

## Curriculum Vitae

# XINYU LIU

Associate Professor, Dept. of Industrial Engineering, Lamar University, Beaumont, TX 77710  
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## EDUCATION

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Ph.D., Mechanical Engineering	University of Illinois at Urbana-Champaign	2006
M.S., Mechanical Engineering	Tsinghua University, P. R. China	1999
B.S., Mechanical Engineering	Tsinghua University, P. R. China	1997

## PROFESIONAL EXPERIENCE

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Associate Professor	Dept. of Industrial Engineering, Lamar University	08/2013 – Present
Assistant Professor	Dept. of Industrial Engineering, Lamar University	08/2007 – 08/2013
Postdoctorate Fellow	University of Illinois at Urbana-Champaign	01/2007 – 08/2007
Research Engineer	Microlution Inc.	06/2006 – 01/2007
Research Assistant	University of Illinois at Urbana-Champaign	08/1999 – 05/2006
Research Assistant	Tsinghua University	09/1997 – 07/1999

## TEACHING EXPERIENCE

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Associaate/Assistant Professor, Dept. of Industrial Eng. , Lamar University 08/2007 – Present

### Courses Taught

Undergraduate Courses:

**Introduction to Probability and Statistics**

**Statistical Quality Design and Control**

Engineering Materials and Manufacturing Processes

Engineering Materials and Manufacturing Processes Laboratory

Senior Capstone Design

Graduate Courses:

**Design of Experiments**

Advanced Manufacturing Process Analysis

Statistical Decision Making

Statistical Quality Design and Control

Lean Manufacturing

### Quality of Teaching:

I consistently received high student evaluations (average 4.5/5.0), which indicates that I am considered by students from a wide variety of degree programs to be an outstanding instructor at both undergraduate and graduate levels. Specific comments include: *“Dr. Liu is inspiring to me”*; *“His complete mastery and fluency in the subject matter is obvious, but he also is a great teacher.”* *“Great teacher, extremely involved, always there to help when needed”*. I was awarded the Lamar University Merit Award in 2011 for the outstanding classroom performance.

Teaching Assistant University of Illinois at Urbana Champaign 08/2004 – 05/2006

[Led lab session, grade all written work, and met with students upon request]

Introduction to Manufacturing System and Design for Manufacturing

Design and Analysis of Industrial Experimentations

Micro-factories for Micro-system Manufacturing

## RESEARCH FUNDING

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1. PI, “Development of a Non-Contact Metrology System for Dimension Measurement and Surface Characterization of Deep-Holes”, Schlumberger Research Center, \$200,000, 2008-2012.
2. Co-PI, Texas Department of Transportation, “Hydraulic performance of Rectangular Deck Drains”, PI, Dr. Qin Qian, Co-PIs, Dr. Mark Bourland; Dr. Xinyu Liu; Dr. Randall Charbeneau, Dr. Michael Barrett, Sept. 2010~ Aug.2012; \$300,000;
3. PI, “Nanolubricant based Minimum Quantity Lubrication Machining for Sustainable Manufacturing”, Lamar Research Enhancement Grant, \$5000, 2010~2011
4. PI, “Exploratory Study of Cost-Effective Hybrid Micromanufacturing Processes for Bipolar Plates of Miniature Fuel Cell”, Lamar Research Enhancement Grant, \$5000, 2008-2009.

## HONORS AND AWARDS

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- University Merit Award, Lamar University, 2011 (one of the three awardees campus wide)
- Several Journal articles were ranked as top 10 most downloaded articles in the ASME Journal of Manufacturing Science and Engineering; one of them ranked 1<sup>st</sup> for three consecutive months.
- BaoGang Scholarship for Excellent Graduate Students, Tsinghua University
- Summa Cum Laude, Tsinghua University, 1997
- Award in National Mathematics Competition, China, 1991
- Award in National Physics Competition, China, 1991

## PUBLICATIONS

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### Peer Reviewed Journal Papers

