

Weijun Shen

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EDUCATION

University of Wisconsin – Madison

Fall 2022 - Present

Madison, WI

Ph.D., Major: Industrial Engineering, Minor: Mechanical Engineering

GPA: 3.625/4.0

Iowa State University

Fall 2019 – Summer 2022 (Transfer to UW-Madison)

Ames, IA

Ph.D., Co-Major: Mechanical Engineering & Industrial Engineering

GPA: 3.57/4.0

Shanghai Polytechnic University

Fall 2009 – Spring 2013

Shanghai, China

B.E., Major: Mechanical Engineering and Automation

GPA: 3.65/4.0 (WES)

HONORS AND AWARDS

- Institute of Industrial & Systems Engineer (IISE) - Future Faculty Fellowship
- Institute of Industrial & Systems Engineer (IISE) 2023 - DAIS Data Analysis Competition Finalist
- Institute of Industrial & Systems Engineer (IISE) - Annual Virtual Conference & Expo 2021 – Manufacturing and Design Division – Best Track Paper Award
- Outstanding Graduate of Shanghai, Shanghai Municipal Education Commission, 2013
- Scholarship of Shanghai, Shanghai Municipal Education Commission, 2011-2012
- Excellent Student of Shanghai Polytechnic University, SPU, 2010-2011
- First-class University Scholarship, SPU, 2012-2013
- First-class University Scholarship, SPU, 2011-2012
- First-class University Scholarship, SPU, 2010-2011
- Second-class University Scholarship, SPU, 2009-2010

RESEARCH LABORATORY & FIELDS

Industrial and Systems Engineering, University of Wisconsin – Madison

Madison, WI

Flexible Electronics and Additive Printing Laboratory (FEAP)

- Origami/Kirigami structure - Design for Additive Manufacturing
- Low melt point alloy 3D printing
- Multi-axis concrete 3D printing

Industrial and Manufacturing Systems Engineering, Iowa State University

Ames, IA

Flexible Electronics and Additive Printing Laboratory (FEAP)

- Origami structure
 - Origami-inspired structure for mechanical property reinforcement.
- Metal additive manufacturing (Directed Energy Deposition)
 - Metal parts repairing and remanufacturing
 - Influence of powder quality on final parts
 - Thermal history and melt pool thermo-profile monitoring for quality control

Mechanical Engineering, Iowa State University

Ames, IA

High-dimensional Optical Sensing Laboratory (HDOSL)

- Structured light scanning (fringe projection)
 - Topography characterization and comparison of as-built (DED fabricated, welding beads, etc.) and post-processed (laser shock peening, ultrasonic peening, etc.) surfaces.

- X-ray Micro-Computed Tomography (μ -CT)
 - Nondestructive defects detection for metal AM processes and pipeline products.
 - Surface extraction and feature segmentation from volumetric data captured by micro-CT system.

JOURNAL PUBLICATIONS

1. [under review] **Shen, W.**, Veeramani, D., Qin, H., 2024. A Novel Strategy for Warpage Mitigation through Infill Sectioning in Fused Filament Fabrication. *Journal of Manufacturing Science and Engineering*.
2. Mukherjee, T., **Shen, W.**, Liao, Y., Li, B., 2024. Improving Deposited Surface Quality in Additive Manufacturing Using Structured Light Scanning Characterization and Mechanistic Modeling. *J. Manuf. Mater. Process.* 8(124). <https://doi.org/10.3390/jmmp8030124>
3. Chen, S., Yu, L., **Shen, W.**, Fong, B., Li, Y., Dong, P., ... & Yao, S., 2024. Multimodal 5-DOF Stretchable Electromagnetic Actuators toward Haptic Information Delivery. *Advanced Functional Materials*, 2314515. <https://doi.org/10.1002/adfm.202314515>
4. **Shen, W.**, Cao, Y., Jiang, X., Zhang, Z., Okudan Kremer, G.E. and Qin, H., 2022. Experimental and Numerical Investigation on Radial Stiffness of Origami-Inspired Tubular Structures. *Journal of Applied Mechanics*, 89(3). <https://doi.org/10.1115/1.4052799>
5. **Shen, W.**, Jiang, X., Zhang, Z., Okudan-Kremer, G.E. and Qin, H., 2022. An origami-inspired infill pattern for additive manufacturing to reinforce the energy absorption performance. *The International Journal of Advanced Manufacturing Technology*, pp.1-8. <https://doi.org/10.1007/s00170-022-09883-w>
6. Zhang, X., **Shen, W.**, Suresh, V., Hamilton, J., Yeh, L.H., Jiang, X., Zhang, Z., Li, Q., Li, B., Rivero, I.V. and Qin, H., 2021. In situ monitoring of direct energy deposition via structured light system and its application in remanufacturing industry. *The International Journal of Advanced Manufacturing Technology*, 116(3), pp.959-974. <https://doi.org/10.1007/s00170-021-07495-4>

