

**Sinan Onal, Ph.D.**  
Professor and Chair  
Department of Industrial Engineering

Campus address: Department of Industrial Engineering  
Southern Illinois University, Edwardsville (SIUE)  
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Webpage: [www.sinanon.com](http://www.sinanon.com)

## **EDUCATION**

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Ph.D., Industrial and Management Systems Engineering  
University of South Florida, Tampa, FL, USA  
August 2010 – August 2014  
MS, Engineering Management  
University of South Florida, Tampa, FL, USA  
January 2009 – July 2010  
BS, Wood Processing Industrial Engineering  
Hacettepe University, Ankara, Turkey  
September 1992 – June 1996

## **EMPLOYMENT**

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Professor of Industrial Engineering  
School of Engineering, Southern Illinois University Edwardsville  
July 2025 – Present  
Adjunct Professor, Management Information Systems  
College of Business and Management, University of Illinois at Springfield  
August 2023 – Present  
Chair, Department of Industrial Engineering  
School of Engineering, Southern Illinois University Edwardsville  
August 2022 – Present  
Associate Professor of Industrial Engineering  
Department of Industrial Engineering, School of Engineering, Southern Illinois  
University Edwardsville  
July 2019 – Present  
Assistant Professor of Industrial Engineering  
Department of Mechanical and Industrial Engineering, School of Engineering,  
Southern Illinois University Edwardsville  
August 2014 – July 2019

## **PUBLICATIONS**

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### **Refereed Journals & Conference Proceeding:**

**2025**

- G. Avdan, C. Lu, and **S. Onal**, “IMU-Trans: Imputing Missing Motion Capture Data with Unsupervised Transformers,” Neural Computing and Applications, 1-19, 2025.
- **S. Onal**, D. Kulavuz-Onal, and M. Childers, “Patterns of ChatGPT Usage and Perceived Benefits on Academic Success across Disciplines: Insights from a Survey of Higher Education Students in the United States”, Journal of Educational Technology Systems, 2025.

## 2024

- **S. Onal** and E. Temko, "Undergraduate Engineering Students' Understanding of Engineering Disciplines: An Empirical Study," *International Journal of Engineering Education*, 40 (5), 1129–1149, 2024.
- G. Avdan, C. B. Chen, and **S. Onal**, "An Alternative EMG Normalization Method: Heterogeneous Recurrence Quantification Analysis of Isometric Maximum Voluntary Contraction Movements," *Biomedical Signal Processing and Control*, 93, 106219, 2024.
- A. Z. Aslan and **S. Onal**, "Autoencoder-Based Defect Detection in PVC Profile Manufacturing," *International Journal of Manufacturing Research* 19 (2), 119-144, 2024.
- G. Avdan and **S. Onal**, "Lean Thinking in Healthcare 5.0 Technologies: An Exploratory Review," in *Proc. Industrial Engineering and Operations Management (IEOM)*, Washington, DC, June 4-6, 2024.
- G. Avdan and **S. Onal**, "Resilient Healthcare 5.0: Advancing Human-Centric and Sustainable Practices with Wearable Devices," in *Proc. 2024 IISE Institute of Industrial and Systems Engineers Annual Conference*, Montreal, CA, May 18-21, 2024.
- C. Akbas, I. S. Arin, and **S. Onal**, "A PRISMA-Driven Systematic Review of Publicly Available Datasets for Benchmark and Model Developments for Industrial Defect Detection," *ArXiv*, arXiv:2406.07694, 2024.
- **S. Onal** and E. Temko, "Examining the Role of Race, Gender, and Major in Engineering Major Selection Through Ecological Systems Theory Perspective," *International Journal of Engineering Education*, 40 (3), 2024.
- **S. Onal** and D. Kulavuz-Onal, "A Cross-disciplinary Examination of the Instructional Uses of ChatGPT in Higher Education" *Journal of Educational Technology Systems*, 52 (3), 301-324, 2024.