- [1] Qin Qian, Xinyu Liu, Michale E. Barrett and Randall J Charbeneau (2016), “Physical Modeling on Hydraulic Performance of Rectangular Bridge Deck Drains”, *Water*, 8(2), 67; doi:10.3390/w8020067.
- [2] Xinyu Liu and Shreyas Shashidhara (2016) “Experimental Investigation of the Tool Wear in Micro-milling of Stainless Steel 316”, *International Journal of Mechatronics and Manufacturing Systems*, 9(2), doi: 10.1504/IJMMS.2016.076170
- [3] Xinyu Liu and Weihang Zhu (2016), “Development of a Fiber Optical Occlusion Based Non-Contact Automatic Tool Setter for a Micro-Milling Machine”, in print, *Robotics and Computer Integrated Manufacturing*.
- [4] He, Qiangliang; Yuan, Ting-Ting; Zhang, Xi; Yan, Xingru; Guo, Jiang; Ding, Daowei; Khan Mojammel; Young, David, Khasanov, Airat; Luo, Zhiping; Liu Jiurong; Shen, Tom; **Liu, Xinyu**; Wei, Suying; and Guo, Zhanhu (2014) “Electromagnetic Field Absorbing Polypropylene nanocomposites with Tuned Permittivity and Permeability by Nano-iron and Carbon Nanotubes”, *Journal of Physical Chemistry, Part C*. Manuscript ID: jp-2014-07975r.R1.
- [5] He, Qingliang; Yuan, Tingting; Zhang, Xi; Liu, Jingjing; Sun, Luyi; **Liu, Xinyu**; Wei, Suying; Guo, Zhanhu (2014) “Heavy Duty Piezoresistivity Induced Stain Sensing Natural

- Rubber/Carbon Black Composites Reinforced with Different Carbon Nanofillers", Materials Research Express, Reference #: MRX-100564
- [6] **Liu, X.**, (2012) "In-situ Metrology System for Micro-Milling Machine," Journal of Manufacturing Systems, Vol.31, No.1, pp. 15 - 21.
- [7] Özel, T., and **Liu, X.**, (2009), "Investigations on Mechanics Based Process Planning of Micro-End Milling in Machining Mold Cavities", Materials and Manufacturing Processes, Vol. 24, No. 12, pp1274-1281.
- [8] **Liu, X.**, and Jun, M., (2008) "Effects of Process Parameters on Surface Location Errors in Micro-endmilling," Transactions of the North American Manufacturing Research Institution of SME (NAMRI), v36, pp277-284.
- [9] **Liu, X.**, DeVor, R. E., and Kapoor, S. G., (2007) "A model-based analysis of the surface roughness in micro-endmilling, Part I: model development," *J. of Manuf. Sci. and Eng.*, v129, pp 453-460.
- [10] **Liu, X.**, DeVor, R. E., and Kapoor, S. G., (2007) "A model-based analysis of the surface roughness in micro-endmilling, Part II: experimental investigation," *J. of Manuf. Sci. and Eng.*, v129, pp 461-469.
- [11] **Liu, X.**, DeVor, R. E., and Kapoor, S. G., (2006) "An analytical model for the prediction of minimum chip thickness in micro-machining," *J. of Manuf. Sci. and Eng.*, v128, pp 474-481.
- [12] Jun, M., **Liu, X.**, DeVor, R. E., and Kapoor, S. G., (2006) "Investigation of the dynamics of micro-endmilling, Part 1: model development," *J. of Manuf. Sci. and Eng.*, v128, pp 893-900.
- [13] **Liu, X.**, DeVor, R. E., Kapoor, S. G. and Ehmann, K. F., (2004) "The mechanics of machining at the micro-scale: assessment of the current state of the science," *J. of Manuf. Sci. and Eng.*, v126, pp. 666-678.
- [14] Vogler, M. P., **Liu, X.**, Kapoor, S. G., and DeVor, R. E. (2002) "Development of meso-scale machine tool (mMT) systems," *Transactions of the North American Manufacturing Research Institution of SME (NAMRI)*, v30, pp. 653-661.
- [15] Reddy, R. G., Ozdoganlar, O.B., Kapoor, S. G., DeVor, R.E., and **Liu, X.**, (2002) "A stability solution for the axial contour-turning process", *J. of Manuf. Sci. and Eng.*, v124, pp. 581-587.
- [16] **Liu, X.**, and Jing, T., (2000) "Study on a CAD/CAE system for foundry under concurrent engineering environment", *Special Casting & Nonferrous Alloys*, No.3. pp. 35-38. (in Chinese).
- [17] **Liu, X.**, Liu, X. and Jing, T., (1999) "Three dimensional computer-aided design for foundry technology", *Die and Mould Technology*, Vol. 17, No. 6, pp. 16-21. (in Chinese).

