# GOKSU AVDAN

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**Immigration Status:** Permanent Resident (Green Card)

## Professional Summary

A highly self-motivated, result-oriented, and knowledgeable Industrial Engineer skilled in process improvements, equipment design, and waste reduction. A data scientist with extensive expertise in Machine Learning and Deep Learning methodologies (e.g., CNN, LSTM, Transformers). Demonstrated proficiency in deploying algorithms and statistical models using Python, R, MATLAB, and SPSS to drive data-driven decision-making processes. Committed to maintaining up-to-date technical knowledge in the rapidly changing field of data science to deliver optimal solutions for the business.

## Skills

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|---|---|---|
| Deep Learning Applications | Machine Learning Applications | Data Science |
| Data Visualization (e.g., Matplotlib) | Non-linear Time Series Analysis | Facilities Planning |
| Deep Statistical Analysis Knowledge | Six Sigma & Lean Principles | AutoCAD, SolidWorks, and NX |
| Operation Research & Optimization | Process Improvement Strategies | Kaizen Principles |

## Employment History

**Instructor** Jan 2021 – Current

*Southern Illinois University Edwardsville/ Industrial Engineering* Edwardsville, IL

- Teaching fundamental industrial engineering courses as a main instructor in several 300 and 400-level courses including Junior, Senior, and Master level students. Assisting the students' questions.
- Developing term projects and following up with students to maintain good progress.
- Here are the courses I teach:
  - IE-488: Lean Production Systems
  - IE-451: Methods Design & Work Measurement
  - IE-370: Manufacturing Processes

**Research Assistant** Jan 2020 – Dec 2020

*Southern Illinois University Edwardsville/ Industrial Engineering* Edwardsville, IL

- Research Topic: Developing a "Force Plate-less" System using Lower Limb Kinematics and Machine Learning Techniques for a Real-Time Biomechanical Gait Analysis.
- Developing deep learning algorithms (e.g., Unsupervised Transformers), to tackle the multivariate missing time series problem in motion capture (MoCap) datasets.
- Collecting and analyzing MoCap data to discover the significant differences by using statistical analysis tools.
- Using Heterogenous Recurrence Quantification Analysis to find the hidden patterns from chaotic Electromyography time series data.

**Business Analyst** Sep 2019 – Dec 2019

*YouParcel, Inc.* Saddle Brook, NJ

- Demonstrating the history of logistics companies and recommending the way they should follow.
- Working on time and motion studies, writing Standard Operation Procedures (SOP) for workflows, using advanced techniques to improve SOPs, design control systems to minimize problems and increase efficiency.
- Reporting technical issues to the production line and collaborating with the workers to find feasible and efficient ways.
- Following the possible challenges in the industry, showing how to come through before it happens, and transferring my EXCEL VBA skills to this specific role to help workers save more time in their jobs.

**Engineering Intern** May 2018 – Aug 2018

*ORMAT Technologies, Inc.* Reno, NV

- Conducted Draining System project for Accumulator from first to last step. Installed new piping system by following all procedures such as MOC, PSSR, BOM, SOP, Technical Drawing, 3D Design, PHA, P&ID's, OSHA and ISO.
- Checked and did required changes on plant P&ID's.
- Actively attended yearly maintenance for one of the generators in the main plant.
- Attended supervision and daily department meetings, monthly Capex & MM meetings, and annual CAPP audits.

**Industrial and Mechanical Engineering Lab Manager** Dec 2018 – May 2019

*Southern Illinois University Edwardsville* Edwardsville, IL

- Responsible for all Industrial Engineering lab equipment such as lathe, milling, CIM system, heat treatment, and doing regular maintenance requirements.
- Provide training to the faculty members and students for industrial & quality equipment and robots such as turning and milling machines, furnaces, linear conveyor systems, fatigue testing systems, and automated warehouse systems.

**Research & Teaching Assistant** Aug 2017 – May 2019

*Southern Illinois University Edwardsville/ Industrial Engineering, Electrical & Computer Engineering* Edwardsville, IL

- Class Topic: Production Planning & Control. Helped senior-year students to show how master production scheduling, production control, inventory control, and forecast methods are implementing to their class projects. Periodically reported on student progress and behavior to the professor.
- Designed 3-D Coronary Artery model by using Intravascular Ultrasound (IVUS) images. Performed statistical and quantitative analyses on blood flowing area for obtaining Computational Fluid Dynamics (CFD) results by using ANSYS Fluent. Acquired Wall Shear Stress values in ANSYS Static Structural by using derived CFD results.

**Manufacturing Engineering Intern** Jun 2015 – Aug 2015

*Celik Halat ve Tel San A.S.* Kocaeli, Turkey

- Directed and coordinated the production, processing, distribution, and marketing activities of industrial organization.
- Made sure that products were produced on time and were of good quality. Applied statistical methods to estimate future manufacturing requirements.

## Education

**Doctor of Philosophy: Engineering Science in Industrial Engineering** January 2020-Expected May 2024
Southern Illinois University Edwardsville-GPA:4.00 Edwardsville, IL

**Master of Science: Industrial Engineering** Graduated-May 2019
Southern Illinois University Edwardsville-GPA:3.89 Edwardsville, IL

**Bachelor of Science: Industrial Engineering** Graduated-May 2017
Southern Illinois University Edwardsville Edwardsville, IL
Two Times Dean's List (Fall – 2016, Spring – 2017)

**Bachelor of Science: Industrial Engineering** Graduated-May 2017
Istanbul Technical University Istanbul, Turkey
Honor Student (Spring – 2016)

## Awards

SIUE Outstanding Teaching Assistant Award in Doctoral Level (Fall-2022)

SIUE Research Grants for Research Doctoral Students (Fall-2021)

SIUE Research Grants for Graduate Students (Spring-2018)

## Selected Publications

1. **Avdan G**, Chen CB, Onal S. An alternative EMG normalization method: Heterogeneous recurrence quantification analysis of maximum voluntary contraction movements. Biomedical Signal Processing and Control, 2023. *Revision Submitted*
2. **Avdan G**, Onal S, Lu C. An Unsupervised Transformers Approach for Predicting Missing Markers in Human Motion Capture Systems. IEEE BHI 2023, Pittsburgh (Oct 15-18) *Extended Abstract Accepted*
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.
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.
5. Gunasekara 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.