Karl Pertsch

kpertsch.github.io

#### EDUCATION

University of Pennsylvania

Philadelphia, PA

Fulbright Visiting Scholar in Computer Science

Aug. 2017 - May 2018

Email: pertsch@seas.upenn.edu

Technical University Dresden

Dresden, Germany

Diploma in Electrical Engineering, Focus: Robotics and Control; GPA: 4.0 (with distinction)

Aug. 2012 - Aug. 2017

#### EXPERIENCE

### GRASP Lab, University of Pennsylvania

Philadelphia, PA

Fulbright Visiting Scholar, Supervisor: Kostas Daniilidis

Aug. 2017 - May 2018

- Unsupervised Activity Recognition: Learn a viewpoint-independent embedding that discriminates actions of birds in video data without human training annotations.
- Coursework: Take classes in deep learning for computer vision (instructor: Jianbo Shi) and reinforcement learning. Final projects investigate GANs for data augmentation and Generative Adverserial Imitation Learning.

### Computer Vision Lab Dresden

Dresden, Germany

Diploma Thesis, Supervisor: Carsten Rother

Apr. 2017 - Aug. 2017

- Object Pose Estimation: Design, implement and test a pipeline for 6DoF pose estimation of objects from single RGB/RGB-D input images. Used dataset features texture-less objects and heavy occlusion.
- **Deep Learning**: Implement Deep CNNs in Caffe for instance-aware semantic segmentation and 3D shape reconstruction as part of the pose estimation pipeline.

# Institute of Automotive Engineering Dresden

Dresden, Germany

Research Assistant

Apr. 2016 - Jan. 2017

 Reinforcement Learning: Develop a Reinforcement Learning algorithm for learning energy-optimal driving strategies for hybrid-electric vehicles. Implementation of linear value function approximation for improved learning speed and accuracy.

## BMW Research and Technology

Munich, Germany

Research Intern

Oct. 2015 - Mar. 2016

- Data Acquisition: Develop tools for data acquisition and evaluation in ROS for learning-based techniques in the field of automated driving.
- Maneuver Classification and Prediction: Develop machine learning algorithms for the classification and prediction of vehicle lane change maneuvers using TensorFlow.

### Technical University Dresden

Dresden, Germany

Teaching Assistant

Apr. 2014 - Mar. 2015

• Algebra and Electrical Engineering: Independently held two weekly exercises in undergraduate mathematics for engineers and lead the extra-tuition program in electrical engineering for undergraduate students.

### SCHOLARSHIPS AND AWARDS

- Fulbright Scholarship: Awarded by the US government for academic excellence and social commitment. Aug. 2017
- Year's Best Pre-Diploma: Awarded by the Faculty of Electrical and Computer Engineering.

Aug. 2014

• Deutschlandstipendium: National scholarship for outstanding academic achievements.

Oct. 2013 - Sep. 2017

# PUBLICATIONS

- O. H. Jaffari\*, S. K. Mustikovela\*, **K. Pertsch**, E. Brachmann, C. Rother, 'The best of both worlds: learning geometry-based 6D object pose estimation', submitted to *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018.
- **K. Pertsch**, R. Liessner, B. Baeker, 'Reinforcement learning as a means for future diagnostical techniques', (published in German) 11<sup>th</sup> Conference on Diagnosis in Mechatronic Vehicle Systems, 2017.