Elif MESECI

Researc Assistant
Artificial Intelligence & Computer Vision

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PROFESSIONAL SUMMARY

Computer Engineer and AI researcher specializing in deep learning and computer vision. Experienced in medical image analysis, segmentation, and classification using PyTorch and TensorFlow. Contributed to TÜSEB and BAP funded research projects and published research in peer-reviewed journals. Currently working as a Research Assistant focusing on AI-driven medical imaging solutions.

Resarch Interest:
Artificial Intelligence, Deep Learning, Computer Vision, Medical Image Analysis, Image Segmentation, Medical Decision Support Systems, Remote Sensing Image Analysis

EDUCATION

Karabuk University Computer Engineering

2023 - Present

Doctor of Philosophy
- Research focus: Deep learning-based medical image analysis and AI-driven diagnostic systems.
- Projects: "Autosomal Dominant Polycystic Kidney Disease MRI-Based Artificial Intelligence Decision Support System" and "Development of Deep Learning Based Software for Early Diagnosis in Dentistry", Supported by the Turkish Health Institutes Presidency (TUSEB).

2021 - 2023
GPA: 3.71

Master of Science
- Thesis: Ensemble Learning-Based Approach to Classification of SAR Images for Land Cover and Land Use, supported by the Scientific Research Projects Unit of the University.
- Oral presentation made at the 9th International Engineering and Natural Sciences Conference (ICENS 2023) held in Bosnia and Herzegovina.

2016 - 2021
GPA: 3.04

Bachelor Degree
- Contributed to programming language courses as a laboratory assistant.
- As a board member of the Information Technologies Club of University, various events were organized.
- Undergraduate thesis: Analysis of Panoramic Dental Images Using Artificial Intelligence Techniques, Supported by TÜBİTAK.

WORK EXPERIENCE

Zonguldak Bulent Ecevit University

Feb 2022 – Present

Researh Assistant
- Assisted in laboratory sessions for Programming Languages and Data Structures courses and developed a C# console-based grading tool to automate the evaluation of students' programming assignments.
- C, C++, C#, Data Structures

SimurgAI

Nov 2021 – 2022

AI Specialist
- Developed deep learning models for medical image segmentation and classification
- Implemented models using PyTorch and TensorFlow
- Improved model performance through hyperparameter optimization and architecture tuning
- Python, PyTorch, TensorFlow, CUDA, Mask R-CNN

Oct 2020 – Nov 2021

AI Developer
- Contributed to research and development of deep learning solutions for medical image segmentation
- Implemented computer vision pipelines using TensorFlow and OpenCV
- Python, Tensorflow, Keras, OpenCV, ResNet, Fast R-CNN, Mask R-CNN

PROJECTS

Autosomal Dominant Polycystic Kidney Disease MRI-Based Artificial Intelligence Decision Support System
[Karabuk University (*TUSEB*) | 2024 -2026]
- 3D U-Net and UX-Net

Deep Learning Based Artificial Intelligence Software for Incidental Kidney Cancer Screening and Diagnosis
[Karabuk University | 2024 - 2026]
- 3D U-Net and Mask R-CNN

Development of Prediction and Tag Recommendation System for CRM module
[Freelance | 2024]
- Flask, manipulating and analyzing complex data, and classification

Clustering of Spectrophotometer Values for Lotting of Denim Fabrics Using Machine Learning Methods
[Karabuk University | 2023]
- CIE-LAB, clustering, hyper-parameter tuning methods are applied.

Prediction of Pressure Injury Risk of Intensive Care Unit Patients Using Machine Learning Methods
[Karabuk University (*Scientific Research Project*) | 2023]
- Prediction and recommendation system is developed.

Ensemble Learning-based Approach to Classification of SAR Images for Land Cover and Land Use
[Karabuk University (*Scientific Research Project*) | 2022 - 2023]
- TensorFlow, Keras, DenseNet, remote sensing images.
- A new model called SARDE-Net was created using optimisation methods and concatenation.

