

# CURRICULUM VITAE

## Xiao Zhang

Ph.D. student, Flexible Electronics and Additive Printing (FEAP) Laboratory, In-situ Characterization for Additive Printing (iCAP) Laboratory, Department of Industrial and Manufacturing Systems, Iowa State University

Email: xiao1@iastate.edu

1117 Black Engineering Building

2529 Union Drive

Ames, IA, 50010-2030

## RESEARCH INTERESTS & AREAS OF EXPERTISE

Hybrid additive manufacturing and prototyping

Electrohydrodynamic Ink-Jet Printing of micro/nano flexible electronics

Laser diffraction technique; laser ablation technique; machine vision

Bio-printing; food printing; concrete printing

## EDUCATION

**Ph.D. in Department of Industrial and Manufacturing Systems**, Expected Graduation Time 2021

Iowa State University; Ames, Iowa

**Ph.D. in Mechanical and Aerospace Engineering**, 2016 – 2018

North Carolina State University; Raleigh, North Carolina

**M.S. in Department of Material Science and Engineering**, 2012–2015

Wuhan University of Technology; Wuhan, China

**B.A. in Department of Material Science and Engineering**, 2008-2012

Wuhan University of Technology; Wuhan, China

**B.A. in Business Administration**, 2009–2012

Wuhan University; Wuhan, China

## RESEARCH EXPERIENCE

**Graduate Research Assistant**, December 2017 - present

Department of Industrial and Manufacturing Systems; Iowa State University

*Fabricate flexible electronics by electrohydrodynamic jet printing technique combined with laser ablation*

Department of Food Science and Human Nutrition; Iowa State University

*Print food for patients in hospital using 3D printer*

Center for Nondestructive Evaluation; Iowa State University

*Conduct in-situ characterization for additive printing*

## TEACHING EXPERIENCE

Graduate Student Mentor, Summer 2019

*Summer Program for Interdisciplinary Research and Education – Emerging Interface Technologies (SPIRE-EIT)*

Teaching Assistant, Spring Semester 2019

*Engineering System Design, Manufacturing Processes and Specifications; Iowa State University*

Teaching Assistant, Spring Semester 2018

*Engineering Fundamentals & Problem Solving; Iowa State University*

## WORK EXPERIENCE

**Equipment Engineer**, March 2013 – September 2013

Semiconductor Manufacturing Incorporation (SMIC); Shanghai

*Packing and testing wafer, maintain PVD, CVD, photoresist coater/decoater machine, develop recipe*

## HONORS & AWARDS

**NSF Award Winner** of the 47th North American Manufacturing Research Conference, April 2019

**NSF Award Winner** of 2018 Annual International Solid Freeform Fabrication Symposium, August 2018

**National Scholarship**, Wuhan University of Technology, 2013 – 2015

**University Scholarship**, Wuhan University of Technology, 2009 – 2011

## PUBLICATIONS

1. R. Singh, **X. Zhang**, Y. Chen, J. Zheng, and H. Qin\*, “Machine vision assisted micro-filament detection for real-time monitoring of electrohydrodynamic inkjet printing”, published, Procedia Manufacturing Journal & International Conference in Flexible in Flexible Automation and Intelligent Manufacturing Conference 2018, Ohio State University; June 2018
2. P. Polamapally, Y. Cheng, X. Shi, K. Manikandan, **X. Zhang**, G.E. Kremer, H. Qin\* “3D Printing and characterization of hydroxypropyl methylcellulose and methylcellulose for biodegradable support structures”, published, Polymer, April 2019
3. S. Ravi-Kumar, B. Lies, **X. Zhang**, H. Lyu, and H. Qin\*, “Laser Ablation of Polymers: A Review”, published, Polymer International, May 2019
4. R. Singh, **X. Zhang**, Y. Chen, J. Zheng, and H. Qin\*, “In-situ monitoring of electrohydrodynamic inkjet printing via scalar diffraction for printed droplets”, submitted, Journal of Manufacturing Systems, April 2019
5. B. Melugiri-Shankaramurthy, Y. Sargam, **X. Zhang**, W. Sun, K. Wang, and H. Qin\*, “Evaluation of Cement Paste Containing Recycled Stainless Steel Powder for Sustainable Additive Manufacturing Construction & Building Materials”, submitted, Journal of Construction & Building Materials, April, 2019
6. **X. Zhang**, Y. Zheng, S. Wang, Q. Li, B. Li\*, and H. Qin\*, “Correlation Approach for 3D Surface Measurement Data of Additive Manufacturing Parts Based on Optical Metrology”, submitted, Journal of Manufacturing Science and Engineering, April 2019
7. H. Lyu, **X. Zhang**, F. Liu, Y. Huang, S. Jiang, and H. Qin\*, “Fabrication of micro-scale radiation shielding structures using tungsten nanoink through electrohydrodynamic inkjet printing”, submitted, Journal of Micromechanics and Microengineering, June 2019
8. **X. Zhang**, Z. Zhang, H. Lyu, and H. Qin\*, “X-ray characterization of functional silver microstructures via electrohydrodynamic inkjet printing”, submitted, Journal of Materials Processing Technology, June 2019
9. Y. Zheng, **X. Zhang**, S. Wang, Q. Li, H. Qin\*, and B. Li\*, “Similarity Evaluation of Topography Measurement Results by Different Optical Metrology Technologies for Additive Manufactured Parts”, submitted, Journal of Optics and Lasers in Engineering, June 2019

