Davis Cole

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Education

Worcester Polytechnic University Aug 2025 – Expected May 2030
Doctor of Philosophy, Mechanical Engineering
Reykjavik University, Iceland School of Energy Jul 2021 – Nov 2021
Master of Science, Sustainable Energy Engineering (incomplete, 1 semester) **GPA: 8.6/10**
University of New Hampshire (UNH), Durham Aug 2017 – May 2021
Bachelor of Science, Mechanical Engineering **GPA: 3.45/4**

- Pi Mu Epsilon (Mathematics Honors Society) member
- STEMbassadors member
- American Society of Mechanical Engineers treasurer (2018-2020), president (2020-2021)

Skills/Technologies

CFD Modeling: Fluent, OpenFOAM
Languages: Python, bash, MATLAB, C++
Manufacturing: 3D printing, soldering, machining
FEA Modeling: Ansys, Mecway, SolidWorks
Solid Modeling: SolidWorks, Blender, FreeCAD
Web: Hugo, Django, nginx, CSS, HTML

Professional Experience

Staff Engineer Nov 2024 – Present
Applied Math Modeling, Inc. Concord, NH

- Data Center Energy Practitioner (DCEP) Generalist certified
- Providing technical support to users of CoolSim, a data center CFD modeling software package
- Updating and redesigning technical and marketing material (website, YouTube, product documents)
- Implementing formal procedures for CoolSim development, including build, test and release

R&D Verification Engineer II Mar 2023 – Oct 2024
R&D Verification Engineer I Sept 2022 – Mar 2023
Ansys Inc., Fluent Testing Team Lebanon, NH

- Led testing effort for a nascent, business-critical cloud feature on short notice
  - Developed 12 test cases, reported and resolved over 20 defects to ensure user acceptance criteria
- Assisted development of the Python-based fluids product test runner
- Facilitated and maintained daily regression test suites using Azure DevOps Pipelines
  - Rewrote existing workflow, increasing cycle frequency by 100% and automating several manual processes
- Upgrading and maintaining test results database front-end (Fluids Testing Portal)
  - Implemented quality-of-life enhancements and automations to improve test engineer productivity

Verification & Validation Test Engineer Jan 2022 – Sept 2022
DEKA Research & Development Corp. Manchester, NH

- Prototype linear encoder performance characterization and test fixture overhaul
  - Developed Arduino/Python interface over SPI for real-time output and logging for later analysis
  - Upgraded test fixture components to ensure subsystem performance and tolerance requirements
- Upgraded and validated lab environment logging system and analysis tools (C# backend, Python frontend)
- Performed ad hoc testing to determine the effect of system compliance on medical device performance

Mechanical Engineering / Simulation Intern Jun 2020 – May 2021
DEKA Research & Development Corp. Manchester, NH
Utilized CAE methods in open-source software packages to support design team efforts

- Performed root cause analysis of air desorption events within infusion pump tubing using OpenFOAM
- Measured load vs. displacement of tubing, developed equivalent hyperelastic FEA models in Mecway

Projects

Homelab Feb 2023 – Present
Scavenged enterprise hardware to build a virtual environment for testing new technologies and practicing new skills

- Infrastructure: Rack-mounted Proxmox hypervisor and TrueNAS Scale NAS
- Self-hosted: Hugo blog, Ollama LLM chatbot, GitLab, Home Assistant, game/media servers

dragOverSphere-PyFoam Dec 2021 – Aug 2022
A pet project to leverage PyFoam, an open-source library to help interface with OpenFOAM

- Simulated drag over a sphere for varying Reynolds number using PyFoam's parametric study functionality
- Deployed findings to GitHub Pages for archival

Capstone Project Lead - Classroom Ventilation Methods to Prevent Particle Transfer Sep 2020 – Jun 2021
University of New Hampshire Durham, NH

- Investigated ventilation and airflow strategies to reduce lateral COVID-19 aerosol transfer in classrooms
- Performed experiments and analyzed test data to validate models
- Developed Fluent CFD models to validate experiments and evaluate transfer prevention methods