

Legend Blake

📞 (603) 555-1842 ✉ legend.blake@example.com

🌐 linkedin.com/example/legendblake 📍 Manchester, NH 03101



SUMMARY

Early career thermal engineer completing a Bachelor of Science in Mechanical Engineering in 2026, with supervised research and academic design experience focused on **electronics cooling**, heat transfer, and **experimental validation**. Research work includes liquid cooled electronics, two phase thermal concepts, heat exchanger analysis, ANSYS modeling, Python and MATLAB computation, SolidWorks development, instrumentation, and design of experiments. Academic projects connected numerical predictions with measured behavior through controlled testing, sensor data processing, model refinement, and technical documentation. Collaborative work across **thermal analysis**, mechanical design, and testing strengthened communication with peers and reviewers. A practical foundation in conduction, convection, fluid flow, thermal resistance, laboratory methods, and verification supports meaningful contributions to advanced **thermal systems** for high performance electronics.

EDUCATION

Bachelor of Science in Mechanical Engineering

2026

University of New Hampshire GPA: 0

Durham, NH

Coursework: Heat transfer, fluid mechanics, thermodynamics, computational methods

TECHNICAL SKILLS

- **Thermal Analysis:** ANSYS, thermal resistance, heat transfer
- **Programming:** Python, MATLAB, numerical modeling
- **Mechanical Design:** SolidWorks, CAD, mechanical geometry
- **Experimental Methods:** DOE, instrumentation, controlled testing
- **Cooling Systems:** Two phase cooling, electronics cooling, liquid cooling
- **Heat Exchangers:** Heat exchanger architectures, thermal systems, fluid flow
- **Validation Methods:** Experimental validation, test correlation, measurement comparison
- **Data Processing:** Sensor data processing, analytical predictions, numerical predictions
- **Engineering Documentation:** Technical reports, calculations, technical presentations
- **Research Collaboration:** Multidisciplinary design, peer review, design communication

SKILLS

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|-----------------------|-------------------|---------------------------|-----------------------|
| • Thermal analysis | • Heat exchangers | • SolidWorks | • Thermal modeling |
| • Heat transfer | • ANSYS | • DOE | • Fluid flow |
| • Electronics cooling | • Python | • Instrumentation | • Technical reporting |
| • Two phase cooling | • MATLAB | • Experimental validation | |

EXPERIENCE

Thermal Engineering Research Assistant

September 2025 - Present

University Research Lab

Durham, NH

Supports supervised liquid cooled electronics research through thermal analysis, model development, testing, data review, design coordination, and technical reporting. Works across thermal, mechanical, and experimental tasks while documenting assumptions and closing findings through peer review.

- Defined liquid cooled electronics scope with traceable inputs for research review and model development.
- Built thermal analyses in **ANSYS**, **Python**, and **MATLAB** using verified drawings and design data.
- Coordinated thermal constraints with mechanical teammates, preserving system intent during design updates.
- Planned validation tests, reviewed **instrumentation** data, and compared measurements with analytical predictions.
- Prepared CAD inputs, calculations, reports, and presentations supporting clear verification decisions.
- Refined models after test correlation, then documented findings for peer review and closure.

Thermal Systems Design Lead

January 2025 - May 2025

Capstone Project

Durham, NH

Led supervised capstone development of a high density computing cooling prototype, connecting thermal modeling, mechanical geometry, testing, and design communication. Guided project decisions from initial assumptions through prototype evaluation and documented review.

- Scoped high density computing cooling prototype requirements with traceable assumptions for team review.
- Modeled thermal behavior with ANSYS and **MATLAB**, then checked inputs against design drawings.
- Created **SolidWorks** geometry for prototype hardware supporting heat exchanger evaluation and test preparation.
- Organized instrumentation planning for controlled tests comparing measured and predicted thermal performance.
- Resolved thermal design issues with teammates through focused reviews and documented design changes.
- Presented calculations, test findings, and verification decisions during multidisciplinary capstone reviews.

Heat Transfer Laboratory Project

September 2024 - December 2024

Student Lab

Durham, NH

Completed supervised forced convection laboratory work involving heat transfer analysis, instrumentation, sensor data review, and comparison of experimental results with numerical expectations. Built practical laboratory habits through careful documentation, peer discussion, and technical reporting.

- Defined forced convection study assumptions and inputs before laboratory testing began.
- Applied heat transfer calculations to estimate performance from measured temperature and flow data.
- Used laboratory instrumentation to collect readings for controlled **experimental validation**.
- Compared measured behavior with analytical predictions and discussed sources of variation with peers.
- Documented calculations, procedures, results, and conclusions in a concise technical report.
- Reviewed findings with classmates, refining explanations after feedback from laboratory supervision.

PROJECTS

High Density Electronics Cooling Prototype 📅 2025

Collaborated on a capstone prototype for high density computing cooling. The team combined SolidWorks geometry, thermal analysis, instrumentation planning, and test correlation, giving each member a clear role in moving design decisions from assumptions toward evidence.

Forced Convection Test Study 📅 2024

Worked with laboratory teammates on a controlled heat transfer study. Shared measurement duties, checked calculations together, and compared observed behavior with analytical predictions before preparing a clear technical report.

LEADERSHIP & AWARDS

- Dean's List, University of New Hampshire, 2024 to 2026
- Capstone Design Recognition, University of New Hampshire, 2025
- Research presentation recognition through Thermal Sciences Research Seminar, 2025

CERTIFICATIONS

- MATLAB Onramp, MathWorks 📅 2025
- ANSYS Academic Learning Coursework 📅 2025

PROFESSIONAL AFFILIATIONS

- Mechanical Engineering Peer Study Group, Project Coordinator
- Thermal Sciences Research Seminar, Student Presenter
- University Research Lab, Thermal Engineering Research Assistant

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST