

Yunus Serhat Bicakci, PhD

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Researcher | AI Engineer

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Researcher and AI Engineer with a PhD in Applied Informatics, specializing in developing scalable AI solutions through fine-tuning and optimizing Large Language Models (LLMs), Vision-Language Models (VLMs), and Retrieval-Augmented Generation (RAG). Expert in machine learning, deep learning, geospatial analytics, remote sensing, and GIS integration, with proven experience building efficient, production-ready inference pipelines and interactive AI products leveraging cloud infrastructure.

EXPERIENCE

Assistant Professor Web Page Marmara University, Istanbul – Türkiye	01/2025 — Present
Research Software Engineering Scientist (Affiliate) Web Page University of Glasgow Glasgow – UK	12/2024 — Present
Research Associate University of Glasgow Glasgow – UK	06/2024 — 12/2024
PostDoc University College London (UCL) London – UK	01/2023 — 06/2024
Research Assistant Marmara University, Istanbul – Turkey	06/2013 — 12/2022

EDUCATION

PostDoc Security and Crime Science, University College London (UCL)	01/2023
PhD Geographical Information Technologies, Istanbul Technical University	07/2021
MSc Management Information Systems, Sakarya University	07/2013
BA Business Administration, Anadolu University	06/2011

SKILLS

Generative AI & LLMs	transformers, vLLM, LMDeploy, OpenAI API, Weights & Biases (W&B), Quantization
RAG & Agentic Systems	MCP, LlamaIndex, LangGraph, smolagents, FAISS
Cloud & Deployment	Streamlit, Gradio, Hugging Face, Docker, Git, AWS
ML Libraries & Data	PyTorch, TensorFlow, NumPy, Pandas, GeoPandas, Scikit-learn, SQL, SQLite, PostgreSQL
Visualization & Mapping	matplotlib, seaborn, plotly, folium, QGIS

CERTIFICATES

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

GRANTS/FUNDING

The British Academy (Global Talent Visa Endorsement)	2024
The Alan Turing Institute (Joint Research Project, University of Glasgow)	2024 – 2024
The Scientific and Technological Research Council of Türkiye (International Postdoctoral Research Fellowship)	2023 – 2024

HIGHLIGHTED 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 a novel approach for geolocalization using Multimodal Large Language Models (MLLMs) and Retrieval-Augmented Generation (RAG) techniques. Achieved state-of-the-art street-level geolocalization accuracy (1 km) on benchmarks datasets.	2024
Interactive Crime Mapping with Big Data: Led the development of a cloud-based interactive crime mapping application. Integrated spatiotemporal datasets from the London Metropolitan Police and geo-tagged tweets to produce real-time visualizations of crime patterns. Enabled dynamic user interactions, including datasets uploads and analyses.	2023
Semantic Segmentation Model for Building Segmentation: Developed a novel deep learning framework, ATTransUNet, combining Attention Gated Networks and TransUNet for precise building segmentation using aerial imagery and LIDAR data. Achieved competitive IoU and BloU scores (IoU: 0.7551, 0.8555; BloU: 0.5613, 0.7127) in the MapAI competition.	2023

LATEST PUBLICATIONS

Big Data and Social Media Analytics: Opportunities for Interactive Crime Mapping Yunus Serhat Bıçakçı, Alina Ristea, Kate Bowers. <i>New Research in Crime Modeling and Mapping Using Geospatial Technologies</i> , edited by Michael Leitner, Geotechnologies and the Environment series. DOI	2025
CNN and Transformer U-Nets in Multiple Sclerosis Lesion Segmentation: A Comparative Assessment Beytullah Sarıca, Yunus Serhat Bıçakçı, Dursun Zafer Şeker. <i>International Journal of Imaging Systems and Technology (IMA)</i> / accepted (in publication)	2025
Performance comparison of vision-language models in classifying Turkish dishes Yunus Serhat Bıçakçı. <i>Expert Systems With Applications</i> / in review	2025

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Street-Level Geolocalization Using Multimodal Large Language Models and Retrieval-Augmented Generation Yunus Serhat Bıçakçı, Joseph Shingleton, Anahid Basiri. *Journal of Visual Communication and Image Representation* / in review 2025

ATTransUNet: Semantic Segmentation Model for Building Segmentation from Aerial Image and Laser Data. Yunus Serhat Bıçakçı, Beytullah Sarıca. *Nordic Machine Intelligence*, 2(3). 2023

SELECTED CONFERENCES AND WORKSHOPS

3rd Cardiff NLP Summer Workshop. (In-person) 1-2 July, 2024, Cardiff, UK. [-link](#) 2024

2nd Cardiff NLP Summer Workshop. (In-person) 26-27 June, 2023, Cardiff, UK. [-link](#) 2023

Using Big Data, Artificial Intelligence and Cloud Technologies for Interactive Crime Mapping. Yunus Serhat Bıçakçı, Alina Ristea, Kate Bowers. *Stockholm Criminology Symposium* [-link](#) 2023

Using Natural Language Processing Techniques in Detecting Reports of Crime in Text Data. Yunus Serhat Bıçakçı, Alina Ristea, Kate Bowers. *ECCA 2023* [-link](#) 2023