Austin T. Sutton

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Research Interests

- Additive Manufacturing
- Powder Characterization
- Metallic Powder Reuse in Additive Manufacturing
- Optimization of Powder Properties for Additive Manufacturing
- Control of part properties for additive manufacturing
- Reformation of recycled powder for use in the selective laser melting process
- Modeling of Granular Flow using the Discrete Element Method

Education

Missouri University of Science and Technology — June 2015 – Present
Ph.D. in Mechanical Engineering — **GPA: 4.0/4.0**

Missouri University of Science and Technology — May 2015
BS in Mechanical Engineering — **GPA: 3.98/4.0**

Metropolitan Community College — Fall 2011 – Spring 2013
Focus in Engineering — **GPA: 4.0/4.0**

Liberty High School — Fall 2007 – Spring 2011
High School Diploma — **GPA: 4.0/4.0**

Research Experience

Selective Laser Melting (SLM) of Metallic Components — Missouri S&T
Graduate Research Assistant — June 2015 - Present

- Identification of suitable powder characterization techniques for use in additive manufacturing
- Determination of powder properties necessary for improved flowability, apparent density, and reduction of part property variation
- Evaluation of metallic powder reuse potential in the selective laser melting process
- Identification of the reasons for degradation of powder properties with continual reuse

Research in Fuel Cell Technology — Missouri S&T
Undergraduate Assistant — May 2014 – December 2014

- Created a 3-D design in NX of a fuel cell for purposes of fabrication and use in research by building and assembling many individual components to produce the final product. This design was crucial to the advancement in research done by two graduate students who utilized this developed model for full-scale testing.
- Formulated a MATLAB code to optimize a fuel cell based on design agency parameters
- Developed a manufacturing process for bipolar plates by using the Selective Laser Sintering process
- Developed a LabVIEW program to gather measurements on multiple test points for testing the production quality of the fuel cell

Mars Rover Design Team — Missouri S&T
Science and Mechanical Team — September 2013 - Spring 2014

- Formulated solutions in a team setting concerning experimentation and mechanical design of a drill mechanism that was important to the success of the entire project
- Worked in a team to create several 3-D parts in NX where each was analyzed from a structural standpoint by employing finite element analysis techniques
- Worked in project management of final design by creating a detailed list of materials outlining budget constraints and product power requirements
- Attended weekly meetings that were essential for communication between various sub-teams

Teaching Experience

ME 4480 – Control System Laboratory — Missouri S&T
Graduate Teaching Assistant — August 2015 – December 2016

- Taught the basics of controlling processes using both LabVIEW and a programmable logic controller (PLC)
- Effectively communicated with students to aid in understanding of subject matter
- Learned to efficiently read both LabVIEW and PLC codes to identify problems in logic

Peer Reviewed Conference Papers

1. "Powder for Additive Manufacturing Processes: Characterization Techniques and Effects on Part Properties," **Austin T. Sutton**, Caitlin S. Kriewall, Ming C. Leu, Joseph W. Newkirk, Solid Freeform Fabrication Symposium, Austin, TX, 2015.
2. "Investigation of Heat-Affected 304L SS Powder and Its Effect on Built Parts in Selective Laser Melting," Caitlin S. Kriewall, Austin T. Sutton, Ming C. Leu, Joseph W. Newkirk, Solid Freeform Fabrication Symposium, Austin, TX, 2015.

Computer Skills

Areas of Proficiency: MS Word, MS Excel, MS PowerPoint, Siemens NX, SolidWorks, LabVIEW, MATLAB, Python, Yade DEM
Areas of Familiarity: ABAQUS and ANSYS

Honors & Activities

- Chancellor's Fellowship Recipient (Graduate)
- Eagle Scout
- Boys State Assistant Circuit Court Clerk
- National Honors Society
- Graduate Chair Officer for Tau Beta Pi
- Pi Tau Sigma
- Phi Theta Kappa

References Research Advisor: Professor Ming C. Leu, (573) 341-4482