

Thomas Feldhausen

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Education

Georgia Institute of Technology, Atlanta, GA

Doctor of Philosophy in Mechanical Engineering (August 2020)

Department of Mechanical Engineering

Thesis Title: Development and Evaluation of Interfacial Structures for Hybrid Manufacturing

Advisor: Thomas Kurfess, P.E.

Kansas State University, Manhattan, KS

Master of Science in Mechanical Engineering (May 2017)

Department of Mechanical and Nuclear Engineering

Thesis Title: Connected Mechanical Engineering Curriculum Through a Fundamental Learning Integration Platform

Advisor: Bruce Babin

Kansas State University, Manhattan, KS

Bachelor of Science in Mechanical Engineering (May 2016)

Department of Mechanical and Nuclear Engineering

Magna Cum Laude

Experience

May 2019 – Present

Oak Ridge National Laboratory, Knoxville, TN

Staff Mechanical Engineer, Manufacturing Systems Research

- Leading \$4M technical research projects related to hybrid manufacturing
- Cultivating and managing multiple industrial collaborations related to Directed Energy Deposition
- Supporting machining research center at the Manufacturing Demonstration Facility
- Holder of Q-level federal security clearance

August 2018 – April 2019

Georgia Institute of Technology, Atlanta, GA

Graduate Research Assistant, Precision Machining Research Consortium

- Performed research related to hybrid manufacturing
- Collaborated with fellow team members to support digital manufacturing research
- Supported 5-axis machining operations at Advanced Manufacturing Pilot Facility

May 2016 – July 2018

Honeywell Federal Manufacturing and Technologies, Kansas City, MO

Engineer II, Department of Rubber, Plastics, and Hybrid Technology

- Supported process characterization and control for ongoing product production (W88 Alt 370) using Six Sigma tools
- Explored Direct Write technologies of polysiloxanes for new product development (W80-4)
- Implemented innovative \$1.5M cost-saving solution to improve manufacturing yield by 12%

June 2017 – July 2017

Kansas State University, Manhattan, KS

Instructor, Department of Mechanical and Nuclear Engineering

- Taught Fluid Mechanics (ME 571) to a class of 30 engineering students
- Given very high “teacher effectiveness” rating from students (4.8+ / 5.0)

August 2016 – May 2017

Kansas State University, Manhattan, KS

Course Coordinator, Department of Mechanical and Nuclear Engineering

- Developed course content and lectures for Engineering Graphics (ME 212)
- Oversaw and managed twelve student instructors
- Supported ABET certification preparation

May 2015 – August 2015

Honeywell Federal Manufacturing and Technologies, Kansas City, MO

Student Intern III, Department of Rubber, Plastics, and Hybrid Technology

- Used additive manufacturing techniques such as stereolithography, fused deposition modeling, and selective laser sintering to fabricate trial fixtures used for mistake proofing processes
- Supported ongoing production of B61-12 polymer products

January 2014 – May 2016

Kansas State University, Manhattan, KS

Student Instructor, Department of Mechanical and Nuclear Engineering

- Taught Engineering Graphics (ME 212) to engineering students
- Course covers technical sketching, multi-view drawings, geometrical dimensioning and tolerancing, and an introduction to 3D CAD

May 2014 – August 2014

CNH Industrial, New Holland, PA

Vehicle Integration Design Engineer, Department of Case-IH Flagship Combines

- Designed mounting solutions for sensors specific to cleaning system applications as part of a quality and reliability initiative
- Supported cleaning suspension design and simulations
- Designed mock upper-chassis for the Clean Feeding Dynamics Lab test stand

January 2014 / January 2015

The Caplan Group, Frankfort, KS

Project Manager

- Developed an initial BIM model for a manufacturing plant in Belgium, Germany and a new manufacturing plant in Tijuana, Mexico
- Compiled a set of Quality Assurance Key Elements for a P&G plant in Iowa City, Iowa

Refereed Publications

Journal Papers Published or Accepted:

Feldhausen, T., Raghavan, N., Saleeby, K., Love, L., Kurfess, T. (Accepted Manuscript). **Mechanical Properties and Microstructure of 316L Stainless Steel Produced by Hybrid Manufacturing.** Journal of Materials Processing Technology.

Saleeby, K., Feldhausen, T., Love, L., Kurfess, T. (Accepted Manuscript). **Rapid Retooling for Emergency Response with Hybrid Manufacturing.** Journal of Smart and Sustainable Manufacturing Systems.

Conference Proceedings:

Saleeby, K., Feldhausen, T., Kurfess, T., Love, L. (2020, September). **Production of Medium-Scale Metal Additive Geometry with Hybrid Manufacturing Technology.** 2020 Manufacturing Fabrication Symposium. Cincinnati, OH.

Thien, A., Feldhausen, T., Saldana, C., Kurfess, T. (2020, September). **IOT Devices and Applications for Wire-Based Hybrid Manufacturing Machine Tools.** 2020 Manufacturing Fabrication Symposium. Cincinnati, OH.

