

HALUK ARAL HEKIMOGLU

Saportastr. 1, 80637, Munich | +49 (162) 6090-437 | aral.hekimoglu@tum.de

PUBLICATIONS

- Hekimoglu, A. Schmidt, M. Alvaro, M. Rigoll, G. "Efficient active learning strategies for monocular 3d object detection." IEEE Intelligent Vehicle Symposium (2022)

EXPERIENCE

Doctoral Researcher *BMW Group, Munich, Germany*

April 2021-Present

- Worked on training and implementation of multiple autonomous driving perception models including: 2D Object Detection, Lane Detection, Point Cloud Segmentation, Perception Fusion and Depth Estimation.
- Constructed an Active Learning based pipeline consisting of data selection, training dataset creation and model training that helped engineers spend less time on data preparation processes and more on model development.
- Deployed various neural network models using TensorRT and C++ 11 for faster inference running on NVIDIA DRIVE AGX and ROS.
- Participated in design and decision making process of full perception architecture for a self-driving car.

Computer Vision and Machine Learning Engineer *Kuartis Technology, Ankara, Turkey*

May 2020-March 2021

- Worked on training and implementation of multiple autonomous driving perception models including: 2D Object Detection, Lane Detection, Point Cloud Segmentation, Perception Fusion and Depth Estimation.
- Constructed an Active Learning based pipeline consisting of data selection, training dataset creation and model training that helped engineers spend less time on data preparation processes and more on model development.
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Computer Vision Research Intern *Kuartis Technology, Ankara, Turkey*

Summer 2019

- Designed a new person re-identification model to improve performance of the model in-use by +16% by proposing a part-based generator network to generate more realistic looking pedestrian images.
- Organized experiments in PyTorch to compare performance and image quality that resulted in reduction in complexity of the backbone network which doubled the speed at test time.
- Participated in entire R&D cycle: coding the network, data loading, training in a Nvidia-Docker container, conversion to a deployable TensorRT Caffe model, integrating with surveillance system in C++.

Research Intern *Computer Vision Lab ETH Zurich, Switzerland*

Summer 2017

- Researched image processing algorithms for registration and segmentation to get familiarized with medical image processing concepts and tools used for building projects.
- Created a user-interface plugin for MITK using C++ for medical image processing algorithms designed for use of health-care professionals working on healthcare data in detection of deformations.
- Deployed the applications in Docker containers to eliminate environment dependency problem.

EDUCATION

Technical University Munich Munich, Germany

April 2024

Doctor of Engineering, Electrical and Computer Engineering

Topic: Active Learning for Self-Driving Cars: An Intelligent Learning Strategy for Data-Efficient Development of Autonomous Driving

New York University New York, NY

May 2020

Master of Science, Computer Science and Engineering, GPA: 3.95

MS Thesis: Pose and Camera Invariant Person Reidentification and Attribute Recognition

Relevant Coursework: Computer Vision, Machine Learning, Artificial Intelligence, Neural Networks, Databases, Algorithms

Middle East Technical University Ankara, Turkey

June 2018

Bachelor of Science(High Honor), Electrical and Electronics Engineering, GPA: 3.79

Honors: Highest Academic Performance Award(2018), High Honor(2015,2016,2017,2018)

SKILLS

Coding Languages:

Python, C++, MySQL, HTML, CSS, JavaScript

Frameworks and Libraries:

PyTorch, TensorFlow, OpenCV, TensorRT, Keras, scikit-learn