

Ryan Scott

✉ scottryn@gmail.com

☎ 530-927-8561

🌐 LinkedIn

👤 scottryn.github.io

Summary

Mechanical engineer specializing in creative solutions to complex challenges. 10+ years of programming experience with multiple languages on high performance and distributed systems. 10+ years of CAD design and prototyping in industrial and laboratory settings.

Relevant Skills

- CFD: Fluent, OpenFOAM LES, AMR-Wind LES
- HPC: CLI, SLURM, MPI/OpenMP, Python, C++
- Workflow management: Git, Conda, Docker
- Demonstrated problem solver
- Organized, effective multitasker
- Excellent written and verbal communication

Relevant Experience

Graduate Engineer

National Renewable Energy Laboratory, Boulder, CO

June 2021 – Current

- Improved CFD fidelity by diagnosing missing physics using LES and wind tunnel experiments. Implemented improved eddy viscosity model in Python.
- Generated accessible wind power NetCDF, hdf5, and parquet datasets by developing a scalable pipeline to automate raw turbine SCADA processing in Python with Pandas, and XArray.
- Produced wind turbine reference models using NREL's open-source Python turbine design toolchain (WISDEM/WEIS) and contributed models to centralized repository to improve wind plant simulation reproducibility. Verified turbine performance using AMR-Wind large eddy simulations with OpenFAST coupling.
- Communicated findings to varied stakeholders through presentations, milestone reports, and peer-reviewed journal publications.

Research Assistant

Portland State University, Portland, OR

October 2018 – June 2024

- Led studies on varied topics across turbulent fluid dynamics. Defined experimental matrices, maintained project budgets, and managed team members to ensure timely delivery of results.
- Supported multiple research efforts with high-fidelity wind turbine large eddy simulations. Performed simulations on NREL's Eagle and Kestrel high performance computers using SOWFA-6 and AMR-Wind.
- Implemented data processing pipeline in MATLAB to reduce data processing times from days to hours.
- Designed and fabricated custom wind tunnel to facilitate reduced scale experiments. Verified tunnel performance matched design expectations with Ansys Fluent.
- Mentored junior graduate students in research group. Assisted with experimental design, data collection, data analysis, and communicating results. Created shared resource repository for research group to standardize data management processes and improve new student onboarding.
- Communicated findings through journal publications and presentations at national and international conferences.

Education

- 2024 📄 **Ph.D. Mechanical Engineering, 4.0 GPA, Portland State University**
Dissertation: *Consequences of Spatial Heterogeneity for Turbulent Wake Development*
- 2019 📄 **M.Sc. Mechanical Engineering, 4.0 GPA, Portland State University**
Thesis: *Characterizing Tilt Effects on Wind Plants*
- 2017 📄 **B.S. Mechanical Engineering, 3.7 GPA, Portland State University Honors College**
Honors Thesis: *Autonomous Navigation and Hazard Evasion Platform for Personal UAV's*