William Thomas Hamilton

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EDUCATION:

Colorado School of Mines, Golden, Colorado
Doctor of Philosophy in Mechanical Engineering with a minor in Operations Research
Present Overall GPA: 4.00/4.00
Master of Science in Mechanical Engineering: Thermal-Fluid Systems
December 2017 Overall GPA: 4.00/4.00

The University of Kansas, Lawrence, Kansas
Bachelor of Science in Mechanical Engineering with a minor in Mathematics
May 2015 Overall GPA: 3.92/4.00 Engineering GPA: 4.00/4.00

RESEARCH EXPERIENCE:

Colorado School of Mines, Golden, Colorado
Graduate Research Assistant, January 2016 - present,
- Formulated mixed integer program for dispatch optimization of concentrating solar power simulations
- Completed parameter sensitivity analysis using space-filling design and regression models
- Developed molten salt receiver and steam power cycle surrogate models
- Collaborated with researchers NREL, Argonne, and Northwestern University

National Renewable Energy Laboratory (NREL), Golden, Colorado
Science Undergraduate Laboratory Intern, June 2014 - August 2014, June 2015 - August 2015,
- Conducted national scale model simulations using a high performance computer
- Coded MATLAB script to post-process large simulation result data
- Recorded post processing problems and mitigations for replacement interns
- Conducted a full factorial experiment and analyzed results using analysis of variance method
- Presented research results in a research paper and an oral poster presentation

The University of Kansas, Lawrence, Kansas
Undergraduate Researcher, September 2014 – May 2015
- Assembled data acquisition system to collect thermocouple data throughout the wind tunnel
- Assist other undergraduate students with constructing wind tunnels for heat transfer experiments
- Helped with running wind tunnel validation experiments
- Design using CAD software and machine components that are needed in the laboratory

PUBLICATIONS:

Wagner, Michael J., Alexandra M. Newman, **William T. Hamilton**, and Robert J. Braun. "Optimized dispatch in a first-principles concentrating solar power production model." *Applied Energy* **203** (2017): 959-971.

PRESENTATIONS:

"*Optimal Design of Molten Salt Concentrating Solar Power Tower Systems*"
INFORMS Conference November 15th, 2016 Nashville, TN
"*Parameterization for Optimized Dispatch of Concentrating Solar Power Production*"

ASME Power & Energy Conference, June 26th, 2017 Charlotte, NC

"*Parameter Sensitivity for Optimized Dispatch of Concentrating Solar Power Production*"

INFORMS Conference October 23rd, 2017 Houston, TX

INTERNSHIP EXPERIENCE:

Haldex, Kansas City, Missouri

Mechanical Design Intern, May 2013 - August 2013

- Gained knowledge of air brake systems including ABS trailer valves
- Reviewed and compared valve specifications and preformed testing for the purposes of benchmarking
- Assembled a tri-axle trailer simulator for ABS valve experimental testing
- Conducted experiments on ABS prototypes using a data acquisition unit with pressure transducers
- Analyzed, summarized, and presented testing data into a format that can be easily followed

ENGINEERING ACTIVITIES:

Jayhawk Motorsports SAE Formula Team, The University of Kansas, Lawrence, Kansas

Electric Car Co-lead, May 2014 - June 2015

- Co-lead team meetings with agendas and process checks on individuals within the group
- Assist group member when design issues arise
- Represent as official spokesperson for the electric SAE formula car
- Recruit undergraduate students to participate in working on the electric car
- Manage and allocate group budget
- Attend lead meetings for Jayhawk Motorsports where team issues and progress is discussed

Final Drive Design, May 2014 - June 2015

- Investigated previous teams and competitor teams electric drive systems
- Researched gearbox and planetary gear set design
- Validated initial design concept with computer simulation using MATLAB code
- Engineered electric car final drive system that complied with the SAE Formula rules, using Solidworks
- Analyzed components in final design using Patran/Nastran FEA simulation software
- Created engineering drawing to manufacture designed components

SAE Mini Baja Team, The University of Kansas, Lawrence, Kansas

Advisor, August 2014 - April 2015

- Counsel the new president about how to run the organization and how to fundraise money
- Assist frame team in designing a new frame that mitigates problems or complexity of old design
- Advise the whole team in the process of designing a new vehicle and review new designs

President & Cofounder, April 2013 – May 2014

- Led re-establishing the SAE Mini Baja Team on campus
- Generated a schedule for the year and oversaw progress of the overall design of the off-road vehicle
- Represented as official spokesperson for the University of Kansas SAE Mini Baja Team
- Directed and coordinated all executive and team meetings
- Raised $11,000 for organization funding and successfully allocated money throughout the project

Frame Design Leader, August 2013 – May 2014

- Engineered a frame structure that complied with the SAE Mini Baja rules, using Solidworks
- Collaborated with other design groups to ensure their frame needs are incorporated into the design
- Communicated with group members on updates about the design goals and progress
- Analyzed frame design with hand calculations and applied Solidworks and Patran Simulation
- Manufactured final frame design to meet design tolerances

VOLUNTEER INVOLVEMENT

Alternative Breaks, The University of Kansas, Lawrence, Kansas

Urban Ecology Center in Milwaukee, Wisconsin, Spring Break 2014

- Assisted staff in preparing the center for the coming summer season
- Learned how the center came into existent and what it does for the communities of Milwaukee

ADDITIONAL EXPERIENCE:

Department of Mechanical Engineering, Golden, Colorado

Teaching Assistant – Thermodynamics I, August 2015 – December 2015

- Supported professors in administration the undergraduate course containing approximating 150 students
- Administered three recitation hours and two office hours to assist student achievement

Department of Mathematics, Lawrence, Kansas

Paper Grader, August 2012 – December 2013

SOFTWARE SKILLS:

MATLAB, AMPL, Engineering Equation Solver (EES), Python, Solidworks, C++, Patran/Nastran, ADAMS, LABVIEW, Autodesk Inventor, Microsoft Excel, Word, PowerPoint, Outlook, Publisher, Project

HONORS & AWARDS:

School of Engineering Dean's Honor Roll, National Honors Society, and Lindquist Family Memorial Award

MEMBERSHIPS:

Pi Tau Sigma, Tau Beta Pi, The National Society of Collegiate Scholars, The Society of Automotive Engineers, and KU's Energy Club