

Yunus Serhat Bıçakçı, PhD

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Istanbul, Türkiye

Research interests

Data Science, Machine Learning, Deep Learning, Computer Vision, Generative AI, GeoAI

Positions

- 2025 — Present **Assistant Professor**
Marmara University, Vocational School of Social Sciences – Istanbul, Turkey
Teach undergraduate technology courses, developing syllabi and delivering engaging lectures that enhance student understanding of concepts. Continue active research, focusing on data science and geospatial, with findings published in high-impact journals and presented at international conferences. Serve on academic committees, contributing to curriculum development and the strategic planning of departmental goals. Conducted regular office hours to provide academic support and career advice to students.
- 2024 – Present **Research Software Engineering Scientist**
University of Glasgow, Geospatial Data Science Group, School of Geographical and Earth Sciences – Glasgow, UK
Initially appointed as Research Associate and subsequently continuing as Affiliate Research Software Engineering Scientist within the Geospatial Data Science Group. Contribute to collaborative projects on geospatial data science and multimodal AI, co-author scholarly publications, and present findings at international conferences. Support proposal development and mentoring, maintaining active collaboration with the group on ongoing research initiatives.
- 2023 – 2024 **Postdoctoral Research**
University College London (UCL), Jill Dando Institute of Security and Crime Science – London, UK
Conducted research on AI-driven crime mapping, developing ML models (NLP, geospatial AI, deep learning) for large-scale data analysis. Authored and published scholarly papers, contributing to the knowledge base in the field of data science and environmental criminology. Presented research findings at international conferences and seminars, engaging with academic peers and industry experts.
- 2013 – 2023 **Research Assistant**
Marmara University, Vocational School of Social Sciences – Istanbul, Turkey
Conducted comprehensive research for academic projects, specialising in geospatial information technology, contributing significantly to the data collection and analysis phases. Assisted in the publication of several peer-reviewed articles. Supported the Head of School in administrative duties, streamlining daily operations and enhancing organizational efficiency within the department.

Education

- 2014 – 2021 **Istanbul Technical University** – Istanbul, Turkey
PhD in Applied Informatics
Geographical Information Technologies Program
Supervisor: [Prof Dr Dursun Zafer Şeker](#)
- 2011 – 2013 **Sakarya University** – Sakarya, Turkey
MSc in Informations Systems
Management Information Systems Program
Supervisor: [Prof Dr Orhan Torkul](#)

2007 – 2011 **Anadolu University** – Eskişehir, Turkey
BA in Business Administration
Business Administration Program

Book Chapters

- 2025 **Big Data and Social Media Analytics: Opportunities for Interactive Crime Mapping**
Yunus Serhat Bıçakçı, Alina Ristea, Kate Bowers.
New Research in Crime Modeling and Mapping Using Geospatial Technologies, In: Leitner, M. (eds), *New Research in Crime Modeling and Mapping Using Geospatial Technologies*. Geotechnologies and the Environment, Springer, Dordrecht. [\(DOI\)](#)
Towards GeoAI Foundation Models: Multimodal Learning Framework with Spatial Knowledge
Meiliu Wu, Qunyin Huang, Anahid Basiri, Yunus Serhat Bıçakçı, Joseph Shingleton.
Geography According to ChatGPT / in review
- 2022 **Artificial Intelligence Applications in Tourism and Travel Offices**
Yunus Serhat Bıçakçı, Bora Aksu
Digital Transformation Dynamics in Tourism, In Semiz Celik, D. (eds), *The Reflections of Digital Transformation on Tourism* (pp. 139-152). Istanbul, Turkey: Beta Publishing.

