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Yunus Serhat Bicakci, PhD

Researcher

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As a researcher with a PhD, I specialise in leveraging big data, machine learning, deep learning, and computer vision to address complex challenges across various domains. My work is driven by the transformative potential of data science and AI, particularly Large Language Models (LLMs) and Multimodal Large Language Models (MLLMs), to develop innovative solutions. Proficient in Python, R, and SQL, I also have a strong interest in Geographic Information Systems (GIS) for spatial analysis. Currently, I am focused on integrating geoinformation and computer vision with LLMs and MLLMs to push the boundaries of AI capabilities.

Education

PostDoc | The Jill Dando Institute, *University College London (UCL)* 04/2024
PhD | Geographical Information Technologies, *Istanbul Technical University* 07/2021
MSc | Information Systems, *Sakarya University* 07/2013
BA | Business Administration, *Anadolu University* 06/2011

Experience

Research Associate | University of Glasgow *Glasgow – UK* 2024 — Present
Postdoctoral Researcher | University College London (UCL) *London – UK* 2023 — 2024
Mentor & Supervisor | inzva, *Remote – Turkey* 2022 — 2024
Assistant Professor | Marmara University, *Istanbul – Turkey* 2022 — 2023
Research Assistant | Marmara University, *Istanbul – Turkey* 2013 — 2022

Recent Certificates

TensorFlow Developer Certificate – Issued by: TensorFlow | Certificate 2022 – 2025
Google Machine Learning Bootcamp Turkey – Study time: 5 months – Google Developers & inzva | Certificate 2022
Deep Learning Specialization – Issued by: DeepLearning.AI | Certificate 2022

Skills

Programming Languages	Python, R, SQL
Soft Skills	Leadership, Supporting, Communication, Problem-Solving, Time Management, Creativity
Tools and Other	MLLMs, LLMs, GCP, git, PostgreSQL, PostGIS, ArcGIS, QGIS
Libraries	Transformers, PyTorch, Tensorflow, Keras, Pandas, Numpy, Gradio

Selected Projects

Multi-Lingual and Multi-Modal Location Information Extraction: Working on the this project in collaboration with The Alan Turing Institute and DSO National Laboratories, focusing on the development of an image-based geocoder. Utilizing Multimodal Large Language Models (LLMs), my work involves extracting location information from single images by leveraging visual features such as signage, foliage, and building styles. 2024
Development of a Medical Chatbot Using Large Language Models: Led the creation of a medical chatbot using Large Language Models to enhance accessibility and efficiency in healthcare, showcasing leadership in applying AI for societal benefits. –Link 2024
Comparative Analysis of CNN and Transformer U-Nets for MS Lesion Segmentation Project: Investigated CNN-based and Transformer-based U-Net architectures for MS lesion segmentation using ISBI2015 and MSSEG2016 datasets. This involved multiple U-Net models to compare effectiveness and efficiency, leveraging Python, TensorFlow, and Keras. 2024
Interactive Crime Mapping with Big Data: Directed the development of a cloud-based, interactive crime mapping application, integrating AI, machine learning, and geospatial technology to enhance public safety through real-time data analysis. –Link 2023

Selected Publications

Big Data Usage Opportunities for Interactive Crime Mapping Yunus Serhat Bıçakçı, Alina Ristea, Kate Bowers. *New Research in Crime Modeling and Mapping Using Geospatial Technologies*, In Michael Lietner (Ed.), Geotechnologies and the Environment series, Springer. (Accepted) 2024
CNN and Transformer U-Nets in Multiple Sclerosis Lesion Segmentation: A Comparative Assessment Beytullah Sarıca, Yunus Serhat Bıçakçı, Dursun Zafer Şeker. *Biomedical Signal Processing and Control / in review* 2024
ATTransUNet: Semantic Segmentation Model for Building Segmentation from Aerial Image and Laser Data. Yunus Serhat Bıçakçı, Beytullah Sarıca. *Nordic Machine Intelligence, 2(3). –DOI* 2023