GOKSU AVDAN, PhD iD

Tenure-Track Assistant Professor

Department of Engineering Technology

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CONTACT

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Citizenship: Turkey

Immigration Status: Permanent Resident (Green Card)

EDUCATION

Ph.D. 2020 – 2024	Engineering Science (Specialized in Industrial and Quality Engineering) Southern Illinois University, Carbondale, IL (SIUC)
M.S. 2017 – 2019	Industrial Engineering Southern Illinois University, Edwardsville, IL (SIUE)
B.S. 2012 – 2017	Industrial Engineering (Dual Diploma Program) Southern Illinois University, Edwardsville, IL Istanbul Technical University, Istanbul, Turkey (ITU)
Minor 2012 – 2017	Mathematical Studies Southern Illinois University, Edwardsville, IL

EXPERIENCE

Academic

Assistant Professor 2024 – Present	Department of Engineering Technology Missouri Western State University, St. Joseph, MO
Instructor 2021 – 2024	Department of Industrial Engineering Southern Illinois University, Edwardsville, IL
Research Assistant 2020 – 2020 2017 – 2019	Department of Industrial Engineering Department of Electrical and Computer Engineering Southern Illinois University, Edwardsville, IL
Teaching Assistant 2017 – Present	Department of Industrial Engineering Southern Illinois University, Edwardsville, IL

Lab Manager	Department of Industrial Engineering
2019 – 2019	Southern Illinois University, Edwardsville, IL

Non-Academic

Business Analyst	YouParcel, Inc., Totowa, NJ
9/2019 – 12/2019	

Engineering (Internship)	Ormat Technologies, Inc., Reno, NV
5/2018 – 8/2018	

Manuf. Eng. (Internship)	Celik Halat ve Tel Sanayi A.S., Kocaeli, Turkey
6/2015 – 7/2015	

PUBLICATIONS

Journal Papers *(*Corresponding Author)*

1. **Avdan G**, Chen CB, Onal S. An alternative EMG normalization method: Heterogeneous recurrence quantification analysis of maximum voluntary isometric contraction movements. *Biomedical Signal Processing and Control*, 2024. 93, 106219.

2. Roy D, Cho S, **Avdan G**. Data Envelopment Analysis (DEA) for Improving Ergonomics and Workplace Performance. *Journal of Applied Research on Industrial Engineering*, 2024. 11 (1): 24-36.

3. **Avdan G**, Onal S, Smith BK. Normalization of EMG signals: Optimal MVC positions for the lower limb muscle groups in healthy subjects. *Journal of Medical and Biological Engineering*, 2023. 43(2): 195-202.

4. **Avdan G**, Onal S, Rekabdar B. Regression transfer learning for the prediction of three-dimensional ground reaction forces and joint moments during gait. *International Journal of Biomedical Engineering and Technology*, 2023. 42(4): 317-338.

5. Gunasekera J, **Avdan G**, Lee HF, Kweon S, Klingensmith JD. Investigating the effects of external pressure on coronary arteries with plaques and its role in coronary artery disease. *Journal of Medical Engineering & Technology*, 2022. 46 (7): 624-632.

6. **Avdan G**, Onal S., Lu C. IMU-Trans: Imputing Missing Motion Capture Data with Unsupervised Transformers. *Neural Computing and Applications, Under Review.*

7. Roy D, **Avdan G***, Cho S. Evaluating Worker Performance and Ergonomic Risks Using EMG and Kinematics: A MIMO Approach. *Journal of Medical and Biological Engineering, Submitted.*

Conference Proceedings

1. **Avdan G**, Onal S. Lean Thinking in Healthcare 5.0 Technologies: An Exploratory Review. Industrial Engineering and Operations Management (IEOM), 2024 (June 4-6), Washington, DC.

2.   **Avdan G**, Onal S. Resilient Healthcare 5.0: Advancing Human-Centric and Sustainable Practices with Wearable Devices. *IISE Annual Conference and Expo*, 2024.

3.   **Avdan G**, Chen CB, Onal S. Investigation of an alternative EMG normalization technique: Recurrence quantification analysis of maximum voluntary contractions. *Institute of Industrial and Systems Engineering (IISE) Annual Conference and Expo*, 2023 (May 20-23), New Orleans, LA.

4.   Roy D, Cho S, **Avdan G**. Ergonomic risk and performance assessment using data envelopment analysis (DEA). *IISE Annual Conference and Expo*, 2023 (May 20-23), New Orleans, LA.

5.   **Avdan G**, Onal S, Smith BK. Maximum voluntary contraction (MVC) techniques to normalize lower limb muscle groups in young healthy subjects. *IISE Annual Conference and Expo*, 2022 (May 21-24), Seattle, WA.

6.   **Avdan G.** Detection of Freezing of Gait Episodes in Parkinson's Disease Using RQA Quantifiers and K-Means Clustering. *47th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, 2025 (July 14-18), Copenhagen, Denmark. *Working Paper.*

Abstracts & Posters & Presentations

1.   **Avdan G**, Onal S. Lean Thinking in Healthcare 5.0 Technologies: An Exploratory Review. IEOM Conference, 2024 (June 4-6), Washington, DC.

