

EDUCATION

University of Michigan, Ann Arbor, MI
Doctoral Candidate, Mechanical Engineering and Scientific Computing
GPA: 3.5/4.0

Oregon State University, Corvallis, OR
Bachelor of Science, Mechanical Engineering with a Minor in Mathematics, June 2018
GPA: 3.7/4.0



CONFERENCES/PUBLICATIONS

Jeremiah Hauth, Xun Huan, Beckett Zhou, Nicolas Gauger, Myles Morelli, Alberto Guardone, “Correlation Effects in Bayesian Neural Networks for Computational Aeroacoustics Ice Detection”. Physics-Informed Machine Learning: Methods and Applications II, *2020 AIAA SciTech Forum*. Orlando. Jan 8, 2020. Conference paper and presentation.

Beckett Zhou, Nicolas Gauger, Myles Morelli, Alberto Guardone, **Jeremiah Hauth**, Xun Huan, “Towards a Real-Time In-Flight Ice Detection System via Computational Aeroacoustics and Bayesian Neural Networks”. Multidisciplinary Analysis and Optimization, *AIAA AVIATION Forum*. Dallas. June 17, 2019. Conference paper and presentation.

Shashank Karra, **Jeremiah Hauth**, Sourabh Apte. “Simulation of Oxy-Fuel Pulse Detonation using a Space-Time CESE Method”. Session L38: Computational Fluid Dynamics: Applications, *70th Annual Meeting of the American Physical Society Division of Fluid Dynamics*. Denver. Nov. 19, 2017. Presentation.

N. Sebastian Okhovat, **Jeremiah M. Hauth**, and David L. Blunck. "Temperatures of Spark Kernels Discharging into Quiescent or Crossflow Conditions", *Journal of Thermophysics and Heat Transfer*, Vol. 31, No. 1 (2017), pp. 120-129. <https://doi.org/10.2514/1.T4927>

RESEARCH

Dr. Xun Huan Research Group, University of Michigan

August 2018 – Present

Uncertainty Quantification Group, Department of Mechanical Engineering

- ◆ Develop and implement numerical techniques and heuristics for conducting computationally efficient Bayesian inference for a variety of model architectures.
- ◆ Implement predictive models for the application of engineering and health science problems.

Dr. Sourabh Apte Research Group, Oregon State University

December 2016 – March 2018

Computational Flow Physics Laboratory, Department of Mechanical Engineering

- ◆ Numerically simulated shock waves in compressible reactive flow, with an application toward pulse detonation engines.
- ◆ Developed a reduced chemical kinetic mechanism solver to analyze the combustion/reactive aspect of the flow and accurately model mass fractions and enthalpies.
- ◆ Developed a 2D finite-volume unstructured-grid solver to analyze the compressible fluid flow.
- ◆ Integrated the reduced kinetic mechanism solver as the source term for the flow solver in order to analyze the complete reactive flow conditions.

Dr. David Blunck Research Group, Oregon State University

February 2014 – March 2016

Combustion, Ignition, Radiation, and Energy Laboratory, Department of Mechanical Engineering

- ◆ Assisted in the design and physical setup of several experiments in order to characterize properties of spark kernels generated by jet engine spark plugs. Data was collected primarily using infrared imaging.
- ◆ Optimized the integration of my own image processing code with existing legacy tools. Image analysis of videos of experimental trials was shortened from 18 hours to under 5 minutes on average.

PROFESSIONAL EXPERIENCE

Mechanical Engineering Intern, Georgia-Pacific Toledo

April 2017 – July 2017

- ◆ Planned, scheduled, budgeted, and managed the execution of three paper/pulp mill improvement projects at the Toledo paper/pulp mill, whose combined budgets totaled \$1.1 million.

Mechanical Engineering Intern, Daimler Trucks North America

March 2016 – September 2016

- ◆ Designed and built a custom tensile test machine for characterizing mechanical properties of polymers.
- ◆ Designed and executed several tests to validate the durability and reliability of components on two different semi-truck models under various load cycles. Presented findings to engineering managers.

TEACHING EXPERIENCE

Undergrad Teaching Assistant

September 2016 – March 2017; September 2015 – March 2016

Presented lectures, addressed questions on course material, graded problem sets and exams, and held office hours for each lab/recitation section (generally three per course) for the following courses:

- ENGR 112 – Introduction to Engineering Computing, Winter 2017
- MIME 101 – Intro to Mechanical, Industrial, and Manufacturing Engineering, Fall 2016
- ENGR 248 – Engineering Graphics and 3D Modeling, Winter 2016
- MIME 101 – Intro to Mechanical, Industrial, and Manufacturing Engineering, Fall 2015

Tutor and Study Facilitator, Academics for Student Athletes

August 2014 – December 2015

- ◆ Planned study and homework schedules for student athletes identified to be at the highest risk of not meeting academic standards and expectations.
- ◆ Tutored students in freshman-level general education classes and math classes up to calculus.

LEADERSHIP

Engineering Ambassador, Office of Women and Minorities in Engineering

May 2015 – June 2018

- ◆ Presented information on opportunities related to the College of Engineering to prospective students, first-year students, alumni, and industry partners.
- ◆ Lead one-on-one mentorship meeting and small panels to help support underrepresented populations within the College of Engineering, including women, minorities, and students from rural communities.

Director, TEDx OregonStateU

March 2015 – February 2016

- ◆ Researched and recruited five speakers from diverse backgrounds and experiences to be presenters.
- ◆ Coached speakers on concise, high-impact presentation and delivery.
- ◆ Hosted the TEDx event on stage and introduced each speaker to the 1100 students and community members in the live audience as well as the 400+ viewers streaming the event online.

SELECTED COURSEWORK

- ◆ AEROSP 740 – Statistical Inference, Estimation, and Learning
- ◆ AEROSP 729 – Machine Learning for Science
- ◆ EECS 598 – Computational Data Science and Machine Learning
- ◆ EECS 545 – Machine Learning
- ◆ ME 452H – Honors Thermal and Fluid Sciences Laboratory
- ◆ ME 499 – Thermal Systems Design and Analysis
- ◆ ME 526 – Numerical Methods for Engineering Analysis
- ◆ ME 560 – Intermediate Fluid Dynamics
- ◆ ME 561 – Gas Dynamics
- ◆ MECHENG 523 – Computational Fluid Dynamics I
- ◆ MECHENG 555 – Design Optimization
- ◆ MATH 525 – Probability
- ◆ MTH 551 – Numerical Linear Algebra
- ◆ MTH 552 – Numerical Solution of Ordinary Differential Equations