## 2023

- B. Yang, G. Ercal, and **S. Onal**. "Distance Measures and Graph Algorithms for Clustering Time Series with Applications to Gait Data." *International Journal of Knowledge Engineering and Data Mining*, in press, 2023.
- G. Avdan, **S. Onal**, and B. Smith. "Normalization of EMG Signals: Optimal MVC Positions for the Lower Limb Muscle Groups in Healthy Subjects." *Journal of Medical and Biological Engineering*, 43 (2), 195-202, 2023.
- M. Buac, G. Ibarra, R. Torres, **S. Onal**, A. Gladfelter, and Z. Wang. "The Urgent Need for Neuroscience Research to Consider Culture When Assessing the Development of Gait in Autistic Children: A Scoping Review." *Journal of Integrative Neuroscience*, 22(2), 51, 2023.
- G. Avdan, C. B. Chen, and **S. Onal**, "Investigation of an alternative EMG normalization technique: Recurrence quantification analysis of maximum voluntary contractions," in *Proc. 2023 IISE Institute of Industrial and Systems Engineers Annual Conference*, New Orleans, LA, May 20-23, 2023.
- N. K. Barnawal and **S. Onal**, "2D U-Net Based Model for Concrete Surface Crack Detection," in *Proc. 2023 IISE Institute of Industrial and Systems Engineers Annual Conference*, New Orleans, LA, May 20-23, 2023.
- C. Gopalan, **S. Onal**, C. Butts-Wilmsmeyer, P. Dickey, C. Serrano, G. Bracey, L. Bartels, S. Locke, and J. Fickas, "Flipped Teaching Eased the Transition to Online Learning of College Students in STEM Courses during COVID-19," *The International Journal of Teaching and Learning in Higher Education (IJTLHE)*, vol. 35, no. 2, pp. 196-208, 2023.
- **S. Onal**, "Exploring the Potential Benefits and Risks of ChatGPT in Engineering Education," in *Proc. 2023 ASEE Illinois-Indiana Section Conference*, Edwardsville, IL, 2023.

## 2022

- B. Smith and **S. Onal**, "Comparison of Different Biomechanical Models to Calculate Take Off Velocity of The Vertical Jump," *Journal of Medicine & Science in Sports & Exercise*, vol. 54, no. 9S, pp. 289, 2022.

- **S. Onal**, "Analysis of gait data using fractal dimensions and entropies," in Proc. 2022 IISE Institute of Industrial and Systems Engineers Annual Conference, Seattle, WA, May 21-24, 2022.
- G. Avdan, **S. Onal**, and B. Smith, "Maximum voluntary contraction (MVC) techniques to normalize lower limb muscle groups in young healthy subjects," in Proc. 2022 IISE Institute of Industrial and Systems Engineers Annual Conference, Seattle, WA, May 21-24, 2022.
- B. Yang, **S. Onal**, and G. Ercal, "Clustering Time Series Data with Applications to Gait Analysis," in Proc. 2022 IISE Institute of Industrial and Systems Engineers Annual Conference, Seattle, WA, May 21-24, 2022.

## 2021

- C. Rannulu, **S. Onal**, and M. Omran, "A graphical user interface for automated 2-or 3-dimensional image registration in dental treatment recovery planning: The DentIR application," *The Journal of Oral Radiology*, 37, 101-108, 2021.
- **S. Onal** and Islam, S., K., "Adaptive Density-Peaks Clustering for Gait Analysis," *International Journal of Knowledge Engineering and Data Mining*, 7 (3-4), 145-162, 2021.
- C. Gopalan, **S. Onal**, C. Butts-Wilmsmeyer, P. Dickey, C. Serrano, G. Bracey, L. Bartels, S. Locke, and J. Fickas, "Flipped teaching eases the transition of students to online learning during the COVID-19 pandemic," *The FASEB Journal*, 2021.

## 2020

- K. S. Islam, **S. Onal**, B. Smith, and S. Cho, "Gait comparison of physically active and inactive children," in Proc. 2020 IISE Institute of Industrial and Systems Engineers Annual Conference, Virtual Meeting, Nov 1-3, 2020.
- P. Cayo and **S. Onal**, "A shifting bottleneck procedure with multiple objectives in a complex manufacturing environment," *Journal of Production Engineering*, vol. 14, pp. 177-190, 2020.

## 2019

- **S. Onal**, M. Leefers, B. Smith, and S. Cho, "Predicting Running Injury Using Kinematic and Kinetic Parameters Generated by an Optical Motion Capture System," *SN Applied Sciences*, vol. 1, 675, 2019.

