SEMSI RAKICI

Postdoctoral Fellow ⋄ Hinman Research Building R210, Atlanta, GA 30332
semsi.coskun@gatech.edu ⋄ GoogleScholar

RESEARCH INTEREST

- **Advanced Computational Modeling**: Implementation and application of continuum mechanics via Finite Element Method, and **Peridynamic** modeling of solids via meshless discretization techniques.
- **Multi-physics problems**: Implementation of fully coupled electro-mechanical modeling of piezoelectric materials in Peridynamic framework.
- Discrete Element Modeling
- Analytical solution techniques for **elastic plates** with higher order deformation techniques.
- Experimental fluid dynamics.

EDUCATION

Western Michigan University, MI, USA *2022*
Ph.D. in Mechanical and Aerospace Engineering

Middle East Technical University, Ankara, Turkey *2017*
M.Sc. in Civil Engineering

Middle East Technical University, Ankara, Turkey *2014*
B.S. in Civil Engineering

EXPERIENCE

School of Building Construction, Georgia Institute of Technology August 2012 - Present
Postdoctoral Fellow *Atlanta, GA*

· Teaching BC 3640 Construction Mechanics Course in Fall 2022.
· Serving in the technical committee of the 14th North American Masonry Conference.
· Working for the creation of the 'structural module' of the NSF funded Virtual/Augmented-Reality-Based Disciple Exploration Rotations (VADERs) project.

Mechanical and Aerospace Engineering Department, WMU August 2019 - Present
Teaching Assistant *Kalamazoo, MI*

· Teaching in the ME3650 Machine Design I course lab by providing and solving example problems related to the week's subject.
· Assisting the students in the weekly homework assignments grading them.

Civil and Construction Engineering Department, WMU August 2017 - May 2019
Research Assistant *Kalamazoo, MI*

· Literature review on Peridynamics and fracture mechanisms of quasi-brittle materials.
· Developing material models within an open-source software called Perdigm.
· Developing an in-house C++ code to model the brittle failure in the Peridynamic framework.

Civil Engineering Department, METU January 2015 - July 2017
Teaching and Department Assistant *Ankara, Turkey*

- Assisting the CE204 Uncertainty and Data Analysis Course, including homework grading and teaching the R-language in lab hours.
- Assisting in the documentation required for the ABET Accreditation program.
- Leading the orientation program for welcoming the new coming students in the CE department.
- Assisting the METU's scholarship committee in the interview process.

Center For Wind Energy Research (RUZGEM), METU May 2016 - September 2016
Research Assistant *Ankara, Turkey*

- Conducting the wind-tunnel experiments with the Particle Image Velocimetry (PIV) to measure the velocity and turbulence properties of the wake flow of the three fractal and one conventional fence.

INTERNSHIP

Hydromechanics Laboratory, METU June 2012 - August 2012
Intern *Ankara, Turkey*

- Experiments on a 1/200 scale dam in the hydromechanics lab, to determine a relation for the critical submergence depth to prevent vortex formation in the intake structures.

PEER-REVIEWED JOURNAL PUBLICATIONS

3. Rakici, S., & Kim, J. (2022). A discrete surface correction method for bond-based peridynamics. Submitted to Engineering Analysis with Boundary Elements.
2. Coskun, S., Kim, J., & Toutanji, H. (2019). Bending, Free Vibration, and Buckling Analysis of Functionally Graded Porous Micro-Plates Using a General Third-Order Plate Theory. Journal of Composites Science, 3(1), 15. doi.org/10.3390/jcs3010015
1. Çoşkun, Ş., Hazaveh, H. A., Uzol, O., & Kurç, Ö. (2017). Experimental investigation of wake flow field and wind comfort characteristics of fractal wind fences. Journal of Wind Engineering and Industrial Aerodynamics, 168, 32-47. doi.org/10.1016/j.jweia.2017.05.001

CONFERENCE PRESENTATION

16th **U.S. National Congress on Computational Mechanics** July, 2021
Presenter *Virtual Event*

- Peridynamics suffer from the surface effects, which leads to a softer material response of the problem boundaries. In this presentation, a surface correction technique for bond-based Peridynamics was proposed. It was shown that the problem boundaries, as well as newly emerged boundaries (due to crack propagation), were treated successfully.

TECHNICAL STRENGTHS

Computer Languages	Matlab/Octave, FORTRAN, C, C++
Softwares	Peridigm, ABAQUS, ANSYS Fluent, COMSOL
Operating Systems	Linux, Windows
Tools	LaTeX, Microsoft Office

AWARDS AND HONORS

USNCCM16 Conference Award	2021
WMU Graduate Student Research Grant	2020
Department-Level Graduate Research and Creative Scholar Award	2020
SibFU Honors College Conference Award, Siberian Federal University	2018

Honor Degree, METU, Ankara-Turkey	2013-2014 Spring
High Honor Degree, METU, Ankara-Turkey	2013-2014 Fall
High Honor Degree, METU, Ankara-Turkey	2012-2013 Fall