### Papers Presented in Conferences

- [18] Xinyu Liu, Ning Lou, Swapnil Patole, Dan Rutman, Yachao Wang and Jing Shi, "Experimental Investigation of Micro-Machinability of Nano-TiC Reinforced Inconel Fabricated by Direct Metal Laser Melting", Proceedings of the 2015 International Mechanical Engineering Congress & Exposition, Nov 2015, Houston, TX
- [19] **Xinyu Liu** and Weihang Zhu, "Design of a Low-cost Fiber Optical Occlusion Based Automatic Tool Setter for Micro Milling Machine". Flexible Automation and Intelligent Manufacturing Conference, San Antonio, USA. May 2014.
- [20] Shreyas Shashidhara, **Xinyu Liu**, Weihang Zhu, James Curry, Victor Zaloom, Experimental Investigation of the Tool Wear and Tool Life in Micro Hard Milling,

- American Society of Mechanical Engineers Annual Conference (IMECE-65607), November 2013, San Diego, USA
- [21] Weihang Zhu, Jiang Zhou, Md. A. Islam, Md. Shufean, **Xinyu Liu**, Development of a Mobile App for Learning System Dynamics, American Society of Mechanical Engineers Annual Conference (IMECE-62512), November 2013, San Diego, USA
- [22] Gangenini, B., **Liu, X.**, (2012), "Finite Element Analysis on Single Grit Cutting in Micro-grinding", submitted to IIE Annual IE conference & Expo, May 19-23, 2012, Orlando, FL.
- [23] Qian, Q., **Liu, X.**, Barrett, M., Charbeneau, R., (2012) "Physical Modeling Study on Hydraulic Performance of Rectangular Deck Drains", to appear, World Environmental & Water Resources Congress, May 20~24, 2012, Albuquerque, NM.
- [24] **Liu, X.**, Zhu, W., and Zaloom, V., (2011) "Multi-objective Optimization for the Micro-milling Process with Adaptive Data Modeling", ASME International Conference of Manufacturing Science and Engineering, June 13-17, 2011, Corvallis, OR
- [25] **Liu, X.**, (2010) "Experimental Investigation of Micro-milling Accuracy Using On-Machine Measurement System", ASME International Conference of Manufacturing Science and Engineering, October 12-15, Erie, PA.
- [26] **Liu, X.** (2010), "In-situ Metrology System for Micro-Milling Machine", Proceedings of the 9<sup>th</sup> International Conference on Frontiers of Design and Manufacturing, ChangSha, China.
- [27] Pandian, P. Kai, F., Yang, L., and **Liu, X.**, (2010) "Systematic Approach to High Mix Low Volume Manufacturing: A Case Study", Proceedings of the 9<sup>th</sup> International Conference on Frontiers of Design and Manufacturing, ChangSha, China.
- [28] Pandian, P., Yang, L. and **Liu, X.**, (2010) "Lean Transformation for High Mix Low Volume Production: A Case Study", Proceedings of the 2010 Industrial Engineering Research Conference, Cancun, Mexico.
- [29] Atul Dhanorker, **Liu, X.**, Tuğrul Özel (2007) "Micromilling Process Planning and Modeling for Micromold Manufacturing", *Proceedings of MSEC 2007, ASME International Conference of Manufacturing Science and Engineering*, Atlanta, GA, USA.
- [30] Tuğrul Özel, **Liu, X.**, Atul Dhanorker (2007) "Modeling and Simulation of Micromilling Process", *CIRP 4th International Conference and Exhibition on Design and Production of Machines and Dies/Molds*, Çeşme, Turkey.
- [31] **Liu, X.**, Jun, M., DeVor, R.E., and Kapoor, S.G., (2006), "Prediction and Analysis of Surface Location Error in Micro-Endmilling", *Proceedings of 2nd International Workshop on the Next-Generation Microfactory System*, July 6-7, 2006, Jeju, Korea.
- [32] **Liu, X.**, Jun, M., DeVor, R. E., and Kapoor, S. G., (2004) "Cutting mechanisms and their Influence on dynamic forces, vibrations and stability in micro-endmilling", *Proceedings of ASME 2004 IMECE*, Anaheim, CA, USA.
- [33] **Liu, X.**, Vogler, M. P., Kapoor, S. G., DeVor, R. E., Ehmann, K. F., Mayor, R., Kim C. and Ni, J., (2004), "Micro-endmilling with meso-machine-tool system," *NSF Design, Service and Manufacturing grantees and Research Conference Proceedings*, Dallas, TX.
- [34] Vogler, M. P., **Liu, X.**, DeVor, R. E., Kapoor, S. G., Subrahmanian, R., Sung, H., and Ehmann, K. F., (2002) "Miniaturized machine tools for CNC-based micro/meso-scale machining of 3D features," the *Third International Workshop on Microfactories*, Minneapolis, MN, USA.