## 2018

- **S. Onal**, "Automated Artifact Removal and Segmentation of Skin Lesions on Dermoscopic Images for Diagnosis of Skin Cancer," *2018 IISE- Institute of Industrial and Systems Engineers Annual Conference*, May 19-22, Orlando, FL.
- S. Celik and **S. Onal**, "Green Roof Energy Savings Analysis for Pilot Regions in Florida using Image Processing Technique," *2018 IISE- Institute of Industrial and Systems Engineers Annual Conference*, May 19-22, Orlando, FL. (Selected as the Best Paper of Energy Systems Division of IISE)
- M. Balasooriya, **S. Onal**, and X. Chen, "Nonparametric Segmentation for Anatomical Structures through Nonlinear Optimization," *2018 IISE- Institute of Industrial and Systems Engineers Annual Conference*, May 19-22, Orlando, FL.

## 2017

- **S. Onal**, J. Nadler, and M. O'Loughlin, "Applying Theory to Real-World Problems: Integrating Service Learning into the Industrial Engineering Capstone Design Course," *International Journal for Service Learning and Humanitarian Engineering and Social Entrepreneurship*, vol. 12, no. 2, pp. 57-80, 2017.
- **S. Onal**, X. Chen, and M. Balasooriya, "Interior Point Search for Nonparametric Image Segmentation," *Journal of Signal, Image and Video Processing*, vol. 12, no. 2, pp. 363-370, 2017.
- **S. Onal**, X. Chen, S. Lai-Yuen, and S. Hart, "Automatic Vertebra Segmentation on Dynamic MRI," *SPIE Journal of Medical Imaging*, vol. 4, no. 1, 014504, 2017.

## 2016

- **S. Onal**, X. Chen, V. Satamraju, M. Balasooriya, and H. Dabil Karacal, "Automated and Simultaneous Fovea Center Localization and Macula Segmentation using the New Dynamic

Identification and Classification of Edges (DICE) Model,” *SPIE Journal of Medical Imaging*, vol. 3, no. 3, 034002, 2016.

- **S. Onal**, X. Chen, S. Lai-Yuen, and S. Hart, “Segmentation of Sacral Curve on Dynamic MRI for Diagnosis of Pelvic Organ Prolapse,” *IEEE International Conference on Biomedical and Health Informatics*, Feb 24-27, Las Vegas, NV.

## 2015

- **S. Onal** and H. Dabil Karacal, “Improved Automated Vessel Segmentation for Diagnosing Eye Diseases Using Fundus Images,” *Journal of Biomedical Graphics and Computing*, vol. 6, no. 1, pp. 23-33, 2015.
- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and H. Stuart, “Automated Localization of Multiple Pelvic Bone Structures on MRI,” *IEEE Journal of Biomedical and Health Informatics*, vol. 20, no. 1, pp. 249-255, 2015.
- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and H. Stuart, “Quantitative Assessment of New MRI-based Measurements to Differentiate Low and High Stages of Pelvic Organ Prolapse using Support Vector Machines,” *International Urogynecology Journal*, vol. 26, no. 5, pp. 707-713, 2015.
- **S. Onal**, A. Adeshina, and H. Dabil-Karacal, “A Machine Learning Approach to Improve the Diagnosis of Diabetic Retinopathy Using Fundus Image,” *2015 IIE- Industrial and Systems Engineering Research Conference*, May 30-June 2, Nashville, TN.
- **S. Onal** and X. Chen, “Heterogeneous Group Forming Using Mixed-Integer Programming for an Integrated Engineering Design Course,” *Illinois-Indiana ASEE Conference*, March 27-28, Fort Wayne, IN.

## 2014

- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and H. Stuart, “MRI-based Segmentation of Pelvic Bone for Evaluation of Pelvic Organ Prolapse,” *IEEE Journal of Biomedical and Health Informatics*, vol. 18, no. 4, pp. 1370-1378, 2014.
- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and S. Hart, “Fully Automated Localization of Multiple Pelvic Bone Structures on MRI,” *36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, August 26-30, Chicago, IL, pp. 3353-3356.

## 2013

- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, K. Greene, R. Kedar, and H. Stuart, “Assessment of a Semi-Automated Pelvic Floor Measurement Model for the Evaluation of Pelvic Organ Prolapse on MRI,” *International Urogynecology Journal*, vol. 25, no. 6, pp. 767-773, 2013.
- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and H. Stuart, “Image-based Measurements for Evaluation of Pelvic Organ Prolapse,” *Journal of Biomedical Science and Engineering (JBISE)*, vol. 6, no. 1, pp. 45-55, 2013.
- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and S. Hart, “Combined Supervised and Unsupervised Segmentation of Pubic Bone for Diagnosis of Pelvic Organ Prolapse,” *INFORMS Annual Meeting*, October 6-9, Minneapolis, MN.

