Wentao Zhao

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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

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****,* et al, Reliability Analysis of Wind Turbine Blades Considering Lightning Strike, NAWEA/WindTech 2019 Conference (Presentation).

Working Paper:
- ***W. Zhao****,* Yikang Hua, Xin Wang, Energy-sponge Electric Vehicle Sharing System Design (In submission to Transportation Research Part C: Emerging Technology).
- ***W. Zhao****,* Yikang Hua, Xin Wang, Charging Management of Electric Vehicle Sharing System with Renewable Energy Integrated.

Awards: Research and Innovation Scholarship (Top 1%), Second Prize Scholarship (Top 5%)

RESEARCH EXPERIENCES

University of Wisconsin-Madison, School of Industrial & System Engineering **Madison, US**
Research Assistant May 2019 - May 2021
- Proposed a novel cooperative scheme between an electric vehicle sharing company and local power grid which could increase the regional power system's reliability and save over 15% on electric energy costs
- Developed a two-stage economic operation framework for the vehicle sharing company and provided the operator with a stochastic approach to deal with the uncertainty dictated by the fluctuations of market demand
- Solved the model via L-shaped method based on Bender Decomposition using Gurobi, conducted several numerical studies, for instance, sensitivity analysis, and a real case study to validate its 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 fatigue analyses as a means 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, achieving an increase in the lightning safety ratio by 32% and the expected fatigue life by more than 1500%

WORK EXPERIENCES

Bosch Power Tools (China) Co., Ltd. **Hangzhou, CN**
Intern Sep 2019 - Feb 2020
- Trailed Bosch power tool logistic data over the last twelve months' in Asian and east European regions, visualized the performance data in charts and maps using Python, and synthesized business insights
- Collected and analyzed product sales and consumer feedback data from different websites every two weeks and wrote 5+ monthly reports summarizing useful suggestions for product design updates
- Conducted research on consumer experiences with products and provided related suggestions on both product design and functions, using pain points and improving consumer satisfaction

SKILLS AND INTERESTS

- **Computer Science:** Python, C, Gurobi, Matlab, Arena, Microsoft Office, Latex