CONFERENCE PUBLICATIONS & PRESENTATIONS

1. **Shen, W.**, Zhang, Z., Okudan-Kremer, G., Qin, H., 2022. Origami-inspired infill pattern for additive manufacturing, *Manufacturing Letters*, Vol 33 Supplement, pp. 516-520, 50th SME North American Manufacturing Research Conference (NAMRC 50, 2022)
2. **Shen, W.**, Liu, L., Jiang, X., Zhang, Z., Li, Q., Qin, H. “Multi-modal in-situ nondestructive testing of direct energy deposition and AI-enabled data fusion for quality assurance in remanufacturing”, IISE Annual Conference, Seattle WA, 2022.
3. Huang, H., **Shen, W.**, Qin, H. “Electro-field-assisted direct-writing of origami-inspired Field’s alloy to optimize structures of blood vessel stents”, IISE Annual Conference, Seattle WA, 2022.
4. **Shen, W.**, Burnett, M., Zhang, Z., Kremer, G., Qin, H. “Structural reinforcement with origami-inspired infill patterns for additive manufacturing”, IISE Annual Conference, Seattle WA, 2022.
5. Jiang, X., **Shen, W.**, Qin, H. “Effects of Particle Size Distribution and Impact Speed on Printing Quality in Direct Energy Deposition”, IISE Annual Conference, Seattle WA, 2022.
6. Liu, L., **Shen, W.**, Jiang, Y., Qin, H., Li, Q. “Melt pool temperature prediction in additive manufacturing with the data-driven models”, IISE Annual Conference, Seattle WA, 2022.
7. **Shen, W.**, Jiang, X., Zhang, Z., Okudan-Kremer, G., Qin, H., “An origami-inspired fill pattern for additive manufacturing to reinforce the energy absorption performance”, Flexible Automation and Intelligent Manufacturing International Conference, Detroit MI, 2022.
8. **Shen, W.**, Zhang, X., Liao, Y., Li, B. “Real-Time Structured Light Scanning Characterization of Surface Topography of Direct Energy Deposited 316L Stainless Steel”, Manufacturing Science and Engineering Conference, West Lafayette IN, 2022
9. **Shen, W.**, Zhang, X., Jiang, X., Yeh, L-H., Zhang, Z., Li, Q., Li, B., Qin, H. “Surface Extraction from Micro-Computed Tomography Data for Additive Manufacturing”, *Procedia Manufacturing*, 53, pp.568-575, 49th SME North American Manufacturing Research Conference, Cincinnati OH, 2021. <https://doi.org/10.1016/j.promfg.2021.06.057>

10. Zhang, X., **Shen, W.**, Jiang, X., Li, B., Li, Q., Rivero, I., Qin, H. “In-situ Monitoring of Direct Energy Deposition via Structured Light System and Its Application in Remanufacturing Industry”, IISE Annual Conference 2021.

TEACHING EXPERIENCE

University of Wisconsin – Madison

Fall 2022 – Present

Graduate Teaching Assistant (Department of Industrial and Systems Engineering)

- ISyE/ME 512 Inspection, Quality Control and Reliability, Spring 2023

Course Evaluation: 4.24/5.0

Graduate Project Assistant (Department of Industrial and Systems Engineering)

- ISyE 415 & ISyE 605 courses development/updating

Iowa State University

Fall 2019 – Summer 2022

Graduate Teaching Assistant (Department of Mechanical Engineering)

Ames, IA

- M E 370 Engineering Measurement, Fall 2019
- M E 370 Engineering Measurement, Spring 2020
- M E 370 Engineering Measurement, Fall 2021

Course Evaluation: 4.47/5.0

Course Evaluation: 4.65/5.0

Course Evaluation: 4.80/5.0

Shanghai Polytechnic University

Fall 2013 – Spring 2019

Instructor (College of International Vocational Education)

Shanghai, China

- Engineering Drawing, Fall 2015, Spring 2016
- Computer-Aided Design, Spring 2015, Spring 2017, Fall 2017, Spring 2018, Fall 2018

Teaching Assistant (College of Engineering)

Shanghai, China

- Computer-Aided Design, Fall 2013, Spring 2014, Fall 2014
- Reverse Engineering, Fall 2013, Fall 2014
- Computer-Aided Manufacturing, Spring 2014, Fall 2015, Fall 2016
- Engineering Measurements, Spring 2016
- Fundamental of Machining, Fall 2016

WORKING EXPERIENCE

College of International Vocational Education, Shanghai Polytechnic University

June 2016 – Aug. 2019

Administrative Assistant & Instructor

Shanghai, China

College of Engineering, Shanghai Polytechnic University

June 2013 – June 2016

Teaching Laboratory Coordinator

Shanghai, China

SERVICES TO COMMUNITIES

- **Iowa Section, American Society for Nondestructive Test (ASNT)**
 - *Treasurer*
- **Conference paper reviewer**
 - *ASME, Manufacturing Science and Engineering Conference (MSEC)*
 - *SME, North American Manufacturing Research Conference (NAMRC)*
 - *IISE, IISE Annual Conference*
- **Journal paper reviewer**
 - *SME, Journal of Manufacturing Processes (JMP)*

June 2021 – July 2022

MEMBERSHIP

- Institute of Industrial and Systems Engineering (IISE)
- American Society of Mechanical Engineering (ASME)
- American Society for Nondestructive Testing (ASNT)

TECHNICAL SKILLS

- **Software:** SIEMENS NX, Creo, Solidworks, ABAQUS, MatLab, MS Office
- **Other:** CNC Machining (FANUC, HAAS), DED metal additive manufacturing, Image processing, X-ray Computed Tomography