## 2012

- **S. Onal**, S. Lai-Yuen, S. Hart, P. Bao, and A. Weitzenfeld, “MRI-based Semi-Automatic Pelvimetry Measurement for Pelvic Organ Prolapse Diagnosis,” *ISSPA 2012 International Conference on Information Science, Signal Processing and their Applications*, July 3-5, Montreal (Quebec), Canada.

## 2011

- **S. Onal**, S. Lai-Yuen, and H. Stuart, “Design of a Universal Laparoscopic Suturing Device,” *ASME 2011 Summer Bioengineering Conference*, June 22-25, Farmington, PA.

## PRESENTATIONS

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## 2024

- G. Avdan and **S. Onal**, "Lean Thinking in Healthcare 5.0 Technologies: An Exploratory Review," in Proc. Industrial Engineering and Operations Management (IEOM), Washington, DC, June 4-6, 2024.
- G. Avdan and **S. Onal**, "Resilient Healthcare 5.0: Advancing Human-Centric and Sustainable Practices with Wearable Devices," in Proc. 2024 IISE Institute of Industrial and Systems Engineers Annual Conference, Montreal, CA, May 18-21, 2024.
- D. Kulavuz-Onal and **S. Onal**, "Using ChatGPT to Design Differentiated Assessments for Content-based ESOL Instruction", TESOL 2024 International Convention & Expo, Tampa, Florida, 20–23 March 2024.

## 2023

- G. Avdan, C. B. Chen, and **S. Onal**, "Investigation of an alternative EMG normalization technique: Recurrence quantification analysis of maximum voluntary contractions," in Proc. 2023 IISE Institute of Industrial and Systems Engineers Annual Conference, New Orleans, LA, May 21-24, 2023.
- N. K. Barnawal and **S. Onal**, "2D U-Net Based Model for Concrete Surface Crack Detection," in Proc. 2023 IISE Institute of Industrial and Systems Engineers Annual Conference, New Orleans, LA, May 20-23, 2023.
- **S. Onal**, "Exploring the Potential Benefits and Risks of ChatGPT in Engineering Education," in Proc. 2023 ASEE Illinois-Indiana Section Conference, Edwardsville, IL, 2023.

## 2022

- **S. Onal**, "Analysis of gait data using fractal dimensions and entropies," in Proc. 2022 IISE Institute of Industrial and Systems Engineers Annual Conference, Seattle, WA, May 21-24, 2022.
- B. Smith and **S. Onal**, "Comparison of Different Biomechanical Models to Calculate Take Off Velocity of The Vertical Jump," ACSM's 2022 Annual Meeting, May 31 - June 4, 2022, in San Diego, CA.
- G. Avdan, **S. Onal**, and B. Smith, "Maximum voluntary contraction (MVC) techniques to normalize lower limb muscle groups in young healthy subjects," in Proc. 2022 IISE Institute of Industrial and Systems Engineers Annual Conference, Seattle, WA, May 21-24, 2022.
- B. Yang, **S. Onal**, and G. Ercal, "Clustering Time Series Data with Applications to Gait Analysis," in Proc. 2022 IISE Institute of Industrial and Systems Engineers Annual Conference, Seattle, WA, May 21-24, 2022.

## 2021

- C. Gopalan, **S. Onal**, C. Butts-Wilmsmeyer, P. Dickey, C. Serrano, G. Bracey, L. Bartels, S. Locke, and J. Fickas, "Flipped teaching eases the transition of students to online learning during the COVID-19 pandemic," The FASEB, Remote, 2021.
- C. Gopalan and **S. Onal**, "The Flexibility of Using the Flipped Classroom as a Virtual Classroom During the COVID-19 Pandemic," presented at The American Physiological Society's (APS) Institute on Teaching and Learning (ITL), Remote, 2021.

## 2020

- K. S. Islam, **S. Onal**, B. Smith, and S. Cho, "Gait analysis of swimmer and non-swimmer children," in Proc. 2020 IISE Institute of Industrial and Systems Engineers Annual Conference, Virtual Meeting, Nov 1-3, 2020.
- K. S. Islam, **S. Onal**, B. Smith, and S. Cho, "Gait comparison of physically active and inactive children," in Proc. 2020 IISE Institute of Industrial and Systems Engineers Annual Conference, Virtual Meeting, Nov 1-3, 2020.
- C. Rannulu, **S. Onal**, and M. Omran, "The DentIR application: A graphical user interface for dental treatment recovery planning," in Proc. 2020 IISE Institute of Industrial and Systems Engineers Annual Conference, Virtual Meeting, Nov 1-3, 2020.

