Autumn Wise

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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 2028

University of Michigan GPA: 4.0 *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

SKILLS

- CFD
- Aerodynamics
- Machine Learning
- Scientific Computing
- CAD
- Data Processing
- Python
- Simulation
- Surrogate Models
- Reduced Order Models
- Geometry Processing
- Computer Vision
- Data Pipelines
- Performance Prediction
- Wind Tunnel Testing

EXPERIENCE

Aero Thermal Research Intern, University Computational Research Lab September 2025 - Present

University Computational Research Lab *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.
- 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 January 2025 - August 2025

Graduate Engineering Project *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

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

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

REFERENCES

AVAILABLE ON REQUEST