

WU SI

Ph.D. Candidate, The Hong Kong University of Science and Technology

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EDUCATION

The Hong Kong University of Science and Technology, Ph.D. in Civil Engineering **Expected 2025**

Research interests: HVAC system optimization; control-oriented modeling.

Supervisors: Assistant Prof. WANG Zhe and Prof. CHEN Guanghao

Shanghai Jiao Tong University, M.Sc. in Power Engineering and Thermophysics **2019 - 2022**

Master's thesis: *Numerical Investigations on a Turbofan Afterburner Fuel Pump*

Supervisors: Prof. OUYANG Hua and Associate Prof. WU Yadong

Academic Scholarship of SJTU

Dalian University of Technology, B.E. in Process Equipment and Control Engineering **2015 - 2019**

Outstanding Graduate of DUT

Merit Student of DUT

PUBLICATIONS

1. **Wu, S.**, Yang, P., Chen, G., & Wang, Z. (2025). Evaluating seasonal chiller performance using operational data. *Applied Energy*, 377, 124377. DOI: [10.1016/j.apenergy.2024.124377](https://doi.org/10.1016/j.apenergy.2024.124377)
2. **Wu, S.**, Wu, Y., Tian, J., & Ouyang, H. (2022). On the cavitation-induced collapse erosion of a turbofan fuel pump. *Engineering Applications of Computational Fluid Mechanics*, 16(1), 1048-1063. DOI: [10.1080/19942060.2022.2067243](https://doi.org/10.1080/19942060.2022.2067243)
3. Yang, Z., Ming, L., **Wu, S.**, Wu, Y., Tian, J., & Ouyang, H. (2022, June). On the Mode Characteristics of Rotating Instability with Different Tip Clearances. In *Turbo Expo: Power for Land, Sea, and Air* (Vol. 86120, p. V10DT37A013). American Society of Mechanical Engineers. DOI: [10.1115/GT2022-82072](https://doi.org/10.1115/GT2022-82072)

RESEARCH EXPERIENCE

Model Predictive Control for Energy Efficient Data Center **Feb. 2023 - June 2024**

School of Engineering, HKUST

Developed an open-sourced virtual testbed *AlphaDataCenterCooling* for data center cooling plant control strategy optimization.

<https://github.com/wfzheng/AlphaDataCenterCooling>

Proposed a method for benchmarking chiller performance using operational data without shutdown measurements.

On the Cavitation-Induced Collapse Erosion of a Turbofan Fuel Pump **Oct. 2020 - Aug. 2022**

School of Mechanical Engineering, SJTU

High-speed multi-phase flow field analysis based on computational fluid mechanics (CFD) simulations.

Optimized design of a turbofan fuel pump based on fluid-structure coupling simulations.

Design and Performance Analysis of an Aeration Fan **Dec. 2018 - May 2019**

School of Energy and Power Engineering, DUT

Designed an impeller based on the specified operating conditions.

Simulated the impeller's performance under these conditions using the CFD software NUMECA.

Enhanced the internal flow characteristics of the impeller by adding splitter blades.

Structural Design of a Composite Material Pressure Vessel **Dec. 2016 – Dec. 2017**

School of Ocean Science and Technology, DUT

Designed the structure of a filament-wound pressure vessel.

Investigated the impact of material yield strength and geometric parameters on the sealing performance of a metal sealing ring.

SERVICE

Teaching Assistant Fundamental of Green Buildings
Energy System Modelling for Buildings and Cities