## 2019

- S. Kargarnovin, **S. Onal**, B. Smith, and S. Cho, "Selected Tasks of Cleaning Occupation Comparison," in Proc. 2019 IISE Institute of Industrial and Systems Engineers Annual Conference, Orlando, FL, May 18-21, 2019.
- M. Leefers, **S. Onal**, B. Smith, and S. Cho, "Pattern Recognition as a Running Gait Diagnostic Tool," in Proc. 2019 IISE Institute of Industrial and Systems Engineers Annual Conference, Orlando, FL, May 18-21, 2019.

## 2018

- A. Parcels, P. Firat, S. Kargarnovin, and **S. Onal**, "Automated Segmentation of Knee Structure in Magnetic Resonance (MR) Images for the Diagnosis of Knee Joint Pathologies," *2018 IISE- Institute of Industrial and Systems Engineers Annual Conference*, May 19-22, Orlando, FL.
- **S. Onal**, "Automated Artifact Removal and Segmentation of Skin Lesions on Dermoscopic Images for Diagnosis of Skin Cancer," *2018 IISE- Institute of Industrial and Systems Engineers Annual Conference*, May 19-22, Orlando, FL.
- S. Celik and **S. Onal**, "Green Roof Energy Savings Analysis for Pilot Regions in Florida using Image Processing Technique," *2018 IISE- Institute of Industrial and Systems Engineers Annual Conference*, May 19-22, Orlando, FL. (The Best Paper of Energy Systems Division of IISE)
- M. Balasooriya, **S. Onal**, and X. Chen, "Nonparametric Segmentation for Anatomical Structures through Nonlinear Optimization," *2018 IISE- Institute of Industrial and Systems Engineers Annual Conference*, May 19-22, Orlando, FL.

## 2017

- M. Balasooriya, **S. Onal**, and X. Chen, "Nonlinear Optimization for Nonparametric Image Segmentation," *INFORMS 2017 Annual Conference*, October 22-25, Houston, TX.
- C. Yaba, **S. Onal**, S. Cho, C. Pandarakalam, G. Nathalia, and M. Omran, "Position Tracking System for Dental Patients during Cone Beam Computer Tomography (CBCT)," *BMES 2017 Annual Meeting*, October 11-14, Phoenix, AZ.

## 2016

- M. Omran, G. Nathalia, C. Pandarakalam, C. Yaba, **S. Onal**, and S. Cho, "Designing Head Alignment Device for Dental Cone Beam Computer Tomography (CBCT)," *46th Annual Meeting of the AADR*, March 20-25, San Francisco, CA.
- **S. Onal**, X. Chen, and M. Balasooriya, "Segmentation of Anatomical Structures Using Dynamic Identification and Classification of Edges (DICE) Model in Medical Images," *INFORMS 2016 Annual Conference*, November 13-16, Nashville, TN.
- C. Yaba, **S. Onal**, S. Cho, C. Pandarakalam, G. Nathalia, and M. Omran, "Sensitivity Analysis for Designing Head Alignment Device for Dental Patients during Cone Beam Computer Tomography (CBCT)," *BMES 2016 Annual Meeting*, October 5-8, Minneapolis, Minnesota.
- R. Carter and **S. Onal**, "A Heuristic Model for Solving a Job Shop Scheduling Problem Involving Multiple Machines and Processes," *108th Annual Meeting of Illinois State Academy of Science*, April 15-16, 2016, Edwardsville, IL.
- **S. Onal**, X. Chen, S. Lai-Yuen, and S. Hart, "Segmentation of Sacral Curve on Dynamic MRI for Diagnosis of Pelvic Organ Prolapse," *IEEE International Conference on Biomedical and Health Informatics*, Feb 24-27, Las Vegas, NV.

## 2015

- **S. Onal**, "Designing Online Management Courses: Lessons Learned," *2015 The Focus on Teaching and Technology Conference*, Nov 12-13, St. Louis, MO.
- **S. Onal**, "Integration of Computer Aided Diagnosis (CAD) Technologies to Assist Radiologists: Using of CAD Systems in Two Cases," *2nd Global Conference on Engineering and Technology Management, GCETM 2015*, Sep 4-5, Chicago, IL.