Publications

- 2025 **Street-Level Geolocalization Using Multimodal Large Language Models and Retrieval-Augmented Generation** [\(DOI\)](#)
Yunus Serhat Bıçakçı, Joseph Shingleton, Anahid Basiri.
arXiv:2509.01341 [cs.CV]
- CNN and Transformer U-Nets in Multiple Sclerosis Lesion Segmentation: A Comparative Assessment** [\(DOI\)](#)
Beytullah Sarıca, Yunus Serhat Bıçakçı, Dursun Zafer Şeker.
International Journal of Imaging Systems and Technology (IMA)
- Performance comparison of multimodal vision-language models in classifying Turkish dishes**
Yunus Serhat Bıçakçı.
Sakarya University Journal of Computer and Information Sciences / in review
- 2023 **ATTransUNet: Semantic Segmentation Model for Building Segmentation from Aerial Image and Laser Data** [\(DOI\)](#)
Yunus Serhat Bıçakçı, Beytullah Sarıca.
Nordic Machine Intelligence, 2(3).
- 2020 **Location-Based Analyses for Electronic Monitoring of Parolees** [\(DOI\)](#)
Yunus Serhat Bıçakçı, Dursun Zafer Şeker, Hande Demirel.
ISPRS International Journal of Geo-Information, 9(5), 296.
- 2019 **Spora Yönelik Tutum İle Yaşam Doyumu Arasındaki İlişki: Marmara Üniversitesi Sosyal Bilimler Meslek Yüksekokulu Öğrencileri Örneği /in Turkish** [\(Link\)](#)
Cağdaş Caz, Yunus Serhat Bıçakçı, Fatma Firuzan Nakipoglu.
Gümüşhane Üniversitesi Sosyal Bilimler Enstitüsü Elektronik Dergisi, 10(3), 484–491.

- 2017 **Spatio-temporal analyses to estimate speed information for transport forecasting and scenario testing** ([Link](#))
Yunus Serhat Bıçakçı, Beytullah Sarıca, Mete Ercan Pakdil, Batuhan Yazırlı, Hande Demirel.
Fresenius Environmental Bulletin, 26(1).

Presentations

- 2025 **Multimodal Semantic Segmentation for Impervious Surface Mapping**
Yunus Serhat Bıçakçı.
15th Workshop on Hyperspectral Image and Signal Processing: Evolution of Remote Sensing (WHISPERS 2025), 12-14 November 2025, Bellaterra (Barcelona), Spain (forthcoming).
- 2023 **Using Big Data, Artificial Intelligence and Cloud Technologies for Interactive Crime Mapping**
Yunus Serhat Bıçakçı, Alina Ristea, Kate Bowers.
Stockholm Criminology Symposium. ([Link](#))
- Application of Natural Language Processing Techniques for Crime Detection**
Yunus Serhat Bıçakçı, Alina Ristea, Kate Bowers.
Environmental Criminology and Crime Analysis (ECCA) 2023 ([Link](#)).
- 2022 **Artificial Intelligence Applications for Social Municipality: The Case of Chatbot**
Yunus Serhat Bıçakçı.
International VI. Civil Strategy Symposium. ([Link](#))

Projects

- 2025 **Segmentation of Istanbul Street Images and Creation of an Open Dataset**
TÜBİTAK 1002-A project (Budget: 100,000 TL)
Collected large-scale street-level imagery of Istanbul using crowdsourced and open-data platforms (e.g., Mapillary). Applied preprocessing steps such as noise reduction and personal data anonymisation (e.g., face and license plate blurring), followed by semantic segmentation using state-of-the-art AI models. The project aimed to represent diverse urban morphologies—from dense historical areas like the Historic Peninsula to rapidly developing districts—by automatically labelling thousands of images. The resulting dataset, comprising images, segmentation masks, and associated attributes, was published as open data. This pioneering work addresses the absence of a large-scale, detailed open street-level imagery and labelling dataset in Türkiye, filling a critical gap for computer vision and smart city research.
- Multimodal Semantic Segmentation for Impervious Surface Mapping**
Developed multiple deep learning models for the IEEE WHISPERS 2025 ISASeg Challenge, focusing on impervious surface segmentation using Sentinel-1 and Sentinel-2 imagery. Explored and fine-tuned various architectures including DeepLabV3+, UPerNet, SegFormer, and U-Net with ensemble methods. [Ranked 1st in both Phase 1 and Phase 2 leaderboard](#), achieving top segmentation scores through multimodal data fusion (Phase 1 Score: 0.8542; Phase 2 Score: 0.8241). This work demonstrated the effectiveness of combining synthetic aperture radar (SAR) and multispectral optical data for robust urban mapping tasks, addressing challenges such as varying spatial resolutions, noise, and seasonal variability. The project not only advanced state-of-the-art methods in semantic segmentation but also provided insights into practical applications for urban planning, climate resilience monitoring, and sustainable infrastructure development.

