Professor (Research) Jianzhou Wang

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Academic Qualification:

Doctor Degree	Mathematics	Lanzhou University
Master's Degree	Mathematics	Lanzhou University
Undergraduate Degree	Mathematics	Northwest Normal University

Teaching Area

Mathematics	Statistics	Mathematical modeling	Statistical modeling

Research Area

The main research direction is artificial intelligence, big data and prediction theory and method research. A total of **293** academic papers have been published. In the past five years, **127 SCI/SSCI** retrieval papers have been published, most of which have been published in world-class academic journals: including **102 SCI/SSCI (JCR division Q1) retrieval papers**. **H index is 67, and the papers have been cited 13176 times**. Among them, **6 academic papers** are listed as hot topics in the field of disciplines by the American ISI Web of science basic science index ESI and **enter the top 1 ‰**, **44 academic papers** are listed as highly cited papers and research frontiers in the field disciplines by the American ISl Web of science basic science index ESI, and **reach the top 1%**.

Working Experience

2001.09--2014.11, worked at **Lanzhou University**;
2014.12--2021.09, worked at **Dongbei University of Finance and Economics**;
2021.09--now, working at **Macau University of Science and Technology**.

Research Grants

1. *Research on economic loss assessment and prevention countermeasures of haze pollution in the era of big data*, a major project of the **National Social Science Foundation of China**, 2018-2022, in research, and chair the project.
2. *Real time prediction of wind and solar power based on casual inference*, **Australian Government Research Council**
   project, 2017-2020, has been concluded and co-chaired.
3. *Research on assessment and prediction of wind energy resources in large-scale wind power grid connection management*, a general project of the **National Natural Science Foundation of China**, 2017-2020, has been concluded and presided over.
4. *Research on outlier detection and data mining and its application in the field of wind energy resource assessment and prediction*, and the **Liaoning Provincial High Level Innovation Team Overseas Training Project (key projects)**, 2018-2020, has been concluded and presided over.
5. *Wind energy resource assessment and prediction of large wind farms based on swarm intelligence optimization algorithm*,
   Institute of Atmospheric Physics, Chinese Academy of Sciences, 2017-2018, has been concluded and presided over.
6. *Research on the evaluation of the development potential of the renewable energy industry in Liaoning Province*, **Liaoning Provincial Federation of Social Sciences Project** - General Project, 2019-2020, has been concluded and presided over.
7. *Research on swarm intelligence optimization algorithm and echo state neural network and their application in*

wind energy resource assessment and prediction, **Liaoning Provincial Department of Education** project (vertical special funds) - scientific research funding project, 2019-2021, has been concluded and is the main sponsor.

8. *Northwest regional weather modification project Qilian mountains topography cloud artificial rain (snow) technology*, **Lanzhou University and Dongbei University of Finance and Economics**, 2018-2021, has been concluded and presidedover.

Representative publications (Complete publication refer to my webpage)