- **S. Onal**, A. Adeshina, and H. Dabil-Karacal, "A Machine Learning Approach to Improve the Diagnosis of Diabetic Retinopathy Using Fundus Image," *2015 IIE- Industrial and Systems Engineering Annual Research Conference*, May 30-June 2, Nashville, TN (Accepted).
- **S. Onal**, H. Dabil-Karacal, and H. F. Lee, "Implementation of Medical Device Projects into Integrated Engineering Design Course (Capstone) for Industrial and Manufacturing Engineering Students," *IIE- Industrial and Systems Engineering Annual Research Conference*, May 30-June 2, Nashville, TN (Accepted).
- L. Hoffman, **S. Onal**, and H. Dabil-Karacal, "Support System for Reduction of Isometric Muscle Fatigue," *Undergraduate Research and Creative Activities (URCA) Showcase, SIUE*, April 27, Edwardsville, IL.
- **S. Onal** and X. Chen, "Heterogeneous Group Forming Using Mixed-Integer Programming for an Integrated Engineering Design Course," *Illinois-Indiana ASEE Conference*, March 27-28, Fort Wayne, IN.

## 2013

- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and S. Hart, "Pubic Bone Segmentation for Diagnosis of Pelvic Organ Prolapse," *6th Annual College of Engineering Research Day*, November 6, Tampa, FL.
- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, K. Greene, and S. Hart, "Image Based Measurements for Evaluation of Pelvic Organ Prolapse," *AUGS 34th Annual Scientific Meeting*, October 16-19, Las Vegas, NV.
- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and S. Hart, "Combined Supervised and Unsupervised Segmentation of Pubic Bone for Diagnosis of Pelvic Organ Prolapse," *INFORMS Annual Meeting*, October 6-9, Minneapolis, MN.
- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, K. Greene, and S. Hart, "Image Based Measurements for Evaluation of Pelvic Organ Prolapse," *38th Annual Meeting - International Urogynecological Association*, May 28-June 1, Dublin, Ireland.
- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and S. Hart, "MRI-based Segmentation of Pubic Bone for Evaluation of Pelvic Organ Prolapse," *Graduate Student and Postdoctoral Scholar Research Symposium*, March 25, Tampa, FL.

## 2012

- **S. Onal**, S. Lai-Yuen, S. Hart, P. Bao, and A. Weitzenfeld, "MRI-based Semi-Automatic Pelvimetry Measurement for Pelvic Organ Prolapse Diagnosis," *ISSPA 2012 International Conference on Information Science, Signal Processing and their Applications*, July 3-5, Montreal (Quebec), Canada.
- **S. Onal**, S. Lai-Yuen, and H. Stuart, "Universal Laparoscopic Suturing Device," *NAI 2012 National Academy of Inventors Inaugural Annual Conference*, February 16-17, Tampa, FL.

## 2011

- **S. Onal**, S. Lai-Yuen, and H. Stuart, "Design of a Universal Laparoscopic Suturing Device," *ASME 2011 Summer Bioengineering Conference*, June 22-25, Farmington, PA

## PATENTS

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- **S. Onal**, S. Lai-Yuen, P. Bao, A. Weitzenfeld, and S. Hart, "Image-based Automated Measurement Model to Predict Pelvic Organ Prolapse," Patent US20160275678A1.
- **S. Onal**, S. Hart, and S. K. Lai-Yuen, "Universal Laparoscopic Suturing Device," Patent US20130144315.

## TEACHING EXPERIENCE

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- IE 370- Manufacturing Processes
- IE 430- Managing Engineering & Technology (Online)

- IE 431- Project Analysis and Controlling (Online)
- IE 451- Method Design & Work Measurements
- IE 470- Manufacturing Systems
- IE 490- Integrated Engineering Design (Capstone)
- IE 530- Engineering and Technology Management
- IE 531- Engineering Project Management
- IE 570- Assembly Engineering
- IE 581- Industrial Image Processing: Visual Quality Control in Manufacturing
- MIS 576- Data Mining for Business Analytics, University of Illinois at Springfield

