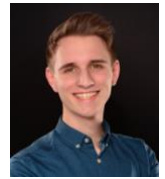


SEBASTIAN KOCH

koch.sebastian@mail.com, +49 171 3186665, Eduard-Spranger-Straße 57/1 72076 Tübingen

PhD Candidate

Bosch Corporate Research, University of Ulm



EDUCATION

PhD Computer Science, University of Ulm, Ulm Germany

Apr 2022 – present PhD topic: ‘Machine Learning for 3D Scene Understanding’, collaboration with Bosch Research

M. Sc. Computer Science, University of Tübingen, Tübingen Germany

Apr 2020 – Mar 2022 Computer Science Major with focus on machine learning, computer vision and robotics

Master-Thesis: ‘Multi-View RGB-D Fusion for 6D Pose Estimation’

GPA: 1.5 (1.0 is the best)

B. Eng. Computer Science, Baden-Württemberg Cooperative State University, Stuttgart Germany

Oct 2016 – Mar 2020 Computer Science Major with additional automotive orientated courses

Bachelor-Thesis: ‘Improvement of the robustness of a SLAM system with Computer Vision’

Thesis grade: 1.1, GPA: 1.8 (1.0 is the best)

EXPERIENCE

BCAI Master-Thesis (6D Pose Estimation), Bosch Center for Artificial Intelligence, Tübingen

- Oct 2021 – Mar 2022
- Development of a novel Multi-View RGB-D fusion architecture for 6D Pose Estimation
- Focus on improvements in keypoint-voting and symmetry aware pose estimation

University of Tübingen Research Assistant (Embedded Object Detection), Cognitive Systems Lab, Tübingen

- Sep 2020 – Oct 2021
- Researched novel approaches for real-time *object detection* in very high-resolution images
- Optimizing state-of-the-art *deep learning* models for *object detection* with *CUDA* and *TensorRT* to achieve real time performance on embedded GPUs

Bosch Group Working Student (SLAM, Computer Vision & Simulation), Bosch Group (CR), Renningen

- Apr 2020 – Oct 2020
- Developed a face detection system with *YOLO* directly integrated into *ROS*
- Responsible for synthetic data generation with *AirSim* for 3D object detection with *computer vision*

Bosch Group Cooperative Study Program, Bosch Group, Stuttgart

Oct 2016 – Mar 2020 The Cooperative Study Program at Bosch provides the possibility to work on scientific projects in different departments at Bosch while pursuing ones Bachelor’s degree

Oct 2019 – Jan 2020 Bachelor-Thesis (SLAM & Computer Vision), Bosch Group (CR), Renningen

- Researched how to make an existing *SLAM* system more robust regarding environmental changes with semantic understanding of the environment like object detection and semantic segmentation
- Extracted semantic information using *classical computer vision* algorithms and *deep learning*
- Trained various object detectors with *Tensorflow* to benchmark them on a small custom dataset

May 2019 – Sep 2019 Intern (Pedestrian Behavior Simulation), Bosch Group (CC), Leonberg

- Implemented a pedestrian simulation for behavior prediction with *machine learning*
- Used *PyTorch* for efficient simulation and integration in the *neural network* pipeline

May 2018 – Aug 2018 Intern Abroad (Hardware-in-the-Loop Simulation), Bosch Group (Bosch Eng.), Novi USA

- Designed automated testing functionalities in *MATLAB* and *Simulink* for faster software testing

Nov 2017 – Mar 2018 Intern (Filter Algorithm Prototyping), Bosch Group (CC), Leonberg

- Analyzed an interference problem of the new ultrasonic sensor system in the lab
- Used the conducted research to develop a filter algorithm for false-positive detections in *C++*

VOLUNTEERING

RoboCup Fed Working as a volunteer at RoboCup Junior events (national and international)

Mar 2019 – present Volunteers act as referees, supervisors and general helpers

HONORS & AWARDS

Bosch Group Accepted into the Students@Bosch excellency program for students who excelled at previous Bosch

Mar 2020 – Apr 2022 internships. Guided by: Stefan Benz

University of Tübingen 1st place in the yearly AI Chess Variant Competition conducted by the Cognitive Systems Lab of

Jan 2021 Professor Zell (approx. 100 contestants)

MPI-IS · Mar 2021 3rd place in the RL Hockey Competition of the Autonomous Learning Group (approx. 70 contestants)

RoboCup Fed 1st place at the RoboCup World Cup 2013 in Eindhoven in the *Rescue* competition

2011 – 2014 4th place at the RoboCup World Cup 2014 in João Pessoa in the *Rescue* competition

SKILLS

German

Python

C/C++

SLAM

Unix

Computer Vision

English

PyTorch

MATLAB

Robotics

ROS

Deep Learning