

Jianing Cao

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EDUCATION:

The Hong Kong Polytechnic University, Hong Kong, China 09.2024 – Present

[QS World University Rankings](#) (2025): 57

➤ Master of Science in Supply Chain Logistics Management

Kunming University of Science and Technology, Kunming, China 09.2020 - 07.2024

[Shanghai Ranking: Academic Ranking of World Universities](#) (2024): 401-500

➤ Bachelor of Engineering in Mechanical Engineering, GPA: 3.49/4 (Ranking 2/78)

RESEARCH INTERESTS

Operations Research in Urban Transportation

- Electric vehicle charging scheduling optimization
- Charging facility location problem
- Drone-based system application and routing optimization

Operations Research under Uncertainty

- Predict-then-optimize
- Robust optimization

RESEARCH EXPERIENCES

➤ ***Charging Post Precise Siting Project of Yunnan Province***

Supervisor: Dr. Nan Pan

China Southern Power Grid Co., Ltd.

1. Analyzed the existed layout of charging posts and urban POIs in Kunming
2. Constructed a city charging demand forecasting model through Matlab
3. Constructed a mixed integer programming model for site selection and capacity determination based on bilevel optimization.
4. Identified the expansion plan of urban charging facilities using Python

Paper: **Cao, J.**, Han, Y., Pan, N.*, Zhang, J. & Yang, J. (2024). [A data-driven approach to urban charging facility expansion based on bi-level optimization: A case study in a Chinese city.](#) *Energy*. 300, 131529. (JCR Q1)

➤ ***Supply Chain Logistics Optimization for Power Metering Devices***

Supervisor: Dr. Nan Pan

China Southern Power Grid Co., Ltd.

1. Analysis existing power metering devices distribution pattern
2. Developed a mathematics model for power supply bureaus and stations to determine the inventory and optimize the distribution plan
3. Designed a resilience strategy to enhance the reliability in the emergency scenarios
4. Developed a novel heuristics algorithm to solve the established model

Paper: **Cao, J.**, Zhang, M., Pan, N.*, Han, Y., Liu, J., He, Z., & Ai, Z. (2024). Optimization of Three-echelon Logistics Supply Chain Considering Emergency Scenarios Under Resilience Strategy: A Case Study in Power Metering Industry. *Computers & Industrial Engineering*. (JCR Q1) (Under Second Round Revise-resubmit)

PUBLICATIONS

*: *Corresponding author*

- Cao, J.**, Han, Y., Pan, N.*, Zhang, J. & Yang, J. (2024). [A data-driven approach to urban charging facility expansion based on bi-level optimization: A case study in a Chinese city.](#) *Energy*. 300, 131529. (JCR Q1)
- Pan, N., Ye, X., **Cao, J.***, Zhang, J., Han, Y. & He, Z. (2023). [Optimization of urban emergency support material distribution under major public health emergencies based on improved sparrow search algorithm.](#) *Science Progress*. 106 (2), 003685042311753. (JCR Q2)
- Liu, Q., **Cao, J.**, Zhang, J.*, Zhong, Y., Ba, T. & Zhang, Y. (2023). [Short-Term Power Load Forecasting in FGSM-Bi-LSTM Networks Based on Empirical Wavelet Transform.](#) *IEEE Access*. 11, 105057–105068. (JCR Q2)
- Zhang, J., An, Y.*, **Cao, J.**, Ouyang, S. & Wang, L. (2023). [UAV Trajectory Planning for Complex Open Storage Environments Based on an Improved RRT Algorithm.](#) *IEEE Access*. 11, 23189–23204. (JCR Q2)
- Han, Y., Xiang, H., **Cao, J.**, Yang, X., Pan, N.* & Huang, L. (2023a). [Study on optimization of multi-UAV nucleic acid sample delivery paths in large cities under the influence of epidemic environment.](#) *Journal of Ambient Intelligence and Humanized Computing*. 14 (6), 7593–7620.
- Han, Y., Zhang, M., Nan, P.*, **Cao, J.**, Huang, Q., Ye, X. & He, Z. (2023b). [Two-stage heuristic algorithm for vehicle-drone collaborative delivery and pickup based on medical supplies resource allocation.](#) *Journal of King Saud University - Computer and Information Sciences*. 35 (10), 101811. (JCR Q1)
- Cao, J.**, Zhang, J., Liu, M., Yin, S. & An, Y.* (2022). [Green Logistics of Vehicle Dispatch under Smart IoT.](#) *Sensors and Materials*. 34 (8), 3317. (JCR Q4)
- Liu, H., Sun, Y., **Cao, J.**, Chen, S., Pan, N.*, Dai, Y. & Pan, D. (2022). [Study on UAV Parallel Planning System for Transmission Line Project Acceptance Under the Background of Industry 5.0.](#) *IEEE Transactions on Industrial Informatics*. 18 (8), 5537–5546. (JCR Q1)
- Yang, X., Ye, X., **Cao, J.***, Yan, R., Guo, X. & Huang, J. (2022). [High-altitude Inspection Technology of Substation Based on Fusion of Unmanned Aerial Vehicle and Multiple Sensors.](#) *Sensors and Materials*. 34 (8), 3191. (JCR Q4)

