

# AUTUMN WISE

## AERO THERMAL RESEARCH INTERN

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### STRENGTHS

- ⚙️ **CFD workflow improvement**  
Reworked recurring simulation steps during lab studies. Research teammates gained cleaner inputs and smoother review sessions.
- 📊 **Data driven analysis**  
Turned simulation outputs into usable evidence for performance studies. Faculty discussions became more focused after each review.
- 🗣️ **Technical communication**  
Presented complex modeling results in graduate seminars. Listeners could connect numerical patterns with physical behavior.
- 📄 **Research documentation**  
Recorded methods, validation steps, and limitations as projects changed. Future reviews started with clearer technical context.
- 👥 **Collaborative modeling**  
Worked across research and study teams on computational questions. Peers sought help when datasets or model assumptions became unclear.

### SKILLS

CFD Aerodynamics

Machine Learning

Scientific Computing CAD

Data Processing Python

Simulation Surrogate Models

Reduced Order Models

Geometry Processing

Computer Vision Data Pipelines

### SUMMARY

Mechanical engineering graduate student focused on aerodynamic simulation, computational methods, and data driven engineering analysis. Builds **CFD workflows**, **simulation automation** scripts, and **scientific computing** tools for academic aerodynamic studies. Develops surrogate model and reduced order model experiments, processes simulation and experimental data, and evaluates prediction methods. Applies machine learning, CAD preparation, geometry processing, and **engineering data pipelines** across research assignments. Documents modeling approaches, validation methods, limitations, and technical results for graduate reviews and engineering seminars. Communicates findings clearly with faculty, peers, and technical research teams. Current work supports performance prediction, engineering productivity, and evidence based evaluation for advanced mobility research. Available for summer work requiring full time participation and continued graduate study through 2028.

### EDUCATION

#### Master's Degree in Mechanical Engineering

University of Michigan 🎓 GPA: 4.0 📅 2028 📍 Ann Arbor, MI

***Coursework:** Computational fluid dynamics, aerodynamic design, scientific computing, machine learning*

### TECHNICAL SKILLS

- **CFD and Simulation:** Computational fluid dynamics, aerodynamic simulation, simulation workflows
- **Scientific Computing:** Python, numerical analysis, computational methods
- **Data Processing:** Simulation outputs, experimental datasets, performance analysis
- **Machine Learning:** Surrogate models, reduced order models, data driven methods
- **CAD and Geometry:** CAD preparation, geometry processing, engineering design
- **Research Automation:** Workflow automation, scripting, engineering tools
- **Engineering Pipelines:** Data pipelines, validation workflows, reproducible analysis
- **Aerodynamics Testing:** Aerodynamics, wind tunnel testing, performance evaluation
- **Technical Communication:** Technical documentation, research presentations, engineering findings
- **Model Evaluation:** Model validation, prediction methods, limitation analysis

### EXPERIENCE

#### Aero Thermal Research Intern, University Computational Research Lab

University Computational Research Lab 📅 September 2025 - Present 📍 Ann Arbor, MI

Supports academic aerodynamic studies through CFD workflow development, simulation automation, **data processing**, surrogate modeling, CAD preparation, geometry processing, **technical documentation**, and research presentations. Work connects computational methods with clearer performance evaluation and improved engineering productivity.

- Improved **CFD workflows** for aerodynamic studies, reducing repeated setup work during graduate research simulations.
- Built **Python data processing scripts**, turning simulation outputs into clearer performance analysis for research reviews.
- Tested surrogate models against aerodynamic datasets, revealing practical prediction tradeoffs for engineering evaluation.

Performance Prediction

Wind Tunnel Testing

## LANGUAGES

English Native

Spanish Intermediate

## MY CAREER



● Aero Thermal Research Intern, University Computational Research Lab at University Computational Research Lab (1 Years)

● Computational Aerodynamics Researcher, Graduate Engineering Project at Graduate Engineering Project (7 Months)

- Documented modeling methods and validation limits, giving faculty reviewers a clearer basis for technical decisions.
- Presented computational findings during seminars, helping research teams connect numerical results with physical behavior.
- Prepared CAD geometry for **simulation**, improving model consistency across aerodynamic research cases.

### Computational Aerodynamics Researcher, Graduate Engineering Project

Graduate Engineering Project 📅 January 2025 - August 2025 📍 Remote

Completed supervised graduate research assignments focused on computational aerodynamics, reduced order modeling, experimental **data processing**, **machine learning**, scientific computing, and technical communication. Projects translated engineering questions into structured analyses and defensible conclusions.

- Applied CFD concepts to aerodynamic analysis, linking **scientific computing** methods with coursework research questions.
- Evaluated **reduced order models**, clarifying prediction limits across selected engineering datasets.
- Processed experimental and simulated data, producing organized inputs for validation and comparison exercises.
- Applied machine learning methods to engineering analysis, identifying useful patterns within aerodynamic datasets.
- Documented validation procedures and model limitations, supporting transparent review by faculty and peers.
- Created **technical presentations**, translating computational findings into concise explanations for graduate audiences.

## PROJECTS

### Aerodynamic Surrogate Model Study 📅 2026

Built a graduate research study comparing surrogate modeling approaches for aerodynamic prediction. Processed simulation data, assessed model behavior, and documented findings for technical review.

### Geometry Processing Workflow 📅 2025

Created a computational workflow for CAD preparation and geometry processing. Organized simulation ready inputs and recorded methods for repeatable aerodynamic analysis.

## LEADERSHIP & AWARDS

- Graduate Research Symposium Recognition, 2026
- Dean's List, University of Michigan, 2025
- Graduate Research Presentation Contributor, 2026

## CERTIFICATIONS

- Python Scientific Computing Certificate 📅 2026
- Graduate Engineering Research Certificate 📅 2026

## PROFESSIONAL AFFILIATIONS

- Aerospace Engineering Graduate Research Group participant
- Computational Modeling Study Team member

## ADDITIONAL INFORMATION

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

## REFERENCES

AVAILABLE ON REQUEST