## RESEARCH FUNDING

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1. PI, “Development of a Non-Contact Metrology System for Dimension Measurement and Surface Characterization of Deep-Holes”, Schlumberger Research Center, \$134,000, 2008-2010.
2. Co-PI, Texas Department of Transportation, “Hydraulic performance of Rectangular Deck Drains” , PI, Dr. Qin Qian, Co-PIs, Dr. Mark Bourland; Dr. Xinyu Liu; Dr. Randall Charbeneau, Dr. Michael Barrett, Sept. 2010~ Aug.2012; \$300,000;
3. PI, “Nanolubricant based Minimum Quantity Lubrication Machining for Sustainable Manufacturing” , Lamar Research Enhancement Grant, \$5000, 2010~2011
4. PI, “Exploratory Study of Cost-Effective Hybrid Micromanufacturing Processes for Bipolar Plates of Miniature Fuel Cell”, Lamar Research Enhancement Grant, \$5000, 2008-2009.

## DISSERTATION AND THESIS DIRECTED

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1. Shreyas Shashidhara, “Tool Wear and Tool Life in Micro-endmill under Dry and MQL Conditions”, Doctor of Engineering in Industrial Engineering, *Advisor: Xinyu Liu*, Committee members: Weihang Zhu, James Curry, Jiang Zhou, , December 2013
2. B. Gangineni, “Finite Element Analysis and Multi-objective Optimization of Microgrinding”, Doctor of Engineering in Industrial Engineering, *Advisor: Xinyu Liu*, Committee members: James Curry, Alberto Marquez, Weihang Zhu
3. Sriram Pydi, “Effect of Minimum Quantity Lubrication on Surface Roughness in Micro-milling”, Master Thesis, December, 2011
4. Pugalenthai Pandian, “Quantitative Justification and Illustration of Quick Response Manufacturing Principle”, Doctor of Engineering Field Study, , December 2010
5. Maheshwaran Ramalingam, “Standardization and Flexible Work Cells for High Variety, Low Volume Manufacturing” Master Thesis, , August 2009
6. Brad Spooner, Whitney Ardoin, Adron Gammill, “Automatic Tool Tip Detection for Micro-machine Tools”, Undergraduate Capstone Design Project, a technical paper was written based on the project and competed in the IIE regional conference.

## PROFESSIONAL SERVICE

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Editorial Board Member:

- International Journal of Mechatronics and Manufacturing Systems 2009 – present

Symposium Organizer:

- ASME International Manufacturing Science And Engineering Conference 2010

Reviewer - peer-reviewed journals and conferences:

2006 – present

- International Journal of Machine Tools and Manufacture
- International Journal of Mechatronics and Manufacturing Systems
- ASME Journal of Manufacturing Science and Engineering
- International Journal of Nano-Manufacturing
- ASME International Conference of Manufacturing Science and Engineering

Panel Reviewer – National Science Foundation

2008

## **SPONSORSHIP OF STUDENT ORGANIZATION/ROLE AS STUDENT ADVISOR**

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Founding faculty advisor for the newly established SME Lamar Chapter,

- Initiate the effort in charting a student chapter of Society of Manufacturing Engineers at Lamar in Fall 2011, and served as the faculty advisor for the newly established SME Lamar Student Chapter:
- Offered a lab tour to SME/IIE student members, demonstrated the operation/working principle of 3D printer and micro-endmilling at Micro-manufacturing Lab.

Faculty advisor for the IIE Lamar Student Chapter, coordinated the following events:

- Six Sigma Green Belt Certificate Training with 39 participants, certified by IIE in 2010;
- Lean Manufacturing Green Belt Certificate Training with 13 participants, certified by IIE in 2010;
- Six Sigma Green Belt Certificate Training with 42 participants, certified by IIE in 2011;
- IIE regional conference at St. Mary University, 2010; two teams of senior students participated in technical paper competition;

## **PROFESSIONAL MEMBERSHIP**

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- American Society of Mechanical Engineers
- Society of Manufacturing Engineers
- Institute of Industrial Engineers
- American Society for Quality