional knowledge Python, C++, C, Java, Bash, ROS, PyTorch, Tensorflow, ControlDesk, LaTeX, Linux, Git

* where 1.0 is the best and 4.0 the worst

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SELECTED PUBLICATIONS

E. Miller, **M. Durner**, M. Humt, G. Quere, W. Boerdijk, A. Sundaram, F. Stulp, J. Vogel, *Unknown Object Grasping for Assistive Robotics*, IEEE International Conference on Robotics and Automation (ICRA), 2024

M. Ulmer, **M. Durner**, M. Sundermeyer, M. Stoiber, R. Triebel, *6D Object Pose Estimation From Approximate 3D models for Orbital Robotics*, IEEE International Conference on Intelligent Robots and Systems (IROS), 2023

M. Durner, W. Boerdijk, M. Sundermeyer, W. Friedl, Z.-C. Marton, R. Triebel, *Unknown Object Segmentation from Stereo Images*, IEEE International Conference on Intelligent Robots and Systems (IROS), 2021

W. Boerdijk, M. Sundermeyer, **M. Durner**, R. Triebel, *Self-Supervised Object-in-Gripper Segmentation from Robotic Motions*, arXiv 2020

J. Feng*, **M. Durner***, Z.-C. Marton, F. Balint-Benczedi, R. Triebel, *Introspective Robot Perception using Smoothed Predictions from Bayesian Neural Networks*, International Symposium on Robotics Research (ISRR), 2019

M. Sundermeyer, Z.-C. Marton, **M. Durner**, M. Brucker, R. Triebel, *Implicit 3D Orientation Learning for 6D Object Detection from RGB Images*, European Conference on Computer Vision (ECCV), 2018, **Best Paper Award**

M. Brucker, **M. Durner**, Z.-C. Marton, F. Balint-Benczedi, M. Sundermeyer, R. Triebel, *6dof pose estimation for industrial manipulation based on synthetic data*, International Symposium on Experimental Robotics (ISER), 2018

M. Durner*, M. Brucker*, R. Ambrus*, Z.-C. Marton, A. Wendt, P. Jensfelt, K. Arras, R. Triebel, *Semantic Labeling of Indoor Environments from 3D RGB Maps*, IEEE International Conference on Robotics and Automation (ICRA), 2018

M. Durner, S. Kriegel, S. Riedel, M. Brucker, Z.-C. Marton, F. Balint-Benczedi, R. Triebel, *Experience-based optimization of robotic perception*, IEEE International Conference on Advanced Robotics (ICAR), 2017, **Best Paper Finalist**

MENTORSHIP

Master Thesis: *Improving 6D Pose Estimation Accuracy of Articulated Objects by Considering Physical and Visual Plausibility*, by David Risch, TUM, 2024

Master Thesis: *A Comparative Study of Classical and Learning-Based Methods for Vision-Aided Close-Proximity Asteroid Exploration*, by Anibal Guerrero Hernandez, TUM, 2024

Master Thesis: *Improving Robustness of an Unknown Instance Segmentation Algorithm*, by Stella Tragianni, TUM, 2023

Master Thesis: *GNNS for Knowledge Transfer in Robotic Assembly Sequence Planning*, by Matan Atad, TUM, 2023

Master Thesis: *Representation Learning for Robot Keypoint Detection using Prior Kinematic Knowledge*, by Leonard Klüpfel, TUM, 2022

Master Thesis: *Visual Similarity Detection Based on Latent Representations*, by Kanstantsin Tkachuk, TUM, 2021

Master Thesis: *Learning a Generic Robot Representation from Motion*, by Yogesh Baljeet, Saarland University, 2021

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Master Thesis: *Adversarial Occlusion Augmentation: Guided Occlusion for Improving Object Detector*, by Liu Siyuan, TUM, 2020

Master Thesis: *Uncertainty-Based Improvement of a Visual Classification System*, by Jianxiang Feng, TUM, 2019

Master Thesis: *Vision assisted biasing for robot manipulation planning*, by En Yen Puang, Universität Stuttgart, 2018

Master Thesis: *Augmented Autoencoders for Object Orientation Estimation trained on synthetic RGB Images*, by Martin Sundermeyer, TUM, 2017

ADDITIONAL INFORMATION

Co-Organiser of the RSS-WS <i>Open-Set Robot Perception in the Wild</i>	July 2024
Participation in AHEAD Field Study in Vollkach, Germany	June 2024
Participation in mobile platform AIMM demo at Automatica 2023	June 2023
Participation in Moon Analogue Mission of Heterogeneous Robot Team on Mt. Etna, Sicily, Italy	June-July 2022
Co-Organiser of the RSS-WS <i>Scalable Learning for Integrated Perception and Planning</i>	June 2019
Participation in mobile platform AIMM demo at Automatica 2018	June 2018
Fellowship of the <i>Lothar-und-Sigrid-Rohde-Stiftung</i>	Aug 2014 – Jan 2015
Fellowship of the <i>Deutscher Akademischen Austauschdienstes (DAAD)</i>	Aug 2013 – Oct 2013
Mentor for foreign students (TUM MIX)	Oct 2012 – Mar 2014

Reference

PD Dr. habil. Rudolph Triebel	Technical University of Munich, Chair of Computer Vision & Artificial Intelligence, Tel.: +4989 289-17752, E-Mail: rudolph.triebel@in.tum.de
Dr. Zoltan Marton	AI Research Director at Agile Robots AG, Munich, Germany, Tel.: +4989277814-063, E-Mail: zoltan.marton@agile-robots.com