Elif Bilge

Computer Vision Research Enginner

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Objective

- A Computer Vision Research Engineer who is passionate about developing advanced algorithms to translate R&D projects in medical image analysis into practical applications. My goal is to contribute to a supportive community of like-minded individuals, providing ready-to-use projects for pathologists, and creating robust systems that empower healthcare professionals to deliver enhanced care. My current work consists of designing computer vision approaches to automate specific tasks including traditional CV and machine learning approaches, various algorithms, and heuristics. Proven ability to take complex problems and break them down into manageable parts, leading to successful product launches.

Education

Bilkent University *Ankara, Turkey*

Bachelor of Science in Electrical and Electronics Engineering *February 2020*

Experience

Disun Software *Remote*

Computer Vision Research Engineer *March 2022 - PRESENT*

- Developed a decision support application to assist pathologists in detecting tumor budding.
- Developed an automatic HER2 scoring algorithm to assist pathologists in selecting the optimal cancer treatment strategy.
- Designed and implemented a computer vision algorithm that automatically maps selected regions in Hematoxylin-Eosin images to corresponding regions in DAPI image.
- Designed an algorithm for automatic analysis and visualization system of fluorescence in situ hybridization (FISH) images.
- Built up an automatic spectral karyotype analysis
- Designed an automatic detection of antinuclear antibody on immunofluorescence images.

  * All these projects are supported by TUBITAK. I submitted all projects with a desktop application prototype for pathologists to evaluate.

National Magnetic Resonance Research Center-UMRAM *Ankara, Turkey*

Electric and Electronic Engineering *Feb. 2021 - Dec. 2022*

- To eliminate vendor dependency on MRI sequence execution, work on the design of MRI spectrometer for also worked on the development and reconstruction of MRI sequences via Pulseq's open-source framework in collaboration with ASELSAN.
- Lead the project of FPGA-based Spectrometer for MRI project under the University-Industry Collaboration between Bilkent University and UMRAM, which aims to establish communication between sequences and scanner to provide flexibility in the transmission of waveforms.

Papilon Defense, Inc. *Ankara, Turkey*

Research Engineer *July 2020 - November 2020*

- Design of an algorithm to detect license plates in video streams and perform optical character recognition to identify the letters and numbers on license plates for smart parking systems' automated registration and authentication processes.

Aselsan, Inc. *Ankara, Turkey*

Electric and Electronic Engineer Intern *Jan. 2018 - Apr. 2018*

- Offer service through Windows Communication Foundations (WCF) framework in Model-View-Controller (MVC) pattern to create a platform of user login page with the username and password.

KIWI, Ltd. *Ankara, Turkey*

Electric and Electronic Engineer Intern *July 2017 - Aug. 2017*

- Worked on drone motor communication via FPGA.

Projects

Deep Learning Enabled Early Earthquake Warning System *Matlab, Pytorch*

- Designed early warning system based on CNN&RNN architecture by recorded sound data where temporal relationships and weight initialization methods for high-level features are utilized.

Reproduce the article of ”Lifelong Learning of CNN” *Pytorch*

- Implement some of the experiments in the paper which present a way to train CNNs for different tasks continually without getting caught in the catastrophic forgetting phenomenon.

Bizarre Portrait Generation via Fast Neural Style Transfer *Pytorch*

- Creation of dataset and implementation of fast neural style transfer models to generate portraits of people with a mixture of artistic styles belonging to renowned painters in history, as part of a machine learning course project.

Detection and 2D-Mapping of Chemicals using MWIR Laser *Matlab, LabView*

- Design and implementation of laboratory chemical scanner prototype utilizing middle wavelength infrared (MWIR) laser, as part of a senior project course, collaborated with Meteksan Defence Inc.

Reconstruction of Head Phantom Image in Defined k-Space *Matlab*

- Simulate the reconstruction of raw MRI data through the projection-reconstruction method using the Shepp-Logan Head Phantom function based on the Central Slice Theorem

Skills

Soft Skills

- Passionate about machine learning
- Scientific mindset and strong motivation to learn
- Highly adaptable, flexible professional who embraces teamwork and enjoys working independently.
- With a keen eye for detail and experience in record-keeping throughout projects, I bring a high level of organization and meticulousness to my work.

Applications

- Design, develop and implement computer vision algorithms for medical image processing tasks using deep learning frameworks such as TensorFlow, Keras, and PyTorch.

Language

English	C1 , Toefl IBT: 103/120 - September 2021
German	B1
Turkish	Native

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