10. S. Ravi-Kumar, **X. Zhang**, B. Lies, H. Lyu, and H. Qin\*, “An area-depth approximation model of micro-drilling on high-density polyethylene (HDPE) soft films using pulsed laser ablation”, submitted, Journal of ASME-Journal of Micro- and Nano-Manufacturing, June 2019

## **PRESENTATIONS & CONFERENCES**

1. “Laser Ablation: a Review” & “Surface Roughness Measurement using Structured Light System and Focus Variation System”, ASME 2019/MSEC Manufacturing Science and Engineering Conference. Pennsylvania State University, Erie; June 2019
2. “A Low-cost On-board Sensing Device for Road Surface Condition Assessment” & “3D Printing and Characterization of Cellulose Derivatives for Biodegradable Support Structures”, IISE 2019/IISE Annual Conference and Expo. Rosen Shingle Creek Hotel, Orlando, Florida; May 2019
3. “Surface Roughness Measurement of AM Parts Using Focus Variation and Structured Light System”, 2nd Midwest Statistical Machine Learning Colloquium, May 12, 2019.
4. “Surface Roughness Measurement of Additive Manufactured Parts Using Focus Variation Microscopy and Structured Light System”, Iowa State Research Day 2019, Memorial Union, Ames, Iowa, March 2019
5. “Machine Vision Assisted Micro-Filament Detection for Real-Time Monitoring of Electrohydrodynamic Inkjet printing”, International Conference in Flexible Automation and Intelligent Manufacturing 2018 conference. Columbus, Ohio; June 2018.
6. “In-situ quality inspection for micro/nano scale additive manufacturing system based on electrohydrodynamic ink-jet printing using machine vision”, IISE 2018/IISE Annual Conference and Expo. Loews royal resort, Orlando, Florida; May 2018.
7. “Application of 3D Printing to Food Preparation at Ames Hospitals”, IMSE Research Symposium, Iowa State University, April 2018
8. “MICRO-FILAMENT DETECTION OF ELECTROHYDRODYNAMIC JET PRINTING”, Industry/University Research Center Semi-Annual Review. Ames, Iowa; April 2018.
9. “Application of 3D Printing to Food Preparation at Ames Hospitals”, poster competition, Center for Crops Utilization Research BioCentury Research Farm. Ames, Iowa; April 2018.
10. “Model Reconstruction in Additive Printing: A New Approach for in-situ Monitoring and Nondestructive Evaluation of Printed Constructs”, Industry/University Research Center Semi-Annual Review. Ames, Iowa; April 2018.
11. “Machine vision assisted micro-filament detection for real-time monitoring of electrohydrodynamic inkjet printing”, ASME 2018/MSEC Manufacturing Science and Engineering Conference. Texas A&M University, TX; June 2018
12. “Low-cost Bio-printer Gantry Design and Prototyping Process Control for Future Medical Application”, SFF 2018/2018 Annual International Solid Freeform Fabrication Symposium. Hilton hotel, Austin, Texas; August 2018
13. Munich Shanghai Electronic Components Expo. Shanghai, China; March 2013
14. Advanced Engineering Symposium. Wuhan, China; December 2011

## **SERVICE**

Reviewed articles for: The American Society of Mechanical Engineers

## **MEMBERSHIP**

IEEE Member (March 2018-present); ASME Member (March 2018- present); IISE Member (January 2019-present); SME Member (March 2018-present); ASNT Member (June 2019-present)