Xuepeng Jiang

CURRICULUM VITAE

Ph.D. Candidate
Flexible Electronics and Additive Printing (FEAP) Laboratory,
Department of Industrial & Systems Engineering, University of Wisconsin - Madison

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RESEARCH INTERESTS & AREAS OF EXPERTISE

- *Hybrid Manufacturing System;* - *Femtosecond Laser Sintering*
- *Fourier Imaging;* - *Digital Holographic Microscopy (DHM)*
- *Electrohydrodynamic (EHD) Ink-Jet Printing;* - *Flexible Electronics*
- *Direct Energy Deposition (DED);* - *Thermal Imaging*
- *Micro-Computed Topography (μ-CT);* - *X-Ray*
- *Bio-Printing;* - *Drug Delivery System*

EDUCATION

Ph.D.	***Industrial & Systems Engineering*** ***Minor: Physics*** **University of Wisconsin - Madison**, Madison, Wisconsin Advisor: Professor *Hantang Qin*	08/2022 - Expected Graduation Date: Dec 2025
Ph.D.	***Industrial and Manufacturing Systems Engineering*** **Iowa State University**, Ames, Iowa Advisor: Professor *Hantang Qin*	08/2019-08/2022
B.S.	***Physics*** **The Ohio State University**, Columbus, Ohio	05/2018
B.S.	***Astronomy & Astrophysics*** **The Ohio State University**, Columbus, Ohio	05/2018

RESEARCH EXPERIENCE

Graduate Research Assistant, 08/2022-Current

- Department of Industrial & Systems Engineering, University of Wisconsin - Madison
  - *Laser Diffraction Monitoring System for EHD*

- *Dual wavelength pyrometry for DED*
- *Laser Diffraction Based Digital Holographic Microscopy*
- *Thermal Imaging Characterization and Data Fusion for DED Remanufacturing Aircraft Engine (P&W)*
- *Synchronized Coaxial Femtosecond Laser Sintering*
- *Origami Structure Designing for Sound Absorption*
- *EHD In-Space Manufacturing (NASA/NASA MSFC)*

Graduate Research Assistant, 08/2019-08/2022

- Department of Industrial and Manufacturing Systems Engineering, Iowa State University
  - *DED Remanufacturing for Engine Head (John Deere)*
  - *Laser Diffraction Monitoring System for DED/EHD (University of Washington)*
  - *Origami Structure Designing for Structural Reinforcement*
  - *EHD In-Space Manufacturing (NASA)*

Graduate Research Assistant, 08/2019-09/2021

- Department of Food Science and Human Nutrition, Iowa State University
  - *3D Printed Drug Delivery System for Allergy Patients*
- Center for Non-destructive Evaluation, Iowa State University
  - *Micro-CT X-Ray Scan for Pipeline Defects*

TEACHING EXPERIENCE

Fall 2020	IE 248: Engineering System Design, Manufacturing Processes and Specifications *Graduate Teaching Assistant*
Fall 2021	IE 248: Engineering System Design, Manufacturing Processes and Specifications *Leading Graduate Teaching Assistant*
Fall 2022/ Spring 2024	ISyE 604: Special Topic: Biomedical Design & Manufacturing/ Introduction to Biomanufacturing & Design Principles *Graduate Teaching Assistant*
Fall 2025	ISyE 415: Introduction to Manufacturing Systems, Design and Analysis *Graduate Teaching Assistant*

HONORS & AWARDS

2020	IMSE Research Symposium Best Poster Award, *Iowa State University*
2020	IMSE Research Symposium Best Presentation Award, *Iowa State University*
2020	NSF Travel Award Winner of 49th North American Manufacturing Research Conference (NAMRC)
2021	M&D Best Track Paper Award of 2021 IISE Annual Virtual Conference & Expo
2022	Graduate Teaching Excellence Award, *Iowa State University*

PUBLICATIONS

[1] C. Kuo, H. Qin, D. Acuña, Y. Cheng, **X. Jiang**, X. Shi, Printability of hydrogel composites using extrusion-based 3D printing and post-processing with calcium chloride, J. Food Sci. Nutr 5 (2019) 051.