## **SERVICE EXPERIENCE**

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### **Department Service**

- Department Chair (2022 – Present)
- Committee Chair, IE Faculty Meeting (2022 - Present)
- Committee Member, IE Faculty Meeting (2014 - 2022)
- Presenter, School of Engineering Open House - Department Representative (2020 - Present)
- Faculty Mentor, Faculty Mentor for Arman Dabiri (2019 - Present)
- Faculty Advisor, Institute of Industrial and Systems Engineering (IISE) Student Chapter at SIUE (2016 - Present)
- Officer, Memo Keeper (2014 - Present)
- Committee Chair, IE Operating Paper Committee (2019 - 2024)
- Organizer, Monthly IE Orientation Series for High School Students and Their Parents (2023)
- Organizer, Industrial Engineering Summer Camp for High School Students (2023)
- Committee Chair, Alumni Night Organizing Committee (2022 - 2023)
- Committee Member, Office Support Specials Hiring (2018 - 2022)
- Committee Member, Sabbatical Leave Review Committee for Dr. H. Felix Lee (2020)
- Committee Chair, IE/ME Annual Picnic Committee (2018 - 2020)
- Committee Member, Midpoint Review Committee for Dr. Kamran Shavezipur (2019)
- Committee Member, Midpoint Review Committee for Dr. Nima Lotfi (2019)
- Faculty Advisor, Senior Design Competition, Annual Conference ,Institute of Industrial and Systems Engineering (IISE) (2019)

### **School Service**

- Committee Member, School of Engineering Executive Committee (2022 - Present)
- Promotion & Tenure Review Committee (for Matta), 2023
- Promotion & Tenure Review Committee (for Yuan), 2023
- Officer, Regional ASEE Conference (2023)
- Committee Member, Policy and Procedure Committee (2019 - 2022)
- Committee Member, School of Engineering Safety Committee (2015 - 2022)
- Reviewer, SIUSM-SIUE Collaboration Support Grant (SCSG) (2016 - 2019)

### **University Service**

- Reviewer, Meridian Scholarship Committee (2024 - Present)
- Committee Member, Research Integrity Committee (2021 - Present)
- Committee Member, SIU System Cooperative Ph.D. Committee (2021 - Present)
- Reviewer, Teaching Peer Consulting Committee (2021 - 2023)
- Committee Member, Research and Projects Advisory Board (for the HOPPE, Vaughnie Lindsay New Investigator Award, and Paul Simon Outstanding Teacher-Scholar Award (2019 - 2022)
- Committee Member, Family Friendly Policy Implementation Committee (2014 - 2022)



## Professional Service

- Officer, President/Elect/Past, IISE Data Analytics & Information Systems (DAIS) Division (2021 - 2022)
- Board Director Institute of Industrial and Systems Engineers, (2018 - 2021)
- Chairperson, IISE 2020 Annual Conference on IISE Data Analytics & Information Systems (DAIS) Division (2019)
- Organizer, Best Paper Competition, Data Analytics and Information Systems (DAIS) Division of IISE, (2019-2020)
- Organizer, Teaching Award, Data Analytics and Information Systems (DAIS) Division of IISE, (2021-2022)
- Reviewer, Journal Article, IEEE Journal of Biomedical Health Informatics (2014 - Present)
- Reviewer, Journal Article, IEEE Journal of Biomedical Signal Processing and Control (2022 - Present)
- Reviewer, Journal Article, International Journal of Biomedical Engineering and Technology (2023 - Present)
- Reviewer, Conference Paper, IISE Annual Conference (2014 - Present)
- Editorial Review Board Member, Jacobs Journal of Medical Diagnosis and Medical Imaging (2014 - Present)
- Editorial Review Board Member, Journal of Biomedical Graphics and Computing (2014 - Present)
- Board Member, IISE Data Analytics & Information Systems (DAIS) Division (2018 - 2020)
- Reviewer, Grant Proposal, Computer Science-1 Panel for NSF Graduate Research Fellowship Program (2014 - 2020)
- Grant Proposal Committee Member, National Science Foundation Smart and Connected Health (2017 - 2019)

