HALUK ARAL HEKIMOGLU

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EXPERIENCE

Computer Vision and Machine Learning Engineer *Kuartis Technology, Ankara , Turkey*   *May 2020-Present*
- Researched Active Learning methods for data-efficient model development. Researched method helped 2D Object Detection deep learning model achieve peak performance with 30% less training data.
- 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.
- Worked on training and implementation of multiple autonomous driving perception models including: 2D Object Detection, Lane Detection, Point Cloud Segmentation, Perception Fusion and Motion Prediction.
- 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 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.

PROJECTS

Object Recognition in a Live Video *Middle East Technical University EEE Star Project*
- Researched object detection literature for deep learning models with real-time test performance and fast training, implemented some models in Tensorflow for hands-on experience.
- Built an OpenCV based real-time object detector, trained using transfer learning, that is able to detect pedestrians, cars and bikes in an urban environment.

Vision System of an Autonomous Robot in Basketball Shoot-out *Middle East Technical University Capstone Project*
- Designed and developed object detection, moveable area detection and movement planning subparts with OpenCV in a Raspberry Pi environment working with sensor information from cameras and ultrasound sensors.
- Operated as a team with other engineering students to manage project by setting goals and deadlines, scheduling meetings to communicate issues and managing budget for hardware purchases.

Visual Tracking for Ping-Pong Game *NYU Computer Vision Project*
- Implemented an optical flow algorithm to detect movement in a video and optimized it to work in real-time by vectorizing operations in NumPy.
- Created object tracking pipeline with preprocessing using image processing and post processing using Kalman filters.

EDUCATION

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