Awards, and Short-Term Study

- 2024 - 2029 **Global Talent Endorsement – The British Academy**
Received a prestigious endorsement as part of the UK's Global Talent visa scheme, recognizing exceptional promise contributions. This endorsement facilitates ongoing academic and research pursuits in the UK, highlighting significant impact in my speciality.
- 2023 - 2025 **TUBITAK Postdoctoral Fellowship**
Awarded by the Scientific and Technological Research Council of Turkey (TUBITAK) for postdoctoral research at University College London (UCL). This fellowship includes financial support, in addition to travel expenses, recognizing outstanding research potential.
- 2022 **Google Machine Learning Bootcamp – [Certificate of Achievement](#)**
Study time: 6 months

Workshops

- 2024 **15th International Crime Science Conference.** ([Online](#)) 10 June, 2024, London, UK.
- 2023 **Mobile Phone Data for Mobility Workshop.** ([Online](#)) 06-07 December, 2023, UK.
Spatial Data Science Across Languages (SDSL) . ([In-person](#)) 18-19 September, 2023, Münster, Germany.
Scottish Crime Data Hackathon. ([Online](#)) 25th July, 2023, Edinburgh, Scotland.
14th International Crime Science Conference. ([Online](#)) 19 June, 2023, London, UK.
2nd Cardiff NLP Summer Workshop. ([In-person](#)) 26-27 June, 2023, Cardiff, UK.

Teaching experience

- Fall -BYS2011: Office Programs
-BYS2020: Media Literacy
- Spring -BSP1005: Information and Communication Technology
-BYS2018: Management Information Systems
-BYS2015: Time Management

Doctoral Dissertation

- 2021 **"Spatio-Temporal Analysis of Applied Electronic Monitoring on Parolees of Mobility: A Case Study in Istanbul"** Istanbul Technical University ([Link](#))

University Service

- 2025 – Present **Marmara University, Vocational School of Social Sciences**
Vice Head of Department, Department of Secretary and Office Management
- 2022 **Editorial Board (Co-Editor)**
The Social Research Journal of Marmara University
- 2021 – 2022 **Journal Referee**
International Humanities and Social Science Review (IHSSR)

2013 – 2022

Marmara University, Vocational School of Social Sciences

Member of Board, Department of Secretary and Office Management

Academic Process Manager, Department of Secretary and Office Management

Web Coordinator, Vocational School of Social Sciences (2014 – 2018)

Talks and Certifications

TensorFlow Developer – 10/2022–10/2025 [Certificate](#)

Hugging Face Agents Course – 06/2025 [Certificate](#)

Deep Learning Specialization (Coursera) [Cred.](#)

TensorFlow Developer (DeepLearning.AI) [Cred.](#)

NVIDIA: Fundamentals of Deep Learning [Certificate](#)

Intro to ML (Talk) – Google DSC Işık University – 11/2022 [Video](#)

TensorFlow Basics (Talk) – Google DSC Bandırma University – 12/2022 [Video](#)

Google Cloud Skills Boost [Profile](#) – **Google Developer** [Page](#)

DataCamp: Intermediate R [Certificate](#)

Skills

Programming – Python, R, SQL

Generative AI & Inference – Transformers, vLLM, LMDeploy, Ollama, OpenAI API, quantisation (AWQ, GPTQ)

RAG & Agentic Systems – MCP, LlamaIndex, LangGraph, FAISS, vector databases

Computer Vision – ViT-family (CLIP, SigLIP, DINO), semantic segmentation, object detection

Multimodal – VLMs, evaluation, dataset curation

MLOps & Deployment – Docker, CI/CD, model serving, monitoring

Data & Geospatial – OpenCV, NumPy, Pandas, GeoPandas, PostGIS, DuckDB

Cloud & Tools – Google Cloud Platform, Microsoft Azure, git, Esri ArcGIS, QGIS