

Marcel Büsching

Personal information

Date of birth

4th March 1996

Nationalities

German, French

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Web

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Research Interests

3D Scene Reconstruction

Neural Rendering

Generative Methods

Graph Neural Networks

Transformers

Academic Experience

- 07.2022 – now **Royal Institute of Technology (KTH), Stockholm**
PhD student in the Division of Robotics, Perception and Learning (RPL)
- Supervisors: Mårten Björkman, Danica Kragic and Kathlén Kohn
- 05.2019 – 03.2022 **Karlsruhe Institute of Technology (KIT), Karlsruhe**
Master (MSc) in mechanical engineering with specialization in robotics and computer vision
- Final grade: 1.2 (3.7 GPA), graduated with honors
 - Scholarships: KIT German Scholarship, Scholarship of the Knowledge + Competence Foundation
- 10.2015 – 04.2019 **Karlsruhe Institute of Technology (KIT), Karlsruhe**
Bachelor (BSc) in mechanical engineering with specialization in production engineering
- Final grade: 1.7 (3.3 GPA)
 - Scholarships: KIT German Scholarship

Employment History

- 09.2019 – 12.2020 **KIT, Institute for Anthropomatics and Robotics (IAR)**
Student assistant at the Intelligent Process Automation and Robotics Lab (IPR) of Prof. Tamim Asfour and Prof. Torsten Kröger
- Development of a ROS pipeline for the detection and tracking of persons in 2D-LiDAR scans
- 10.2018 – 02.2019 **grow platform GmbH, Part of the Bosch Group**
Intern in the area of intralogistics robotics (ActiveShuttle) and localization software (ROKIT Locator)
- Development of a software for the commissioning of intralogistics robots
 - Implementation of a HiL simulator for life-long SLAM
- 09.2018 – 12.2018 **KIT, Institute of Production Science Karlsruhe (wbk)**
Student assistant in the Machines, Equipment and Process Automation (MAP) department of Prof. Jürgen Fleischer
- 05.2019 – 09.2019
- Development and evaluation of collision avoidance strategies for human-robot collaboration
 - Creation of a digital twin for a LiDAR sensor system
- 01.2018 – 12.2019 **Freelance work**
Software development and technology research

Teaching Experience

- 2023 – now DD2424 Deep Learning in Data Science
- 2022 – now DD2423 Image Analysis and Computer Vision

Languages

German
(Mother tongue)

English
(Proficient, C1/C2)

Swedish
(Intermediate, B1)

French
(Beginner, A1/A2)

Programming languages

Python
C++
C

Frameworks & systems

PyTorch
OpenCV
Docker

Interests

Cycling
Board games
Music
Cooking

Clubs and Associations

04.2019 – **KITcar e.V.**
04.2021
Development of an autonomous model car
Member of the perception team

- Development of a ROS pipeline for depth images
- Application of gaussian processes for line detection

05.2016 – **studentec e.V.**
10.2021
Student engineering consultants at KIT
Several activities e.g., head of finances and legal affairs,
core competence manager for information technology,
head of the IT department

Publications

M. Büsching, J. Bengtson, D. Nilsson, M. Björkman. *FlowIBR: Leveraging Pre-Training for Efficient Neural Image-Based Rendering of Dynamic Scenes*. arXiv 2023

M. Schäfer, M. Büsching, S. Coutandin, und J. Fleischer. *Safe Human Robot Collision Avoidance with an End-Effector integrated 360° LiDAR System*. WGMHI Colloquium Dortmund 2019 (Best paper award winner)

Awards

10.2019
Award for outstanding student commitment of the KIT president

02.2019
Best paper award WGMHI cCllloquium Dortmund