[2] Y. Cheng, H. Qin, N.C. Acevedo, **X. Jiang**, X. Shi, 3D printing of extended-release tablets of theophylline using hydroxypropyl methylcellulose (HPMC) hydrogels, International Journal of Pharmaceutics 591 (2020) 119983.

[3] Y. Cheng, X. Shi, **X. Jiang**, X. Wang, H. Qin, Printability of a cellulose derivative for extrusion-based 3D printing: The application on a biodegradable support material, Frontiers in Materials 7 (2020) 86.

[4] **X. Jiang**, Y. Huang, X. Shi, H. Qin, Development of methylcellulose-based extended-release dosage by additive manufacturing, in: Institute of Industrial and Systems Engineers (IISE), 2020: pp. 1–6.

[5] K. Manikandan, **X. Jiang**, H. Qin, Study Effects of Nozzle Geometries on 3D Printing of Civil Constructs: Quantifying Contour Deviation and Mechanical Properties, in: Institute of Industrial and Systems Engineers (IISE), 2020: pp. 1157–1162.

[6] K. Manikandan, **X. Jiang**, A.A. Singh, B. Li, H. Qin, Effects of nozzle geometries on 3D printing of clay constructs: Quantifying contour deviation and mechanical properties, Procedia Manufacturing 48 (2020) 678–683.

[7] **X. Jiang**, Y. Huang, Y. Cheng, Z. Zhang, X. Shi, H. Qin, Effects of lyophilization on the release profiles of 3d printed delivery systems fabricated with carboxymethyl cellulose hydrogel, Polymers 13 (2021) 749.

[8] C.-C. Kuo, H. Qin, Y. Cheng, **X. Jiang**, X. Shi, An integrated manufacturing strategy to fabricate delivery system using gelatin/alginate hybrid hydrogels: 3D printing and freeze-drying, Food Hydrocolloids 111 (2021) 106262.

[9] W. Shen, X. Zhang, **X. Jiang**, L.-H. Yeh, Z. Zhang, Q. Li, B. Li, H. Qin, Surface extraction from micro-computed tomography data for additive manufacturing, Procedia Manufacturing 53 (2021) 568–575.

[10] X. Zhang, **X. Jiang**, Z. Zhang, H. Qin, Fabrication of silver microstructures via electrohydrodynamic inkjet printing as customizable X-ray marker in bio-structure for biomedical diagnostic imaging, The International Journal of Advanced Manufacturing Technology 114 (2021) 241–250.

[11] X. Zhang, W. Shen, V. Suresh, J. Hamilton, L.-H. Yeh, **X. Jiang**, Z. Zhang, Q. Li, B. Li, I.V. Rivero, 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 (2021) 959–974.

[12] **X. Jiang**, W. Shen, L. Jiang, H. Qin, Effects of particle size distribution and impact speed on printing quality in direct energy deposition, Manufacturing Letters 33 (2022) 521–526.

[13] W. Shen, Y. Cao, **X. Jiang**, Z. Zhang, G.E. Okudan Kremer, H. Qin, Experimental and numerical investigation on radial stiffness of origami-inspired tubular structures, Journal of Applied Mechanics 89 (2022) 031001.

[14] W. Shen, **X. Jiang**, Z. Zhang, G.E. Okudan-Kremer, H. Qin, An origami-inspired infill pattern for additive manufacturing to reinforce the energy absorption performance, The International Journal of Advanced Manufacturing Technology 122 (2022) 4267–4274.

