Bilal Kabas

Machine Learning Engineer &
M.Sc. at Electrical-Electronics Eng.

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GitHub – ResearchGate – LinkedIn – Website

About Me

Highly skilled and motivated Machine Learning Engineer with a strong research background and a proven track record in developing and deploying advanced deep learning and machine learning models. Mastery of Python's libraries and frameworks, empowering seamless implementation of cutting-edge algorithms and data analysis. Demonstrated expertise in successfully creating and implementing advanced models across various domains, with a specialized focus on Deep Reinforcement Learning, Computer Vision, and NLP.

Work Experience

Nov '21–Present **Aselsan**
Ankara, Turkey Machine Learning Engineer

- Improving acoustic signal classification system
- Working on data analysis, preprocessing, and feature extraction
- Implementing and evaluating deep learning models
- Developing algorithms for fiber optic DAS-based threat classification
- Worked on earthquake localization and early warning using DAS

Feb '20–Nov'21 **Distributed Intelligent Robotics Estimation & Control Lab, AGU**
Kayseri, Turkey Research Student (Supervisor: Samet Guler)

- Worked on autonomous UAV navigation and mobile robotics
- Implemented deep reinforcement learning algorithms (DQN, PPO)
- Implemented Deep-RL based source seeking algorithm and developed simulation environments

June '21–July '21 **Aselsan**
Ankara, Turkey Intern

- Implemented basic video processing algorithms in VHDL
- Worked on CNN implementation on FPGAs

Education

2022–Present **Bilkent University**
Ankara, Turkey M.Sc., Electrical-Electronics Engineering

2017–2022 **Abdullah Gül University**
Kayseri, Turkey B.Sc., Electrical-Electronics Engineering, **CGPA:** 3.98, School rank 1

Publications & Preprints

2022 (Single-authored) B. Kabas, "**Autonomous UAV Navigation via Deep Reinforcement Learning Using PPO**," *30th Signal Processing and Communications Applications Conference (SIU)*, IEEE, 2022.

2021 A. F. Hacan, B. Kabas, and S. Oguten"**Design Optimization of a Three-Phase Transformer Using Finite Element Analysis**,", arXiv:2201.11769 [eess.SY], 2022.

Projects

Sep '21–Oct'22 **PPO-based Autonomous Navigation for Quadcopters**
- Techs: *PyTorch, AirSim, Unreal Engine*. Link: GitHub

Jan '21–Jan'22 **Deep RL-based Source Seeking for Quadrotors in Cluttered Environments**
- Techs: *PyTorch, AirSim, Unreal Engine, ROS, PX4*

May '21–June '21 **Intracranial Hemorrhage Detection in Head CTs using Machine Learning**
- Techs: *Python, Scikit-Learn, Keras, OpenCV*

Dec '20–Feb '21 **Optimization of QPSK-based Digital Communication Systems Using CAE Compression and CNN Denoising**
- Techs: *Keras, LabVIEW, USRP*. Links: GitHub, ResearchGate

Dec '20–Feb '21 **PID Controller Optimization for Low-cost Line Follower Robots**
- Techs: *C, STM32*. Links: Arxiv, GitHub

Mar '20–Apr '20 **Comparative Analysis of Full Adder Cells**
- Techs: *LTSpice, Proteus*. Link: ResearchGate

Oct '19–Jan '20 **ECG Signal Acquisition and Data Processing**
- Techs: *MATLAB, Signal Processing Toolbox, Proteus*. Link: GitHub

Competitions

May '20–Sep '20 **2020 TUBITAK International UAV Competition**
- Developed an autonomous quadcopter
- Designed and developed algorithms, software as well as mechanical parts

Computer Skills

Languages	Python, MATLAB, C/C++, JavaScript
Libraries	Pytorch, Tensorflow, OpenCV, Scikit-learn, SciPy, Numpy, Pandas
Softwares	Simulink, LabVIEW, Unreal Engine 4
Hardwares	NVIDIA DGX, NVIDIA Jetson Nano, STM32, Raspberry Pi, Pixhawk
Platforms	Windows, Linux, WSL2
Web	Django, Flask, HTML, CSS
Others	Git, Docker, Hugging Face, Weights & Biases, ROS, Microsoft AirSim, LaTeX

Languages

English, Advanced

Turkish, Native

References

Available upon request