MELIH CAN YESILLI

Department of Mechanical Engineering, 474 S Shaw Ln, East Lansing, MI 48824
yesillim@egr.msu.edu

EDUCATION

Michigan State University, MI, US August 2018 - present
PhD Student, Department of Mechanical Enginering

Middle East Technical University, Turkey September 2013 - June 2018
Bachelor of Science, Department of Mechanical Enginering

WORK EXPERIENCE

Teaching Assistant January 2019 - present
Michigan State University

- ME451L - Control Systems Laboratory (Spring 2019, Spring 2020)
- ME416 - Computer Assisted Design of Thermal Systems (Fall 2019)
- ME422 - Introduction to Combustion (Fall 2019)
- ME461 - Mechanical Vibrations (Fall 2020)

Research Assistant August 2018 - present
Michigan State University

- Studying machine learning applications with Topological Data Analysis (TDA) on complex dynamical systems. *Advisor: Dr.Firas Khasawneh*

Candidate Engineer November 2017 - April 2018
Roketsan Missiles Inc.

Internship June 2017 - July 2017
Roketsan Missiles Inc.

Internship July 2016 - August 2016
TEI -TUSAS Engine Industries, Inc.

PUBLICATIONS

Journal Papers

- **M. C. Yesilli**, F. A. Khasawneh, and A. Otto, "On transfer learning for chatter detection in turning using wavelet packet transform and ensemble empirical mode decomposition," *CIRP Journal of Manufacturing Science and Technology,* 2019, https://doi.org/10.1016/j.cirpj.2019.11.003
- **M. C. Yesilli**, F. A. Khasawneh, and A. Otto, "Chatter Detection in Turning Using Machine Learning and Similarity Measures of Time Series via Dynamic Time Warping," *arXiv preprint:1908.01678*, 2019.(*Under review*)
- **M. C. Yesilli**, F. A. Khasawneh, and A. Otto,"Topological feature vectors for chatter detection in turning processes", *arXiv preprint: 1905.08671*, 2019. (*Under review*)

Conference Papers

- **M.C., Yesilli**, F. A. Khasawneh, "Data Driven Model Identification for a Chaotic Pendulum with Variable Interaction Potential". IDETC 2020, https://doi.org/10.1115/DETC2020-22597

- **M. C. Yesilli**, F. A. Khasawneh, "On Transfer Learning of Traditional Frequency and Time Domain Features In Turning," *15th International Manufacturing Science and Engineering Conference,* MSEC 2020. (*Accepted*)
- **M. C. Yesilli**, S. Tymochko, F. A. Khasawneh, E. Munch, "Chatter Diagnosis Using Topological Data Analysis in Milling Process," In 2019 *18th IEEE International Conference on Machine Learning and Applications,* IEEE, https://doi.org/10.1109/ICMLA.2019.00200
- J. R. Tempelman, A. Myers, **M. C. Yesilli**, "Experimental Investigations Into Broadband Vibration of Metastructures with Lattice Designs," In *Proceedings of the ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference,* IDETC2019, https://doi.org/10.1115/DETC2019-97673

RESEARCH PRESENTATIONS

On Transfer Learning of Traditional Frequency and Time Domain Features In Turning, MSEC2020 (Virtual Conference), September 2020

Data Driven Model Identification for a Chaotic Pendulum with Variable Interaction Potential, IDETC/MSNDC (Virtual Conference), August 2020

Chatter Classification and Transfer Learning in Turning Using Topological Data Analysis adn Discrete Time Warping, MSU TDA Seminar, April 2020

Topological Feature Vectors for Chatter Detection in Turning Processes, The 1st Midwest Graduate Student Conference: Geometry and Topology meet Data Analysis and Machine Learning, June 2019

Topological Feature Vectors for Chatter Detection in Turning Processes, SIAM Conference on Applications of Dynamical Systems, May 2019

Chatter diagnosis in turning using Topological Data Analysis, SIAM Great Lakes Section Meeting, April 2019

CONFERENCE ACTIVITIES

Minisymposium Co-organizer, *Topological Time Series Analysis,* SIAM Conference on Mathematics of Data Science, May 2020. *(suspended to 2021)*

Session Chair, SIAM Conference on Applications of Dynamical Systems, May 2019

SERVICE

Measurement June 2020
Reviewer

Journal of Ambient Intelligence and Humanized Computing September 2020
Reviewer

PROFESSIONAL AFFILIATIONS & ORGANIZATIONS

American Society of Mechanical Engineers (ASME) October 2019 - present
Member

Michigan State University Turkish Student Association(MSU-TSA) April 2019 - present
Treasurer

Society for Industrial and Applied Mathematics (SIAM) November 2018 - present
Member

HONORS AND AWARDS

MSU Graduate Office Fellowship ($5000) February 2020

CODE AND DATA REPOSITORIES

N. Mork, M. C. Yesilli, F. A. Khasawneh, (2020). Design of chaotic pendulum with a variable interaction potential, Zenodo, DOI: 10.5281/zenodo.3784897

F. A. Khasawneh, A. Otto and M. C. Yesilli, (2019), "Turning Dataset for Chatter Diagnosis Using Machine Learning", Mendeley Data, v1, http://dx.doi.org/10.17632/hvm4wh3jzx.1

M. C. Yesilli, F. A. Khasawneh, and A. Otto, (2019), "Machine learning toolbox for Wavelet Packet Transform (WPT) and Ensemble Empirical Mode Decomposition (EEMD)", Github repository.

TECHNICAL STRENGTHS

Modeling and Analysis	Solidworks, Matlab
Software & Tools	LaTeX, MathCad, Python, Sphinx, Inkscape, Parallel Computing, C/C++