[15] W. Shen, L. Liu, **X. Jiang**, Z. Zhang, Q. Li, H. Qin, Multi-modal in-situ nondestructive testing of direct energy deposition and AI-enabled data fusion for quality assurance in remanufacturing, in: Institute of Industrial and Systems Engineers (IISE), 2022: pp. 1–6.
[16] **X. Jiang**, P. Zhang, H. Qin, A qualitative validation of an in-situ monitoring system for ehd inkjet printing via laser diffraction, Manufacturing Letters 41 (2024) 248–252.
[17] T. Kirscht, L. Jiang, F. Liu, **X. Jiang**, M. Marander, R. Ortega, H. Qin, S. Jiang, Silver nano-inks synthesized with biobased polymers for high-resolution electrohydrodynamic printing toward in-space manufacturing, ACS Applied Materials & Interfaces 16 (2024) 44225–44235.
[18] L. Jiang, **X. Jiang**, R. Wolf, H. Qin, In-situ Monitoring Methods for Electrohydrodynamic Inkjet Printing towards Autonomous In-space Manufacturing, Procedia CIRP 137 (2025) 436–442.
[19] **X. Jiang**, L.-H. Yeh, M. Mu'ayyad, J.D. Hamilton, B. Li, I.V. Rivero, A.N. Camacho-Betancourt, W. Shen, H. Qin, Impact of self organizing map based incremental learning parameters on in-situ IR melting pool imaging for direct energy deposition, Manufacturing Letters 44 (2025) 559–565.
[20] W. Shen, **X. Jiang**, H. Qin, Acoustic absorption performance investigation in standard and custom infill patterns for FFF 3D printing with PLA material, Manufacturing Letters 44 (2025) 1113–1122.
[21] **X. Jiang**, L. Jiang, P. Zhang, H. Qin, Reverse Fourier Laser Diffraction for In-Situ High-Magnification Characterization of Electrohydrodynamic Inkjet Printing, Additive Manufacturing, 2025, under review.
[22] **X. Jiang**, P. Zhang, L. Jiang, H. Qin, Laser Diffraction Based Digital Holographic Microscopy for Digital Twin Reconstruction of Electrohydrodynamic Inkjet Printing, 2025, In preparation.
[23] **X. Jiang**, L. Jiang, W. Li, H. Qin, Simultaneous Coaxial Femtosecond Laser Sintering with Electrohydrodynamic Inkjet Printing, 2025, In preparation.

PRESENTATIONS & CONFERENCES

1. "Study Effects of Nozzle Geometries on 3D Printing of Civil Constructs: Quantifying Contour Deviation and Mechanical Properties" *IISE Annual Conference and Expo 2020, Virtual*
2. "Development of Methylcellulose-base Extended-release Dosage by Additive Manufacturing" *IISE Annual Conference and Expo 2020, Virtual*
3. "In-situ Monitoring of Direct Energy Deposition via Structured Light System and Its Application in Remanufacturing Industry" *IISE Annual Conference and Expo 2021, Virtual*
4. "Quantification Influences of Hydrophilic and Hydrophobic Material for 3D Printed Drug Delivery System Using Carboxymethyl Cellulose" *IISE Annual Conference and Expo 2021, Virtual*
5. "In-situ Monitoring of Direct Energy Deposition via Structured Light System and Its Application in Remanufacturing Industry" *NAMRC 49, Virtual*
6. "In-situ Droplet Size Analysis via Laser Scattering Theories for Electrohydrodynamic Inkjet Printing" *IISE Annual Conference and Expo 2022, Seattle*

7. “Effects of Particle Size Distribution and Impact Speed on Printing Quality in Direct Energy Deposition” *IISE Annual Conference and Expo 2022, Seattle*
8. “In-situ Filament Analysis via Laser Diffraction for Electrohydrodynamic Inkjet Printing” *IISE Annual Conference and Expo 2022 Workshop: Additive Manufacturing of Flexible Electronics and Nondestructive Testing for Quality Assurance, Seattle*
9. “Effects of Particle Size Distribution and Impact Speed on Printing Quality in Direct Energy Deposition” *NAMRC 50, West Lafayette*
10. “A qualitative validation of an in-situ monitoring system for ehd inkjet printing via laser diffraction” *NAMRC 52, Knoxville*
11. “Impact of self organizing map based incremental learning parameters on in-situ IR melting pool imaging for direct energy deposition” *NAMRC 53, Greenville*
12. “Acoustic absorption performance investigation in standard and custom infill patterns for FFF 3D printing with PLA material” *NAMRC 53, Greenville*

SERVICE

Secretary for ASNT Iowa Section: from 07/2021 to 07/2022

MEMBERSHIP

ASME; ASNT; IEEE; IISE; SME Member since 12/2019
SPIE; OPTICA Member since 09/2022