WORKING PAPERS

- Cao, J.**, Zhang, M., Pan, N.*, Han, Y., Liu, J., He, Z., & Ai, Z. (2024). Optimization of Three-echelon Logistics Supply Chain Considering Emergency Scenarios Under Resilience Strategy: A Case Study in Power Metering Industry. *Computers & Industrial Engineering*. (JCR Q1) (Under Second Round Revise-resubmit)
- Cao, J.*** & Wang, B. (2024). A Robust Predict-then-Optimize Method for Electric Vehicle Charging Scheduling based on Station Charging Status. (In Progress)

HONORS AND AWARDS

- 2024 Outstanding Graduates of Yunnan Province
- 2024 Finalist for "Top10 Excellent Students of the Year - KUST"
- 2023 Nominated for "Top10 Excellent Students of the Year - KUST"

- 2022 Excellence Award in the SINOTRANS Cup-the 7th National Contest on Logistics Design by University Students (NCLDUS)
- 2022 1st Prize of the undergraduate group in the Yunnan Province of the Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM)
- 2022 Honorable Mention of the Mathematical Contest in Modeling (MCM)
- 2022 Gold Award in the 8th China International College Students' 'Internet+' Innovation and Entrepreneurship Competition, Yunnan Province
- 2021 1st Prize of the undergraduate group in the Yunnan Province of the Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM)
- 2021 Successful Participant of the Mathematical Contest in Modeling (MCM)
- 2021 Nominated for ShuWei Cup International Mathematical Contest in Modeling (IMCM)
- 2021 Excellence Award in the 16th national competition transport science and technology for university students

KUST: Kunming University of Science and Technology

SCHOLARSHIP

- 2022 Chi Wah* Outstanding Students Scholarship
- 2022 Chi Wah* Outstanding Social Work Scholarship
- 2022 Chi Wah* Outstanding Performance Scholarship
- 2022 Chi Wah* Outstanding Individual Scholarship for Achievement in Advanced Mathematics
- 2022 2nd Class Scholarship of KUST
- 2022 Social Work Scholarship of KUST
- 2022 Innovation and Entrepreneurship Scholarship of KUST
- 2021 2nd Class Scholarship of KUST

**Chi Wah Awards & Scholarship: from Chi Wah company in HK <http://www.hkcwf.org/>*

STUDY CERTIFICATE

- 2023 MIT Blended Learning Live Session Series
- 2023 MIT Blended Learning Base SPOC (small private online course): Machine Learning Modeling, and Simulation Principles
- 2022 Oxford Prospects Programme at Regent's Park College, University of Oxford (Module: New Frontiers of Science: Math, Physics, Computer Science and Engineering)