## FUNDED GRANTS <sup>a</sup> External, <sup>b</sup> Internal,

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- <sup>b</sup> Advancing Biomedical Research Through AI-Driven Dynamic Gait Phase Detection, SIU, **\$20,000**
- <sup>b</sup> Acquisition of New EMG Sets for Motion Capture and Analysis Lab, Equipment and Tools Funding Program, SIUE, **\$21,299.00.**
- <sup>a</sup> Creating a Textbook and Ancillaries for Nurse Anesthetist Students, CARLI Illinois SCOERs, **\$65,457.15.**
- <sup>b</sup> iFLIPPED, Part of three-year fellowship at SIUE, **\$12,000.**
- <sup>a</sup> iGAIT: A Data-Driven Application to Predict Autism Spectrum Disorder (ASD) Index for Children Living in Underserved, Underrepresented, and Low-income Communities, Sustaining Illinois Seed Grant- Illinois Innovation Network, **\$29,810.00.**
- <sup>b</sup> HOPPE: Gait alterations in children with autism spectrum disorder, SIUE, **\$17,000.00.**
- <sup>b</sup> Acquisition of Two New Force Platforms, BERTEC FP4060-10-TM 2000, Equipment and Tools Funding Program, SIUE, **\$29,721.00.**
- <sup>b</sup> Acquisition of Lambda Workstation, Equipment and Tools Funding Program, SIUE, **\$20,819.00.**
- <sup>b</sup> Acquisition of Assault Runner Elite non-motorized treadmill, Equipment and Tools Funding Program, SIUE, **\$3,999.00.**
- <sup>a</sup> National Science Foundation (NSF): "Acquisition of Motion Capture/Analysis System (MCAS) for Leading-edge Research and Teaching," **\$185,358.00**
- <sup>b</sup> SIUE STEM Center Faculty Research Fellow for 2017-2018
- <sup>b</sup> Excellence in Undergraduate Education by Faculty Development Council, **\$10,512.00** (2016)
- <sup>b</sup> Seed Grants for Transitional and Exploratory Projects, **\$13,427** for (2016)

## HONORS and AWARDS

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- SIUE Teaching Excellence Award (2025)
- SIU System Collaboration Award (2025)

- SIU Faculty Collaborations Award (2025)
- Lean Six Sigma Competition (Third place), Tooling Tech Group, (2024)
- Selected for the Hoppe Research Professor Award (2019-2021)
- Outstanding IE Teaching award (2020 and 2017)
- Invited as a Speaker for the Service-Learning Workshop at the Arizona State University (2019)
- School of Engineering Nominee for the Teaching Excellence Award (2019)
- Senior Design Competition Finalist (2019)
- Selected as the 2018 IISE North Central Regional Outstanding Faculty Advisor
- Selected as the Best Paper of Energy System Division at IISE (2018)
- Selected for Frontiers of Engineering Education Symposium to be held at the National Academies' Beckman Center in Irvine, CA. (2015)
- Selected for Preparing College Teaching Program, The Academy for Teaching and Learning Excellence, University of South Florida, Tampa, FL (2013) Selected for Preparing College Teaching Program, The Academy for Teaching and Learning Excellence, University of South Florida, Tampa, FL (2013)
- Selected for Doctoral Student Leadership Institute. University of South Florida, Tampa, FL (2012)
- The winner team of 2015 Other40 Business Plan Competition sponsored by the Entrepreneurs' Club of SIUE, **\$5,000** cash prize. (Coaching)
- The project entitled "Hand Support System for Eye Surgeons during Cataract Surgery" has been selected for 2015 Undergraduate Research and Creative Activities Program (URCA)

## WORKSHOPS

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- Creating an Inclusive & Supportive Learning Environment -Seven-week workshop by ACUE (2024)
- Midweek Mentor: Alternative Approaches to Grading (2023)
- Midweek Mentor: How Can I Intentionally Create a Course that Boosts Learning and Decreases Student Stress?" (2023)
- Midweek Mentor: Engaging Students in Large Classrooms Using Active Learning and Metacognitive Strategies
- Print Your First 3D Object, Illinois SCOERs (2023)
- Review of 3D Printing, Illinois SCOERs (2023)
- Midweek Mentor: How Can I Build Antiracist Syllabus? (2022)
- American Society for Engineering Management: Reimagine Manufacturing with Liquid Metal 3D Printing (2022)
- Filliped Teaching- NSF Founded project- (2018-2022)
- Midweek Mentor: How Talking Through My Course Evaluations Improves My Teaching? (2021)
- New Guidelines for Designing Safe Pushing and Pulling Tasks: Applied Ergonomics (2020)
- Industry 4.0 What Does it Mean to the Ergonomist?:Applied Ergonomics (2020)Midweek
- Service-Learning Workshop- Arizona State University (2019)
- Mentor: How Can I Enhance Students' Self-Regulated Learning Skills? (2017)
- Midweek Mentor: How Can I Save Time and Money by Repurposing Online Content? (2017)
- Midweek Mentor: How Can I Get Students to Come to Class Prepared? (2015)
- Midweek Mentor: What Works and What Doesn't When Teaching Large Classes (2015)
- Midweek Mentor: How Do I Set Students Up for Success in Online Courses? (2015)