DeWitte, L., Feldhausen, T., Saldana, C., Kurfess, T. (2020, September). **Initial Process Planning of a Hybrid Multi-Tasking Platform.** 2020 Manufacturing Fabrication Symposium. Cincinnati, OH.

Praniewicz, M., Feldhausen, T., Kersten, S., Berez, J., Jost, E., Kurfess, T., Saldana, C. (2019, August). **Integrated Hardfacing of Stellite-6 Using Hybrid Manufacturing Process.** 2019 Solid Freeform Fabrication Symposium. Austin, TX.

Feldhausen, T., Hirani, A., King, W., Lynn, R., Kurfess, T. (2019, June). **Conceptualization and Design of a Low-Cost MTConnect-Enabled Refractometer for Coolant Health Monitoring.** 2019 Manufacturing Science and Engineering Conference. Erie, PA.

Feldhausen, T. A., Babin, B. R., Dringenberg, E. A. (2017, June). **Connected Mechanical Engineering Curriculum Through a Fundamental Learning Platform.** 2017 ASEE Annual Conference & Exposition. Columbus, OH.

Feldhausen, T. A., Babin, B. R. (2017, September). **Engineering Graphics Hands-on Vise Project.** 2017 ASEE Midwest Section Conference.

Patents

Kim, S., Hassen, A., Lindahl, J., Love, L., Kunc, V., Feldhausen, T. **System and Method for Simulation-Assisted Additive Manufacturing,** U.S. Provisional Patent Ser. No. 63/082,113, Filed September 2020

Presentations **Distortion Monitoring and Control for Directed Energy Deposition.** Conference Speaker. American Society for Precision Engineering Summer Topical Meeting Advancing Precision in Additive Manufacturing. Virtually Held. July 2020.

Feedback Control of Hybrid Manufacturing Processes with Infrared Thermal Measurements and Low-Cost Sensors. Conference Speaker. International Symposium on Flexible Automation. Virtually Held. July 2020,

Advanced Manufacturing & Repair for Gas Turbines. Seminar on Fabrication and Repair of Industrial Gas Turbine Engine Components using Hybrid Manufacturing Processes. Charlotte, NC. March 2020.

Mazak's Discover 2019. Keynote speaker on Hot Wire Deposition Development. Florence, KY. November 2019.

Kansas State University Mechanical Engineering Graduate Seminar. Presented research on curriculum design. Manhattan, KS. April 2017.

Kansas State University Leadership Banquet. Speaker. Manhattan, KS. April 2016.

Kansas State University Open House Opening Ceremony. Speaker. Manhattan, KS. April 2016.

Professional Associations

Society of Manufacturing Engineers, Member (2017 – Present)

American Society for Engineering Education, Member (2016 – Present)

Tau Beta Pi, Member (2016 – Present)

Order of the Engineer, Member (2016 – Present)

Steel Ring, Kansas State University Senior Engineering Honor Society, Member (2015-2016)

Major Positions

President– Steel Ring Senior Engineering Honor Society (KSU), 2015-2016.

President– Work to Win 4-H Club, 2011-2012.

Treasurer– Frankfort FFA Chapter, 2011-2012.

Secretary– Work to Win 4-H Club, 2008-2011.

Honors and Awards

National Nuclear Security Administration Defense Program Award of Excellence, 2018.

Georgia Institute of Technology President's Fellowship, 2018.

Kansas State University Mechanical Engineering's Most Outstanding Senior, 2016.

Kansas State University Engineering Knight of St. Patrick, 2016.

| Teaching Activities | Semester, Year | Course Number | Course Title | No. of Students |
|--------------------------------|----------------|---------------|----------------------|-----------------|
| | Summer 2017 | ME 571 A | Fluid Mechanics | 30 |
| | Spring 2017 | ME 212 A-F | Engineering Graphics | 253 |
| | Fall 2016 | ME 212 A-D | Engineering Graphics | 187 |
| | Spring 2016 | ME 212 A | Engineering Graphics | 48 |
| | Fall 2015 | ME 212 D | Engineering Graphics | 48 |
| | Spring 2015 | ME 212 B | Engineering Graphics | 45 |
| | Fall 2014 | ME 212 C | Engineering Graphics | 47 |
| | Spring 2014 | ME 212 B | Engineering Graphics | 42 |

Service

Professional Contributions

1. Technical reviewer for NASA Early Stage Innovations proposals, 2020.
2. Honeywell Federal Manufacturing and Technologies technical exchange with Kansas State University, Facilitating technical collaboration, 2016.
3. Kansas State University Mechanical Engineering Open House, Manhattan, KS, 2013-2015.

Community

1. Group Leader, Kansas City Middle School Engineering Program, Kansas City, MO, 2017-2018.
2. Grandview Middle School STEM Ignite, Kansas City, MO, 2018.
3. Backpack Drive, Harvesters Food Bank, Kansas City, MO, 2015.
4. Marshall County 4-H Project Leader, Frankfort, KS, 2012-2013.