Jannik **Zürn**

University of Freiburg, Georges-Koehler-Allee 80, 79110 Freiburg im Breisgau, Germany

+49 1578-8744143 | jannik.zuern@gmail.com | jzuern.github.io | github.com/jzuern | linkedin.com/jannik-zuern

Education

University of Freiburg, Germany — *Freiburg, Germany*
PH.D. ROBOTICS AND ARTIFICIAL INTELLIGENCE — *Dec. 2018 – Now*
- Advisor: Prof. Dr. Wolfram Burgard
- Research Focus: Self-Supervised Robot Learning, Perception for Autonomous Robots

Karlsruhe Institute of Technology (KIT), Germany — *Karlsruhe, Germany*
M.S. THEORETICAL MECHANICAL ENGINEERING (GPA: 3.7/4.0) — *Aug. 2015 – Aug. 2018*
- Thesis topic: Neural Networks for Steady-State Fluid Flow Prediction
- Advisors: Dr. S. Suwelack, Dr. Christof Megnin. Grade: 1.0

Karlsruhe Institute of Technology (KIT), Germany — *Karlsruhe, Germany*
B.S. MECHANICAL ENGINEERING (GPA: 3.1/4.0) — *Oct. 2011 – Aug. 2015*
- Thesis topic: Numerical Solution of the Chemical Master Equation
- Advisor: M.Sc. A. Koksharov. Grade: 1.0

Academic & Industry Experience

Visiting PhD Student — *Oxford, England*
OXFORD ROBOTICS INSTITUTE, UNIVERSITY OF OXFORD — *Oct. 2022 – Feb. 2023*
- Advisor: Prof. Dr. Ingmar Posner
- Research Focus: Self-Supervised Learning for Autonomous Vehicles

Graduate Research Assistant — *Karlsruhe, Germany*
RENUMICS GMBH — *Jun. 2018 – Aug. 2018*

Summer Internship, Robotics Software Engineering — *Redwood City, CA, USA*
MAYFIELD ROBOTICS — *Jul. 2017 – Oct. 2017*

Graduate Research Assistant — *Karlsruhe, Germany*
FZI RESEARCH CENTER FOR INFORMATION TECHNOLOGY — *Sep. 2016 – Apr. 2018*

Graduate Research Assistant — *Karlsruhe, Germany*
INSTITUTE FOR BIOMEDICAL ENGINEERING, KIT — *Jan. 2016 – Aug. 2018*

Summer Internship, Software Engineering — *San Diego, CA, USA*
ANSYS, INC. — *May 2015 – Sep. 2015*

Undergraduate Research Assistant — *Karlsruhe, Germany*
INSTITUTE FOR TECHNICAL THERMODYNAMICS, KIT — *Oct. 2014 – Apr. 2015*

Undergraduate Research Assistant — *Karlsruhe, Germany*
INSTITUTE FOR APPLIED COMPUTER SCIENCE, KIT — *Jun. 2013 – Jun. 2014*

Research Projects

Autonomous Street Crossing with Navigational Robots in Cities *2018 – 2021, 2021 – 2023*

Research Scientist

Open Deep Learning Toolkit for Robotics (OpenDR) *2021 – 2021*

Research Scientist

Selected Publications

Zürn, Jannik, and Wolfram Burgard. "TrackletMapper: Ground Surface Segmentation and Mapping from Traffic Participant Trajectories." Conference for Robot Learning *CoRL) (2022)

Zürn, Jannik, Sebastian Weber, and Wolfram Burgard. "Self-Supervised Moving Vehicle Detection from Audio-Visual Cues." IEEE Robotics and Automation Letters 7.3 (2022): 7415-7422.

Zürn, Jannik*, Johan Vertens*, and Wolfram Burgard. "Lane Graph Estimation for Scene Understanding in Urban Driving." IEEE Robotics and Automation Letters 6.4 (2021): 8615-8622.

Vertens, Johan*, **Jannik Zürn***, and Wolfram Burgard. "Heatnet: Bridging the day-night domain gap in semantic segmentation with thermal images." 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE, 2020.

Zürn, Jannik, Wolfram Burgard, and Abhinav Valada. "Self-supervised visual terrain classification from unsupervised acoustic feature learning." IEEE Transactions on Robotics 37.2 (2020): 466-481.

Megnin, C., Moradi, B., **Zürn, J.**, Ossmer, H., Gueltig, M., and Kohl, M. (2020). Shape memory alloy based controllable multiport microvalve. Microsystem Technologies, 26(3), 793-800.

Reviewing Activites

- **Journals**: IEEE Transactions on Robotics (T-RO), IEEE Robotics and Automation Letters (RA-L)
- **Conferences**: IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), AAAI Conference on Artificial Intelligence (AAAI), IEEE International Conference on Multisensor Fusion and Integration (MFI)

Software & Datasets

TrackletMapper

TrackletMapper: Ground Surface Segmentation and Mapping from Traffic Participant Trajectories — *http://trackletmapper.cs.uni-freiburg.de/*

AudioVisual Vehicles Dataset

Self-Supervised Moving Vehicle Detection from Audio-Visual Cues — *http://av-vehicles.cs.uni-freiburg.de/*

Self-Supervised Visual Terrain Classification

A Self-Supervised Terrain Classification Framework using Sound and Vision — *http://deepterrain.cs.uni-freiburg.de/*

Semantic Segmentation of Thermal Images

Bridging the Day-Night Domain Gap in Semantic Segmentation with Thermal Images — *http://thermal.informatik.uni-freiburg.de/*

LaneGraphNet

Lane Graph Estimation for Scene Understanding in Urban Driving

http://lanegraph.informatik.uni-freiburg.de/

Teaching

WS 2022/23 **Seminar Robot Perception for Navigation**, Teaching Assistant
SS 2021 **FreiCar: Practical Autonomous Driving**, Co-Organizer, Lecturer
WS 2020/21 **FreiCar: Practical Autonomous Driving**, Co-Organizer, Lecturer
SS 2019 **Deep Learning Lab**, Teaching Assistant

Mentoring

2021-2022 **S. Weber**, Self-Supervised Drivable Surface Segmentation for Pedestrian Robots, MS Thesis
2020-2021 **S. Al-Rawi**, Sound Event Localization and Detection, MS Thesis
2020 **G. Stief**, Optical Flow based Window Detection, BS Thesis
2019 **T. Krautschneider**, Multimodal Object Tracking with Deep Learning, BS Thesis
2019 **Y. Satyawan**, Semantic Segmentation of Curb and Curb Cuts in Street Imagery, BS Thesis