

Ryan Scott

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Summary

Doctor of mechanical engineering with a focus on turbulent fluid mechanics and renewable energy. Self-motivated with 5+ years of experience researching wind energy including 3+ years at the National Renewable Energy Laboratory. Comfortable with multiple programming languages, high-performance computing, and hands-on experiments. 10+ years of CAD design and rapid prototyping experience in industrial and laboratory settings.

Education

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

Employment History

Graduate Research Participant

June 2021 –

40 Hours/Week Summer; 20 Hours/Week Academic Year

National Renewable Energy Laboratory, Boulder, CO

- Designed and executed study to identify key factors driving wake losses between adjacent wind plants and address model shortcomings. Incorporated regional wind plant economics and wind turbine operating costs to find optimal turbine operating points. Developed wind turbine models and simulation based study methodology. Gave multiple presentations to wind plant operators, the US DOE, and published one research article as first author.
- Developed wind plant SCADA processing pipeline in Python to standardize and quality control operating data from various GE turbines in six active wind plants. Implemented scalable data formatting and server process. Allowed researchers at NREL and partner institutions to use SCADA in multiple projects.
- Analyzed SCADA and measurement data from the AWAKEN field campaign to assess wind plant response to atmospheric conditions. Compared SCADA to AEP estimates and optimized model parameters to improve energy forecasting. Produced multiple presentations and reports which informed field sensor deployment and future studies.
- Created eight wind turbine reference models for NREL and Sandia National Laboratories and maintained model repository. Turbine models were used by multiple teams to save time launching wind plant simulations.

Employment History (continued)

Graduate Student Summer Intern

June 2017 – August 2017

40 Hours/Week

National Renewable Energy Laboratory, Golden, CO

- Developed portable thermocouple and hot wire anemometer system to enable on-site convection measurements in active solar arrays.
- Created a hybrid thermal camera with data logger and touch screen interface for remote temperature monitoring in active solar arrays.
- Implemented data pipeline in MATLAB to reduce data processing times from days to hours.

Engineering Intern

April 2016 – April 2017

40 Hours/Week Summer; 20 Hours/Week Academic Year

Olympus Controls, Tualatin, OR

- Assembled machine vision systems for same-day customer demonstrations.
- Manufactured automated saw and loading system to improve workplace safety and halve material processing times.

Awards and Achievements

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| 2023 | 🏆 | Excellence in Research , Portland State University Department of Mechanical Engineering recognition of exceptional student research. |
| 2018 | 🏆 | NSF GRFP , Recipient of the National Science Foundation Graduate Research Fellowship Program. |
| 2017 | 🏆 | Honors Graduate , Graduated <i>cum laude</i> from the Honors College at Portland State University. |