

# WOLFGANG BÖTTCHER

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E-Mail: [wolfgang.boettcher@mpi-inf.mpg.de](mailto:wolfgang.boettcher@mpi-inf.mpg.de)

Phone: +49 681 9325 2139

<https://www.linkedin.com/in/wolfgang-boettcher/>

*I am an ambitious doctoral researcher in the Ellis programme with research and leadership experience in small innovative teams in academia and industry. Specialising in Computer Vision, my key research interests lie in perception and semantics for dynamic 3D scenes, VLMs and weakly supervised learning.*

## EDUCATION

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03/2024 – present	<b>MPI FOR INFORMATICS</b> Ellis Doctoral Researcher at the Computer Vision and Machine Learning group, Supervisors: Prof. Bernt Schiele, Federico Tombari (Google Zurich)
09/2020 – 12/2023	<b>ETH ZURICH</b> M.Sc. Electrical Engineering and Information Technology; Grade: 5.7 (scale from 6.0 to 1.0, 6.0 is the best grade)
08-10/2019	<b>NOTTINGHAM TRENT UNIVERSITY</b> Research Internship, Computational Neuroscience and Cognitive Robotics group
03-08/2019	<b>TECHNION – ISRAEL INSTITUTE OF TECHNOLOGY</b> Semester abroad in Haifa
10/2016 – 08/2020	<b>KARLSRUHE INSTITUTE OF TECHNOLOGY (KIT)</b> B.Sc. Electrical Engineering and Information Technology; Grade: 1.2 (scale from 1.0 to 6.0, 1.0 is the best grade, top 1%)
08/2016	<b>Abitur (High School Degree)</b> Grade: 1.0 (scale from 1.0 to 6.0, 1.0 is the best grade, top 1%)

## PUBLICATIONS

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- W. Boettcher, L. Hoyer, O. Unal, J.E. Lenssen, B. Schiele: “Scribbles for All - Benchmarking Scribble Supervised Segmentation Across Datasets”, NeurIPS 2024 DS & Benchmarks, <https://www.arxiv.org/abs/2408.12489>
- W. Boettcher, L. Hoyer, O. Unal, D. Dai: “LiDAR Meta Depth Completion”, IROS 2023, <https://arxiv.org/pdf/2307.12761>
- W. Boettcher, P. Machado, N. Lama, T.M. McGinnity: “Object recognition for robotics from tactile time series data utilising different neural network architectures”, IJCNN 2021, <https://arxiv.org/abs/2109.04573>
- W. Böttcher, C Bunne, J von Stetten: “Gradientenabstiegsverfahren: Der steile Weg zu den besten Parametern”, Book chapter: Wie Maschinen lernen: Künstliche Intelligenz verständlich erklärt, Springer Nature

## TEACHING EXPERIENCE

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03-07/2020	Tutorials in Optics & Solid-State Electronics
10/2017 – 02/2018	Tutorials in Electric Circuits
03-07/2017	Tutorials in Digital Technology
03-07/2017	Extended Didactics Certification for student tutors (4 ECTS)

## ACADEMIC PROJECTS (NON-PUBLISHED)

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- **Scribble Supervised Cross Domain Semantic Segmentation, 2023**  
Master Thesis at CVL, ETH; Research on improving weakly-supervised semantic segmentation for 2D images and point clouds for self-driving data
- **Reduced Channel Minimum Variance Beamforming, 2021**  
Semester Project at IIS, ETH; development and deployment of novel computationally efficient Minimum Variance Beamformers for real-time energy efficient applications on FGPA platforms
- **Scientific college of the GERMAN ACADEMIC SCHOLARSHIP FOUNDATION, 2017 – 2019**, Working Group: “Artificial Intelligence – Opportunities, Facts, Risks”; Learning about the impacts of Machine Learning on society and how to create a positive impact; Publication of a popular science book on fundamentals of ML for school students

## PRACTICAL EXPERIENCE

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03-07/2022 **Industrial Internship with INIVATION AG**  
in the field of vision algorithms for event based cameras; development of a 1kHz eye-tracking system using quantized neural networks; advancement of a physical prototype; introduction of MLOps procedures to the group

11/2019 – 03/2020 **Industrial Internship with BOSCH ENGINEERING**  
in the field of AI for Automotive Systems; probabilistic sensor fusion for road wetness detection; development of Pat. DE102021200890A1; research on sensor assisted engine knocking classification for performance enhancement

05/2018 **Academic excursion on Israeli start-up culture**  
Co-organiser in a team of three; Organisation and successful execution of a one week excursion to Israel aimed at exploring characteristics and spirit of the Israeli start-up culture and learning lessons for the German economic system; funded by the GERMAN ACADEMIC SCHOLARSHIP FOUNDATION

## SCHOLARSHIPS & AWARDS

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08-10/2019 DAAD RISE WORLDWIDE Full scholarship for a research internship in the United Kingdom (1 of 200 recipients)

07/2018 – 08/2020 SCHROFF scholarship for highly gifted students (granted to the three best electrical & mechanical engineering students at KIT)

01/2017 – present Scholarship of the GERMAN ACADEMIC SCHOLARSHIP FOUNDATION (“Studienstiftung des deutschen Volkes”, top 0.5%)

09/2016 – 08/2020 Scholarship of the FRIEDRICH-NAUMANN-FOUNDATION FOR FREEDOM

05/2016 JUGEND FORSCHT; 1<sup>st</sup> price and special awards in the state competition; special price in the federal completion (Jugend forscht is the national youth science contest in Germany)

## LANGUAGE & IT SKILLS

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German:	Native	Proficient:	Python, PyTorch, OpenCV
English:	Fluent (C2)	Good:	LaTeX, MATLAB, Git
Spanish:	Basic skills (A2)	Basic skills:	C++, C#, System Verilog, ROS

References available upon request