Matthew Whisenant

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EDUCATION

UNIVERSITY OF TENNESSEE KNOXVILLE
Ph.D. in Aerospace Engineering
Current | Knoxville, TN
College of Engineering
Cum. GPA: 3.88 / 4

UNIVERSITY OF TENNESSEE KNOXVILLE
B.S. in Aerospace Engineering
May 2016 | Knoxville, TN
College of Engineering
Magna Cum Laude
Cum. GPA: 3.90 / 4

COURSEWORK

GRADUATE
Advanced Fluid Mechanics
Partial Differential Equations
Computational Fluid Dynamics
Heat Conduction
Industrial Mathematics
Dynamic Modeling and Simulation
Advanced Engineering Analysis
Natural and Mixed Convection

UNDERGRADUATE
Compressible Flow
Heat Transfer
Instrumentation
Aerodynamics
Astronautics
Propulsion
Aerospace Design
Material Science for Engineers

SKILLS

PROGRAMMING
Expert:
MATLAB • Julia • Fortran
Over 5000 lines:
LaTeX • Python • C++ • Bash
Software:
Autodesk Software • Paraview
Linux Systems • GridPro

Digital Version!

RESEARCH

Focus on reduced-order modeling of fluid-structure interaction simulations. Utilizes machine learning to make computationally efficient models that can be used for optimization. Reduces optimization time from months to days, with small trade-off of accuracy.

UNIVERSITY OF TENNESSEE KNOXVILLE | ORNL Collaborating
Ph.D. Researcher
August 2016 – 2020 | Knoxville, TN
- Assisting the Standard Modular Hydropower (SMH) Research Team at the Water Power Program in the ORNL Environmental Sciences Division.
- Supported the SMH project through hydrodynamics and hydroelastics research.

WORK EXPERIENCE

UNIVERSITY OF TENNESSEE KNOXVILLE | EF230 Graduate Teaching Assistant
August 2021 – Current | Knoxville, TN
- Supervised and taught students in a flipped classroom methodology
- Created online video tutorials for projects
- Assisted with rollout of RVR sphero programmable robot project

UNIVERSITY OF TENNESSEE KNOXVILLE | ME345 Graduate Teaching Assistant (x6) and Instructor (x1)
May 2016 – May 2019 | Knoxville, TN
- Supervised students as they preformed labs and graded 7-15 page lab reports weekly for 10-20 students
- Instructor responsibilities include teaching two classes a week for Instrumentation and Measurements class, as well as creating and grading exams

NASA MARSHALL | Aerospace Engineering Intern
June 2015 – Aug 2015 | Huntsville, AL
- Studied the acoustical environment around space launch vehicles during liftoff by utilizing MATLAB's signal processing functions
- Created efficient MATLAB GUI for creating, saving, and sorting thousands of graphs needed to analyze spacial correlation of different audio sensors
- Completed report and presentation for research performed during internship

EAST TECH COMPANY | Mechanical Engineering Assistant
May 2013 – August 2013 | Chattanooga, TN
- Custom machine part shop for specialized industrial equipment for both government and corporation projects
- Ensured that the part drawings went to designated machinists, quality control, and finally to shipping

CFD SOFTWARE EXPERTISE

OPENFOAM | Largest Open-Source CFD Software
- Intermediate experience with OpenFOAM versions 5, 6, 7, and 8 as well as foam-extend 4.1 with focus on incompressible fluid-structure interaction problems

PUBLICATIONS

[1] M. J. Whisenant and K. Ekici. Galerkin-free technique for the reduced-order modeling of fluid-structure interaction via machine learning. In *AIAA Scitech 2020 Forum*, page 1637, 2020.