Elif Bilge

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Experience

Computer Vision Research Engineer, Disun Software – Izmir, TR March 2022 - Present

My main responsibility is developing algorithms to meet specific task success criteria. Additionally, I successfully completed three project applications for TUBITAK, which included conducting technical feasibility studies, performing literature reviews, proposing methodologies, and presenting the findings to judges.

- **Tumor Budding Segmentation:** Developed a specialized neural network for tumor budding segmentation in H&E images, addressing the subjective nature of this task for pathologists.
  - Effectively integrated multi-resolution information from Regions of Interest (ROIs).
  - Utilized a pretrained model to identify potential tumor budding candidates, reducing false positives.
  - Integrated the solution into a user-friendly interface for pathologists to utilize and evaluate.
- **HE2DAPI:** Implemented keypoint matching to align regions between H&E and DAPI stained images.
  - Leveraging complementary information from both methods to accurately identify cell types and visualize tissue structures.
  - Enhanced disease diagnosis and detection of tissue abnormalities through improved image alignment.
  - Developed a GUI for testing and evaluation of the matched regions.
- **FISH Analyze:** Developed an algorithm for fluorescence in situ hybridization (FISH) analysis.
  - An algorithm is developed to segment cells within FISH images, followed by the detection of signals via image processing techniques.
  - Created an intuitive GUI to present analysis results and visualize data based on selected channels.
- **HER2 Scoring:** Conducted a probabilistic multiclass classification of Human Epidermal Growth Factor Receptor 2 (HER2) images.

Research Engineer, National Magnetic Resonance Research Center – Ankara, TR Feb 2021 – Dec 2022

- To eliminate vendor dependency, worked on the design of MRI spectrometer and MRI pulse sequences crafting, collaborated with ASELSAN. Moreover, led the FPGA-based MRI spectrometer project to establish communication between sequences and scanner for flexible transmission of waveforms.

Computer Vision Research Engineer, Papilon Defense – Ankara, TR July 2020 – Nov 2020

- Designed algorithms to detect license plates in video streams and perform optical character recognition for automated registration and authentication processes of smart parking systems.

Electrical & Electronic Engineer, Intern, ASELSAN – Ankara, TR 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.

Electrical & Electronic Engineer, Intern, KIWI – Ankara, TR July 2017 – Aug 2017

- Worked on drone motor communication via FPGA.

Education

Bilkent University, B.S. in Electrical and Electronics Engineering Sept 2015 – Feb 2020

Skills & Interests

Programming Languages: Python, MATLAB
Frameworks: PyTorch, TensorFlow, OpenCV, Scikit-Learn, Scipy, SimpleITK, Pandas, PyDicom, Tkinter
Tools: Linux, Docker, Slicer 3D, WandB, ITK-SNAP, Git
Languages: English (C1), German (B1), Turkish (Native)
Interests: Deep Learning, Computer Vision, Machine Learning, Image Processing