Land Cover and Land Use Classification of Patch-based Denoised SAR Images
[Karabuk University | 2022 - 2023]
- MATLAB, Pytorch, despeckle filtering, remote sensing images, transfer learning are used.

Data Analysis and Time Series Forecasting of Agricultural Sector with Statistical Methods
[Freelance| 2022]
- Hypothesis testing was performed by applying descriptive and inferential statistic.
- An interactive dasboard was created with the outputs obtained.

Complex Network Analysis and Neighborhood-Based Link Prediction Methods on PDC World Darts Championship
[Karabuk University | 2022]
- NetworkX is used, data acquisition, analysis and visualization methods are applied.

Caries Detection on Radiographs using Deep Learning Classification Algorithms
[SimurgAI | 2021-2022]
- Transfer learning, class distributions, data analysis, image processing methods are used.

Analysis of Panoramic Dental Images using Artificial Learning Techniques
[SimurgAI (*TUBITAK*) | 2020- 2021]
- Tensorflow, JSON, Mask R-CNN, model optimisation, post-processing methods are applied.

Segmentation of Bitewing Intraoral X-ray Images with Mask R-CNN Deep Learning Model
[SimurgAI | 2020 - 2021]
- Tensorflow, JSON, Mask R-CNN were used.

Classification of Wrist Images with Deep Learning Models
[Medathon | 2021]
- VGG, AlexNet, ResNet were used. Model improvement, hyper-parameter tuning, transfer learning methods are applied.

E-commerce Website
[Karabuk University | 2020 - 2021]
- Database, MYSQL, Laravel, PHP were used.

PAPERS

- Ozdemir, D., Ozcan, C., Karaoglu, A., Pekince, A., Yasa, Y., Kazangirler, B. Y., & Meseci, E. An enhanced deep learning model for detection and classification of dental caries in panoramic radiographs. Neural Computing and Applications, 38(1), 3, 2026.
- Guven, D. Y., Ozcan, C., Ozdemir, D., Meseci, E., & Kucukakarsu, N. Predicting Pressure Injury in Intensive Care Patients With Ensemble-Based Machine Learning Methods. CIN: Computers, Informatics, Nursing, 10-1097, 2025.
- Meseci, E., Sonuc, E., Ozcan, C., Ensemble Approach with Multi-Agent and Swarm Based Algorithms in Quadratic Assignment Problem, International Conference on Trends in Advanced Research 2, 677-687, 2024.
- Meseci, E., Ozcan, C., Ozdemir, D. Dilmac, M., DenseNet-Based Ensemble Network for Land Cover and Land Use Classification of Patch-Based Denoised SAR Images, Arabian Journal of Geoscience 16, 597, 2023.
- Meseci, E., Ozcan, C., Tekin, B. Y., Land Cover and Land Use Classification of Patch-Based Denoised SAR Images. European Journal of Engineering and Natural Sciences, 8(1), 10-15, 2023.
- Ozdemir, D., Ozkaynak, E., Dilmac, M., Meseci, E., Complex Network Analysis on PDC World Darts Championships, ICONDATA'22 Proceedings Book, 1, 142–147, 2022.
- Meseci, E., Ozkaynak, E., Dilmac, M., Ozdemir, D., Neighborhood-Based Link Prediction on PDC World Darts Championship Complex Networks, ICONDATA'22 Proceedings Book, 1, 148–153, 2022.
- Tekin, B.Y., Ozcan, C., Pekince, A., Yasa, Y., Karaoglu, A., Cilek, S., Ozdemir, D., Meseci, E., Tooth Detection and Numbering with Instance Segmentation in Panoramic Radiographs, International Conference on Interdisciplinary Applications of Artificial Intelligence (ICIDAAI), 1st, Online, 21-23 May, 2021.
- Karaoglu, A., Ozcan, C., Pekince, A., Yasa, Meseci, E., Cilek, S., Segmentation of Bitewing Intraoral X-Ray Images with Mask R-CNN Deep Learning Model, II. International Artificial Intelligence in Health Congress 2021, SS-125,16-18 Nisan, 2021.