Kerem Yıldırır

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GitHub
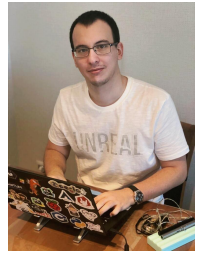
Education

2019–Present	**Technical University of Munich - Department of Informatics,Germany** M.Sc in Informatics
2015–2019	**Sabanci University - Faculty of Engineering and Natural Sciences,Turkey** Computer Science and Engineering GPA: 3.69/4.0

Experience

Oct. 2020 - Present	**Working Student**, *Forschungs-Neutronenquelle Heinz Maier-Leibnitz*, Technical University of Munich Doing high speed image processing with CUDA and C++. Working on segmenting the region of interests (possible neutron locations) using Connected Component Labeling and computing the centers of these regions for neutron imaging.
Jun. 2018 - Aug. 2018	**Research Internship**, *Center of Vision,Speech and Signal Processing*, Uni. of Surrey, Guildford,UK Constructed Error Correcting Output Coding (ECOC) matrices with 1000 and 10000 classes using Discriminant ECOC algorithm. Trained binary classifiers for each matrix column using a 4-layer deep neural network with Keras API ,using previously extracted features from LifeClef Challenge data set trained with SENET for training. Used Tensorflow and MXNet for Keras backend.
May. 2018 - Jun. 2019	**Undergraduate Research Assistant**, *Center of Excellence in Data Analytics*, Sabanci University Worked as an Undergraduate Research Assistant at VERIM (Centre of Excellence in Data Analytics) during my graduation project period, working on Plant Disease Identification. Additionally gave a seminar on using HPC and Python modules & frameworks for Deep Learning and participated in Plant Identification contest with 10000 classes.
Feb. 2018 - Jan. 2019	**Teaching Assistant**, *CS204 Advanced Programming*, Sabanci University Lead weekly recitation sessions, reviewed the topics discussed in the class, solved exercises and explained subjects to students.
Jan. 2018	**Computer Vision Intern**, Vispera Information Technologies, Istanbul Learned basics of machine learning and helped cleaning noisy data from a data set for industrial use.
Jun. 2017 - Aug. 2017	**Software Engineering Intern**, Bilgi Birikim Sistemleri, Istanbul Worked as a full-stack developer, created a web interface for processing data from a database. Documented it and presented to the executives.
Sept. 2016 - Jun. 2017	**Learning Assistant**, *NS101 Natural Sciences*, Sabanci University Aided and guided freshman students in recitation sessions .

Projects

April. 2020 - Sept.2020	**Real-time 3D Instance Segmentation**, Technical University of Munich Designed and implemented a real-time 3D object detection and tracking scheme with Python and ROS without using any annotated 3D data.
April. 2020 - Jun.2020	**Multiple Object Tracking with Tracktor**, Technical University of Munich Implemented vanilla Tracktor with Faster-RCNN using PyTorch. Added a basic motion model and also a reidentificaiton network as the paper suggested for Tracktor++ . Developed using the MOT16 benchmark and achieved following results on the training set.

Mar. 2020 - Present	**Interdisciplinary Project**, Technical University of Munich Extending the paper "Divergence-Free Shape Correspondence by Deformation" and representing a motion sequence as a time dependent vector field. Solving correspondence and matching problems for the whole sequence during the optimization.
Sept. 2018 - Jun. 2019	**Plant Disease Identification with Deep Learning**, *Graduation Project*, Sabanci University, Trained a deep convolutional neural network for plant disease identification using transfer learning. Built a user interface for labeling data with multiple attributes.
Feb. 2018 - Jun. 2018	**Plant Identification with Deep Learning Ensembles**, *ExpertLifeCLEF*, Sabanci University, Generated random ECOC matrices for 10000 classes and used simulated annealing and hill climbing to maximize the hamming distance between rows. Trained the matrix on features extracted from a deep net model and used it for error correction.
Sept. 2017 - Jun. 2018	**Sketches on Raspberry Pi**, *Program for Undergraduate Research*, Sabanci University Implemented Count-Min Sketch (CMS) for frequency analysis of a data stream on Raspberry Pi 3. Used tabulation hashing to reduce estimation error by computing multiple hash values for an element, and restructured CMS in order to process the data stream in parallel while avoiding possible race conditions.

Computer Skills

C/C++ Python,ROS,Pytorch,Tensorflow,OpenCV,Matlab,LaTeX,Unix/Linux,OpenMP,CUDA

Publications

2019	F. Tasyaran, K. Yildirir, K. Kaya, and M. K. Tas, "One table to count them all: Parallel frequency estimation on single-board computers," in *Euro-Par*, 2019
2018	S. Atito, B. A. Yanikoglu, E. Aptoula, I. Ganiyusufoglu, A. Yildiz, K. Yildirir, B. Sevilmis, and M. U. Sen, "Plant identification with deep learning ensembles," in *CLEF*, 2018

Workshops

Feb. 2019 - Mar. 2019	**Presenter**, *Center of Excellence in Data Analytics*, Sabanci University Presented a series of workshops on machine learning applications and frameworks and high performance computing applications on an HPC cluster.

Languages

Turkish	Native
English	Advanced,TOEFL iBT Score : 102
German	B1

Scholarships

Sept. 2016 - June. 2019	**Sakip Sabanci Encouragement Scholarship** Awarded with %50 exemption of tuition fee by the Board of Trustees as a result of academic success.
Sept. 2015 - June. 2019	**Sabanci Foundation University Entrance Scholarship** %25 exemption of school tuition fee. Ranked in the top % 2 in the university entrance exam.