Karl Pertsch (Updated Sept 2017)

kpertsch.github.io

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EDUCATION

- **University of Pennsylvania** — Philadelphia, PA
  Fulbright Visiting Scholar in Computer Science; GPA: 4.0 (Fall 2017 term) — Aug. 2017 – May 2018

- **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) 11th *Conference on Diagnosis in Mechatronic Vehicle Systems*, 2017.