Wentao Zhao

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RESEARCH INTEREST

- **Theories:** stochastic programming, robust optimization, reinforcement learning
- **Applications:** shared mobility, transportation system

EDUCATION

Columbia University **New York, US**
M.S. in Industrial Engineering & Operations Research Sep 2020 - Dec 2021

- Courses: Linear Programming, Stochastic Optimization, Convex Optimization, Real Analysis

Zhejiang University **Hangzhou, CN**
B.S. in Mechanical Engineering Sep 2016 - May 2020

- Courses: Control Algorithms, Data Structures, Numerical Methods in Engineering

University of Wisconsin-Madison **Madison, US**
Visiting Student in Industrial & Systems Engineering Jan 2019 - May 2019

- Courses: Stochastic Processes, Simulation Modeling and Analysis, Decision Analysis

Awards: Advanced Honor Class of Engineering Education (Honor Program of Engineering College), Zhejiang Provincial Government Scholarship (10%), Research Special Scholarship (selected excellent research student)

PUBLICATIONS

Journal:

- W. Hu, ***W. Zhao***, et al., Design Optimization of Composite Wind Turbine Blades Considering Tortuous Lightning Strike and Non-Proportional Multi-Axial Fatigue Damage. *Engineering Optimization* (2019): 1-19.

Conference:

- ***W. Zhao****,* Yikang Hua, Xin Wang, Energy-sponge Electric Vehicle Sharing System Design, Transportation Research Board 2021 (Post).
- W. Hu, ***W. Zhao*** **(Presenter)**, et al, Reliability Analysis of Wind Turbine Blades Considering Lightning Strike, NAWEA/WindTech 2019 Conference (Presentation).

Papers Under Review

- ***W. Zhao****,* Yikang Hua, Xin Wang, Energy-sponge Electric Vehicle Sharing System Design (2020, submitted to Transportation Research Part C: Emerging Technology).

RESEARCH EXPERIENCES

University of Wisconsin-Madison, School of Industrial & System Engineering **Madison, US**
Research Assistant May 2019 - Mar 2021

- Built a two-stage stochastic model to generate sustainable management strategies for the electric vehicle sharing operator considering the stochastic spatiotemporal fluctuations of market demand,
- Applied stochastic programming and robust optimization to deal with the uncertainty dictated by the fluctuations of market demand and improve the robustness of the solution,
- Solved the model via L-shaped method and sample average approximation using Gurobi, conducted several numerical studies, for instance, sensitivity analysis, and a real case study to validate the economic benefits.

Zhejiang University, School of Mechanical Engineering **Hangzhou, CN**
Research Assistant Sep 2018 - Apr 2019

- Modeled and estimated the occurrence of dielectric breakdown damage on the surface of wind turbine blades,
- Co-designed an optimization framework integrating realistic lightning strike electrostatic and material fatigue analyses to design reliable and economical composite wind turbine blades,
- Applied the optimization framework for a composite wind turbine using sequential-quadratic-programming and Bayesian optimization.

WORK EXPERIENCES

Bosch Power Tools (China) Co., Ltd. **Hangzhou, CN**
Intern Sep 2019 - Feb 2020

- Trailed Bosch power tool logistic data in Asian and east European regions,
- Collected and analyzed product sales and consumer feedback data and wrote monthly reports.

SKILLS AND INTERESTS

- **Computer Science:** Python, C, Gurobi, Matlab, Latex