2.   **Avdan G**, Onal S. Resilient Healthcare 5.0: Advancing Human-Centric and Sustainable Practices with Wearable Devices. *IISE Annual Conference and Expo*, 2024.

3.   **Avdan G**, Onal S, Lu C. An Unsupervised Transformers Approach for Predicting Missing Markers in Human Motion Capture Systems. *IEEE International Conference on Biomedical and Health Informatics,* 2023 (Oct 15-18), Pittsburgh, PA.

4.   **Avdan G**, Chen CB, Onal S. Investigation of an alternative EMG normalization technique: Recurrence quantification analysis of maximum voluntary contractions. *Institute of Industrial and Systems Engineering (IISE) Annual Conference and Expo*, 2023 (May 20-23), New Orleans, LA.

5.   Roy D, Cho S, **Avdan G**. Ergonomic risk and performance assessment using data envelopment analysis (DEA). *IISE Annual Conference and Expo*, 2023 (May 20-23), New Orleans, LA.

6.   **Avdan G**, Onal S, Smith BK. Maximum voluntary contraction (MVC) techniques to normalize lower limb muscle groups in young healthy subjects. *IISE Annual Conference and Expo*, 2022 (May 21-24), Seattle, WA.

7.   **Avdan G**, Lee HF, Klingensmith JD, Celik S, Alluri V, Maddali N. Stress analyses of 3D coronary plaque models based on intravascular ultrasound images. *Biomedical Engineering Society (BMES)*, 2018 (Oct 17-20), Atlanta, GA.

TEACHING EXPERIENCE

Lead Instructor

- **IE-370:** Manufacturing Processes
    - Fall 2022 (4.93/5.00)
    - Fall 2023 (4.75/5.00)
- **IE-451:** Methods Design & Work Measurements
    - Spring 2022 (4.21/5.00)
    - Spring 2023 (4.87/5.00)
    - Spring 2024 (NA/5.00)
- **IE-488:** Lean Production Systems
    - Spring 2021 (4.40/5.00)
    - Spring 2022 (4.24/5.00)
- **EGT-220:** Engineering Materials
    - Fall 2024 (Ongoing)
- **EGT-400:** Dynamics
    - Fall 2024 (Ongoing)
- **MET-232:** Automated Manufacturing
    - Fall 2024 (Ongoing)
- **MET-242:** CNC Machining Processes
    - Fall 2024 (Ongoing)

Teaching Assistant

- **IE-345:** Engineering Economic Analysis (Fall 2020)
- **IE-430:** Managing Engineering and Technology (Summer 2021, Summer 2022)
- **IE-431:** Project Analysis & Control (Summer 2021, Summer 2022)
- **IE-476:** Plantwide Process Control (Fall 2020, Fall 2021)
- **IE-483:** Production Planning & Control (Fall 2017, Summer 2022)
- **IE-490:** Integrated Engineering Design (Spring 2021)

PROFESSIONAL ACTIVITIES

Research Grants & Travel Awards

2024   SIUE Research Equipment and Tools Funding Program (Co-authored, PI: Dr. Sinan Onal), Amount: $22,100

2023   IEEE BHI'23 NSF Student Travel Award, Amount: $250

2023   SIUE Travel/Presentation Funding (IISE Annual Conference and Expo), Amount: $1,276.44

2022   SIUE Travel/Presentation Funding (IISE Annual Conference and Expo), Amount: $1,335.39

2021   Research Grants for Research Doctoral Students, SIUE, Amount: $1,000

2018   Research Grants for Graduate Students, SIUE, Amount: $500

2018   SIUE Travel/Presentation Funding (BMES), Amount: $750

Honors and Awards

2022   Outstanding Teaching Assistant at Doctoral Level, Graduate School, SIUE

2016-17   Dean's List, SIUE (Two Times)

2016   Honor Student, Istanbul Technical University

Memberships

o   Institute of Industrial and Systems Engineers (IISE)

o   Institute of Electrical and Electronics Engineers (IEEE)

o   IEEE Engineering in Medicine & Biology Society (EMBS)

o   American Society for Quality (ASQ)

o   Institute for Operations Research and the Management Sciences (INFORMS)

Reviewed for

o   Biomedical Signal Processing and Control, *Elsevier* (IF: 4.9)

o   Neural Computing and Applications, *Springer* (IF: 4.5)

o   Heliyon, *Elsevier* (IF: 3.4)

o   Soft Computing, *Springer* (IF: 3.1)

o   Journal of Electromyography and Kinesiology, *Elsevier* (IF: 2.0)

o   IISE Annual Conference and Expo, 2023

o   Healthcare Systems Process Improvement Conference, 2024

o   9th North American Industrial Engineering and Operations Management (IEOM) Conference, 2024

Other Meriting Academic Missions

2024   Committee Member on MWSU's General Studies Committee

2023   Session Chair of Human Factors in Human Performance Track 1 in IISE Annual
               Conference and Expo

2023   Session Chair of Work and Organization Safety in IISE Annual Conference and Expo

2022   Session Chair of Physical Ergonomics I in IISE Annual Conference and Expo