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Housseem Menhour

Software Engineer

PERSONAL STATEMENT

A software engineer with 4 years of experience in computer vision and machine learning, currently doing a MSc in Computer Science & Engineering at the University of Oulu with a focus on AI. I have a strong passion for R&D work as well as excellent programming skills which I have been applying across various domains including but not limited to machine vision, computed tomography, data analysis and system programming. I am looking for new interesting challenges to tackle.

EXPERIENCE

Algorithms Engineer

Jan 2022 - Present

Detection Technology

- Redesigned the architecture and expanded the functionality of our internal X-Ray Image Quality Assessment library.
- Introduced a CI/CD pipeline and new tools to improve the user experience of the project.
- Optimised code for significant performance gains.

Software Engineer

May 2022 - Oct 2022

ERG Controls

Redesigned and optimized the company's product for deployment on Jetson Nano boards with near real-time deep learning inference.

Computer Vision Engineer

Jul 2020 - Aug 2022

Visiomex

Researched and developed:

- Computer Vision based quality control solutions for the automotive and home appliances industries and applying a statistical approach to optimizing their parameters.
- 3D reconstruction and inspection using a laser profiling technique and a robotic arm achieving a scanning resolution of <math><100\mu\text{m}</math>.
- Anomaly detection (CAE, PaDiM) for defect detection in steel sheets.

Research Intern

Jun 2018 - Dec 2018

Kocaeli University

- As an intern at the Image Processing Laboratory, contributed to ongoing research on Computer Vision for Autonomous Driving Vehicles, and Image Classification and Analysis.

SKILLS

- Programming Languages: Python, C#/.NET, C/C++, Go
- Backend API and Desktop Development: FastAPI, ASP.NET, WPF, Qt
- Data and Analytics: SQL (Postgres, SQL Server), NoSQL, PyData Stack, ELK Stack, Kafka, Spark
- Computer Vision and Machine Learning: OpenCV, MVTec Halcon, PyTorch, TensorFlow, XGBoost
- Other Technical Skills: Linux, Git, Docker, DevOps, ROS, MATLAB, CUDA
- Languages: Arabic (Native), English (Advanced), Turkish (Advanced), French (Intermediate)
- Soft Skills: Analytical thinking, Fast learner, and Self-motivated

EDUCATION

MSc in Computer Science and Engineering, AI

Sep 2022 - Present

Oulu University

- Focus on Machine Learning and Machine Vision.
- Thesis on deep learning based denoising for CBCT projections.

Bachelor of Computer Engineering

Sep 2015 - Jun 2020

Kocaeli University

- Subjects include Algorithm Analysis, Design Patterns, Distributed Systems, Embedded Systems.
- Won the Engineering Faculty Achievement Award.

Turkish Language Preparatory Class

Sep 2014 - Jun 2015

TÖMER

Institute of Electrical & Electronics Engineering

Sep 2012 - Jun 2014

Boumerdes University

SELECT PROJECTS

Graduation Project

Sep 2019 - May 2020

CEVA Logistics

- My graduation project was on Spatio-Temporal Logistic Data Stream Processing in collaboration with CEVA Logistics. I built a dockerized infrastructure for a geo data pipeline, and stream processing with Apache Kafka and Spark. The rest of the team built on this groundwork for their real-time anomaly detection research.
- <https://doi.org/10.1016/j.eswa.2021.115755>

FourPlusOne

Jun 2018 - May 2019

OpenZeka MARC

Lead a team representing Kocaeli University at OpenZeka MARC competition for autonomous driving cars. We have:

- Built a complex robotic system for the Jetson TX2 platform using ROS.
- Applied Deep Learning to lane tracking (CNN in TF) and traffic signs detection (YOLO).
- Implemented sensor fusion and Kalman filter for reliable localization and PID controller.
- <https://github.com/fourplusone41>

DoCA

Jun 2018 - Sep 2018

Havelsan Open Innovation Competition (PARDUS DoSA)

- Developed a program for automatic document classification and analysis covering text, images, audio and video file types. This project won 1st place at Havelsan Open Innovation Competition (PARDUS DoSA).
- https://github.com/husmen/DoCA_GUI

PUBLICATIONS

- H. Menhour, et al, "Searchable Turkish OCR'd historical newspaper collection 1928–1942", J. Inf. Sci., Mar 2021.
- S. Eken, et al, "A Reproducible Educational Plan to Teach Mini Autonomous Race Car Programming", IJEEE, Feb 2020.
- S. Eken, et al, "DoCA: A Content-based Automatic Classification System for Digital Documents", IEEE Access, Jul 2019.

CERTIFICATES

- Data Analyst Nanodegree, Udacity, Jun 2020.
- Fundamentals of Deep Learning for Computer Vision Certificate, NVIDIA, Feb 2019.
- MARC Autonomous Vehicle Training Bootcamp, OpenZeka, Feb 2019.
- IEEEExtreme Turkey Competitive Programming Camp, Feb 2017.

ACCOMPLISHMENTS

- 2nd place at AçıkHack NLP Hackathon, Nov 2019.
- 1st place at Havelsan's Open Innovation Competition (PARDUS DoSA), Aug 2018.
- Fully funded Turkey Scholarships Program, Aug 2014.
- Baccalaureate Exam with First Class Honours, Jun 2012

ACTIVITIES

- IT Manager at ESN Oulu, Jan 2023 - Dec 2023
- Team Leader at FourPlusOne, Sep 2018 - Sep 2019
- IT Manager at IAESTE Kocaeli, Sep 2017 - Sep 2018
- Project Manager at Inelectronics Student Club, Jan 2013 - June 2014