

## MUZAFFER ATA OZBILEN

Research Assistant

Department of Civil Engineering, Middle East Technical University

K1 Building, Room 311, Universiteler Mah., Dumlupınar Blv. No:1 06800 Çankaya Ankara / Turkey

+90 312 210 5425 - [LinkedIn](#) - [METU](#) - [muzafferataozbilen@gmail.com](mailto:muzafferataozbilen@gmail.com)

### EDUCATION

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- Middle East Technical University (METU) Ankara, Turkey  
MS in Civil Engineering Sep, 2023 – Present  
***Thesis Title: Reliability-based Optimization of Mechanically Stabilized Earth (MSE) Walls Under Uncertain Soil and Reinforcement Parameters***
  - *Conducting research on stability analysis and optimal design of reinforced soil structures, focusing on numerical modeling and performance evaluation of mechanically stabilized earth (MSE) walls under varying soil and reinforcement conditions.*
  - *Completed 8 graduate-level courses with a CGPA of 3.86/4.00 in geotechnical engineering and materials science, emphasizing experimental design and numerical analysis topics such as pile foundations, earthquake response, and geosynthetics applications.*
  - *Actively assisting in laboratory setup design and experimental data interpretation for ongoing research projects in the Geotechnical Engineering Division.*
- Middle East Technical University (METU) Ankara, Turkey  
BS in Civil Engineering Sep, 2018 – Jul, 2023
  - *Graduated with a CGPA of 3.40 / 4.00, ranking 4th among 326 students.*
  - *Gained a strong foundation in soil mechanics, foundation engineering, and experimental methods.*
  - *Completed several projects on slope stability analysis, reinforced soil design, and settlement prediction with Dr. Onur Pekcan.*
- Middle East Technical University (METU) Ankara, Turkey  
Minor in Electronic Materials Oct, 2020 – Jul, 2023
  - *Conducted laboratory experiments on railway steels, polymer composites, and thin films to examine their mechanical and thermal performance.*
  - *Applied scanning electron microscopy (SEM), spectroscopy (XRD, FTIR), and thermal analysis (DSC, TGA) techniques for materials characterization.*

### RESEARCH INTERESTS

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Geosynthetics - Experimental Geomechanics - Image-Based Strain Measurement - Machine Learning in Geotechnics - Durability & Environmental Performance of Polymeric Materials

## EMPLOYMENT HISTORY

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- ❖ Research & Teaching Assistant, METU Apr, 2024 – Present
- *Conducting experimental and analytical studies on geosynthetic clay liners, geomembranes, and geotextiles to evaluate their mechanical performance.*
  - *Developing Python- and MATLAB-based image analysis systems for non-contact strain measurement of polymeric geosynthetic materials.*
  - *Supporting experimental setup design, instrumentation, and data analysis for graduate-level research projects under Dr. Onur Pekcan's supervision.*
  - *Assisting undergraduate (3<sup>rd</sup> – 4<sup>th</sup> year) and graduate courses through laboratory instruction, experiment supervision, and technical mentoring in geotechnical engineering subjects.*

- ❖ Project Assistant, TÜBİTAK Sep, 2023 – Nov, 2024

***Project Title: Development of an Autonomous Earthwork Tracking System for Construction Sites***

***Project Number: 122M055***

- *Collaborated with Dr. Onur Pekcan on AI-based automation and 3D modeling for earthwork monitoring and site management.*
- *Contributed to ground classification and subsurface modeling using deep learning (Mask R-CNN, Pointrend) and spatial interpolation (Kriging).*
- *Developed and validated UAV-based machine learning models for image segmentation and 3D ground surface reconstruction using MATLAB and Python integration.*
- *Assisted in research reporting, data visualization, and publication preparation for submission to the Applied Soft Computing journal.*

## TEACHING EXPERIENCE

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Teaching Assistant	CE 363 Soil Mechanics, METU 2023 – Present
Teaching Assistant	CE 364 Soil Mechanics (Given for non – CE departments), METU 2024 – Present
Teaching Assistant	CE 366 Foundation Engineering 1, METU 2024 – Present
Teaching Assistant	CE 461 Computer Applications in Foundation Engineering, METU 2023 – 2024
Teaching Assistant	CE 468 Geotechnical Design, METU 2024 – 2025

Teaching Assistant CE 562 Applications of Geosynthetics, METU  
2024 – Present

Teaching Assistant CE 563 Advanced Soil Mechanics 1, METU  
2025 – Present

Teaching Assistant CE 569 Deep Excavations & Retaining Structures, METU  
2024 – 2025

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## SKILLS

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### Programming & Data Analysis:

MATLAB (Proficient), Python (Intermediate), Excel VBA (Intermediate)

### Engineering & Simulation Software:

AutoCAD (Proficient), RocScience (Proficient), GEO5 (Proficient), PLAXIS 2D (Intermediate)

### Experimental & Image Processing Tools:

OpenCV (Proficient), MATLAB Image Processing Toolbox (Proficient)

### Office & Documentation:

Microsoft Office (Proficient), Mendeley (Proficient), LaTeX (Intermediate)

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## LANGUAGES

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English.....*Advanced*

German.....*Intermediate*

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## TEST SCORES

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TOEFL (as of October 2025)..... 95 / 120 (R: 27, L: 19, S: 23, W: 26)

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## AWARDS & HONORS

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- TÜBİTAK 2210 Graduate Scholarship Program (2024–2026)
- Turkish Education Foundation Graduate Scholarship Program (2023–2025)
- METU Honor Graduate (2023)

## REFERENCES

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- **Onur Pekcan, PhD**

Assoc. Prof. Dr., Department of Civil Engineering

Director of RICBED (Research Implementation Center for Built Environment and Design)

Co-founder of i4Works Company

Middle East Technical University, Ankara / Turkey

Phone: +90 312 210 54 03

E-mail: [opekcan@metu.edu.tr](mailto:opekcan@metu.edu.tr)

- **Nejan Huvaj Sarihan, PhD**

Assoc. Prof. Dr., Department of Civil Engineering

Director of Geomechanics and Technology Research Lab

Middle East Technical University, Ankara / Turkey

Phone: +90 312 210 54 89

E-mail: [nejan@metu.edu.tr](mailto:nejan@metu.edu.tr)

- **Nabi Kartal Toker, PhD**

Assoc. Prof. Dr., Department of Civil Engineering

Director of TOKER Company

Middle East Technical University, Ankara / Turkey

Phone: +90 312 210 54 88

E-mail: [toker@metu.edu.tr](mailto:toker@metu.edu.tr)

- **Kemal Onder Cetin, PhD**

Prof. Dr., Department of Civil Engineering

Founder of GeoDestek Company

Middle East Technical University, Ankara / Turkey

Phone: +90 312 210 24 18

E-mail: [ocetin@metu.edu.tr](mailto:ocetin@metu.edu.tr)