Yiğit Aras Tunalı

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WORK EXPERIENCE

07/04/2023 – CURRENT Germany
MACHINE LEARNING ENGINEER SONY

- Constructed a complete PyTorch-based 3D Human Avatar creation training pipeline from single images.
- Adapted state-of-the-art deep learning research to create an end-to-end training system with photometric and geometric losses
- Curated and preprocessed datasets with efficient loading pipelines for evaluation and training

01/09/2022 – 01/04/2023 Germany
CLOUD RENDERING ENGINEER (WORKING STUDENT) HUAWEI

- Adapted cutting-edge path guiding research for texture space, drawing parallels to ReSTIR
- Investigated machine learning methods for enhanced ray sampling and path guiding

01/03/2022 – 01/09/2022 München, Germany
ENGINEERING INTERN - AUTONOMOUS VEHICLES NVIDIA

- Extended and implemented new AR/VR objects for a prototype of a parking assistance system.

01/01/2022 – 01/08/2022 Germany
MACHINE LEARNING ENGINEER BRAINAMICS

- Collaborated in creating the comprehensive EEG data pipeline and machine learning models using PyTorch.
- Researched and implemented novel self-supervised learning techniques for emotion classification using EEG data, adapting various methods from signal and image processing

01/10/2020 – 01/04/2021 Germany
DATA SCIENTIST SURPLUS DIGITAL

- Designed and implemented RESTful APIs using Django REST framework (DRF) with a PostgreSQL database.
- Developed a robust back-end infrastructure with Django for seamless data handling and management.
- Employed web scrapers to efficiently collect and store valuable data, contributing to data-driven decision-making.

01/09/2018 – 01/06/2019 Türkiye
UNDERGRADUATE RESEARCH ASSISTANT SABACI UNIVERSITY

- Undergraduate Research Assistant at VERIM (Centre of Excellence in Data Analytics).
- Adapted novel methods for Plant Disease Identification using Deep Learning.
- Additionally conducted a seminar on using HPC and Python modules & frameworks for Deep Learning.

01/09/2018 – 01/06/2019 Türkiye
UNDERGRADUATE PURE PARTICIPANT SABANCI UNIVERSITY

- Participated in **Program for Undergraduate Research (PURE)** for 2 semesters under the supervision of Prof. Dr. Husnu Yenigun and Prof. Dr. Kamer Kaya.
- Worked Slowly Synchronizing Finite State Machines and how to generate them using Genetic Algorithms

EDUCATION AND TRAINING

01/10/2020 – 01/09/2023 Germany
M.SC. COMPUTER SCIENCE Technische Universität München

Website https://www.tum.de/

01/09/2014 – 01/06/2019 Türkiye
B.S.C COMPUTER SCIENCE AND ENGINEERING Sabancı University

Website https://www.sabanciuniv.edu/

DIGITAL SKILLS

C++ | C | Python | Git | Linux | Machine Learning | Computer Vision | Computer Graphics | Rust | Deep Learning | PyTorch | CUDA C/C++ | Real-Time Rendering | OpenGL | Vulkan

ADDITIONAL INFORMATION

PROJECTS

01/05/2021 – 01/07/2021
Indirect Visual Odometry With Optical Flow
- Extended a Stereo camera Visual Odometry implementation with Optical Flow per the paper by Usenko et al.
- The optical flow was used to track detected keypoints through frames and again was used to carry them to the other camera to triangulate 3D points in the map.

Link https://www.yigitarastunali.com/project/indirect-visual-odometry-with-optical-flow/

01/12/2020 – 15/02/2021
Re-Implementation of Kinect Fusion
- Iterated Closest Points algorithm to match key points with the reconstructed geometry and the current frame.
- Iteratively updating the TSDF representation using the predicted camera poses and depth values
- Raycasting to reconstruct the surface in an online fashion.

Link https://www.yigitarastunali.com/project/example/

01/11/2021 – 01/03/2022
Implementation of Physics Based Simulations
- Implemented the following simulations from scratch: Mass-Spring Systems, 3D Rigid Body with Collisions, Diffusion and a Coupled Simulator - Mass-Spring System with Diffusion.

Link https://www.yigitarastunali.com/project/implementation-of-physics-based-simulations/