# DAVIS COLE

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## EDUCATION

**Reykjavik University, Iceland School of Energy** July 2021 - November 2021
Master of Science, Sustainable Energy Engineering **GPA: 8.6/10**

**University of New Hampshire, Durham (UNH), Durham** August 2017 - May 2021
Bachelor of Science, Mechanical Engineering **GPA: 3.45/4**

- **Project Lead - Senior Capstone Project**
  - Investigated ventilation and airflow strategies to reduce lateral COVID-19 aerosol transfer in classrooms
  - Developed CFD models in Ansys Fluent to match experimental concentration data and evaluate transfer prevention methods
  - Performed experiments and analyzed test data to validate models
- Pi Mu Epsilon (Mathematics Honors Society)

**Technical Skills**

3D Modeling, CFD (OpenFOAM, Fluent), FEA (Ansys, Mecway), Scripting (MATLAB, Python, Bash, C++)

## PROFESSIONAL EXPERIENCE

**R&D Verification Engineer** September 2022 - Present
*Ansys Inc., Fluent Business Unit* Lebanon, NH

- Reviewing and resolving regression tests for new Fluent builds
- Validating Fluent features using an automated testing workflow
- Migrating legacy database from Perl DBI to Django

**Verification & Validation Test Engineer** January 2022 - Present
*DEKA Research & Development Corp.* Manchester, NH

- Linear encoder characterization and test fixture overhaul
  - Evaluated encoder performance to prove concept design and ensure subsystem requirements are met
  - Upgraded test fixture from a stepper, ball-screw driven linear stage to a servo, direct-drive stage
  - Developed Arduino/Python SPI communications to display linear encoder data in real-time
  - Modified and 3D printed production-line parts for test fixture compatibility
- 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 syringe pump performance

**Mechanical Engineering / Simulation Intern** June 2020 - May 2021
*DEKA Research & Development Corp.* Manchester, NH

- Utilized CAE methods in Mecway, OpenFOAM, FreeCAD, and other open-source software packages to support product design team efforts
  - Performed root cause analysis of air desorption events within an infusion pump tube using CFD
  - Characterized load vs. displacement of rubber tubing using a Lloyd LF-Plus tensile tester, developed equivalent hyperelastic FEA models in Mecway using Mooney-Rivlin coefficients

## PERSONAL EXPERIENCE

**President - American Society of Mechanical Engineers (ASME)** January 2020 - May 2021
*University of New Hampshire, Durham*

- Communicated with members of industry to organize presentations at the University and tours of facilities
- Coordinated club meetings and webinars, executive board meetings, and spread awareness of ASME

**Ambassador - The GREEN Program (TGP)** December 2019 - August 2020

- Official representative of TGP at UNH, attended study-abroad events and shared Program news
- Studied renewable energy production and its economic impact at Reykjavik University, and toured geothermal, hydroelectric, and biofuel power plants
- Presented a capstone project on algae biodiesel production and its role in Iceland's energy independence

**Member - STEMbassadors** February 2019 - May 2021
*University of New Hampshire, Durham*

- Motivated K-12 students across New Hampshire to pursue STEM through hands-on activities
- Attended a NSF research conference at Boston University to discuss the improvement of STEM outreach programs