1. *An analysis-forecast system for uncertainty modeling of wind speed: A case study of large-scale wind farms* (10.1016/j.apenergy.2017.11.071), **SCI, Applied Energy**, 2/2018, 1/6.
2. *Research and application of a hybrid forecasting framework based on multi-objective optimization for electrical power system* (doi.org/10.1016/j.energy.2018.01.112), **SCI, Energy**, 4/2018, 1/4.
3. *A novel hybrid forecasting system of wind speed based on a newly developed multi-objective sine cosine algorithm* (doi.org/10.1016/j.enconman.2018.02.012), **SCI, Energy Conversion and Management**, 5/2018, 1/4.
4. *Application of a novel early warning system based on fuzzy time series in urban air quality forecasting in China* (10.1016/j.asoc.2018.07.030), **SCI, Applied Soft Computing**, 10/2018, 1/3.
5. *An improved grey model optimized by multi-objective ant lion optimization algorithm for annual electricity consumption forecasting* (10.1016/j.asoc.2018.07.022), **SCI, Applied Soft Computing**, 11/2018, 1/5.
6. *Comparison of seven methods for determining the optimal statistical distribution parameters: A case study of wind energy assessment in the large-scale wind farms of China* (10.1016/j.energy.2018.08.201), **SCI, Applied Soft Computing**, 12/2018, 1/4.
7. *A novel system based on neural networks with linear combination framework for wind speed forecasting* (doi.org/10.1016/j.enconman.2018.12.020), **SCI, Energy Conversion and Management**, 2/2019, 1/3.
8. *A novel non-linear combination system for short-term wind speed forecast* (doi.org/10.1016/j.renene.2019.04.154), **SCI, Renewable Energy**, 12/2019, 1/3.
9. *Research and application of the hybrid forecasting model based on secondary denoising and multi-objective optimization for air pollution early warning system* (doi.org/10.1016/j.jclepro.2019.06.201), **SCI, Journal of Cleaner Production**, 10/2019, 1/4.
10. *Integrating offline logistics and online system to recycle e-bicycle battery in China* (10.1016/j.jclepro.2019.119095), **SCI, Journal of Cleaner Production**, 2/2020, 1/5.
11. *Outlier-robust hybrid electricity price forecasting model for electricity market management* (10.1016/j.jclepro.2019.119318), **SCI, Journal of Cleaner Production**, 3/2020, 1/4.
12. *An innovative hybrid model based on outlier detection and correction algorithm and heuristic intelligent optimization algorithm for daily air quality index forecasting* (10.1016/j.jenvman.2019.109855), **SCI, Journal of Environmental Management**, 2/2020, 1/6.
13. *Effects of PM2.5 on health and economic loss: Evidence from Beijing-Tianjin-Hebei region of China* (10.1016/j.jclepro.2020.120605), **SCI, Journal of Cleaner Production**, 6/2020, 1/4.
14. *Ensemble probabilistic prediction approach for modeling uncertainty in crude oil price* (10.1016/j.asoc.2020.106509), **SCI, Applied Soft Computing**, 10/2020, 1/4.
15. *Ensemble probabilistic prediction approach for modeling uncertainty in crude oil price* (10.1016/j.engappai.2020.103783), **SCI, Engineering Applications of Artificial Intelligence**, 10/2020, 1/4.
16. *A Novel Framework of Reservoir Computing for Deterministic and Probabilistic Wind Power Forecasting* (10.1109/TSTE.2019.2890875), **SCI, IEEE Transactions on Sustainable Energy**, 1/2020, 1/5.
17. *Intelligent multivariable air-quality forecasting system based on feature selection and modified evolving interval type-2 quantum fuzzy neural network* (doi.org/10.1016/j.envpol.2021.116429), **SCI, Environmental Pollution**, 4/2021, 1/4.
18. *Point and interval prediction for non-ferrous metals based on a hybrid prediction framework* (doi.org/10.1016/J.RESOURPOL.2021.102222), **SCI, Resources Policy**, 10/2021, 1/4.
19. *Wind speed deterministic forecasting and probabilistic interval forecasting approach based on deep learning, modified tunicate swarm algorithm, and quantile regression* (doi.org/10.1016/J.RENENE.2021.07.113), **SCI, Renewable Energy**, 12/2021, 1/3.
20. *A regional pretraining-classification-selection forecasting system for wind power point forecasting and interval forecasting* (doi.org/10.1016/j.asoc.2021.107941), **SCI, Applied Soft Computing**, 12/2021, 1/4.
21. *A hesitant fuzzy wind speed forecasting system with novel defuzzification method and multi-objective optimization algorithm* (doi.org/10.1016/j.eswa.2020.114364), **SCI, Expert Systems with Applications**, 4/2021, 1/4.
22. *Interval forecasting system for electricity load based on data pre-processing strategy and multi-objective optimization algorithm* (doi.org/10.1016/j.apenergy.2021.117911), **SCI, Applied Energy**, 1/2022, 1/3.
23. *A combined forecasting system based on multi-objective optimization and feature extraction strategy for hourly PM2.5 concentration* (doi.org/10.1016/j.asoc.2021.108034), **SCI, Applied Soft Computing**, 1/2022, 1/3.
24. *Design of a combined system based on multi-objective optimization for point and interval forecasting of air pollution* (doi.org/10.1016/j.eswa.2021.116345), **SCI, Expert Systems with Applications**, 4/2022, 1/5.
25. *Research on the construction of stock portfolios based on multi-objective water cycle algorithm and KMV algorithm* (doi.org/10.1016/j.asoc.2021.108186), **SCI, Applied Soft Computing**, 1/2022, 1/3.
26. *Hour-ahead photovoltaic generation forecasting method based on machine learning and multi objective optimization algorithm* (doi.org/10.1016/j.apenergy.2022.118725), **SCI, Applied Energy**, 4/2022, 1/3.
27. *A novel ensemble probabilistic forecasting system for uncertainty in wind speed* (doi.org/10.1016/j.apenergy.2022.118796), **SCI, Applied Energy**, 5/2022, 1/4.

28. *An integrated forecasting system based on knee-based multi-objective optimization for solar radiation interval forecasting* (doi.org/10.1016/j.eswa.2022.116934), **SCI, Expert Systems with Applications**, 7/2022, 1/2.

29. *A novel combined forecasting model based on neural networks, deep learning approaches, and multi-objective optimization for short-term wind speed forecasting* (doi.org/10.1016/j.energy.2022.123960), **SCI, Energy**, 7/2022, 1/4.

30. *A novel decomposition-ensemble forecasting system for dynamic dispatching of smart grid with sub-model selection and intelligent optimization* (doi.org/10.1016/j.eswa.2022.117201), **SCI, Expert Systems with Applications**, 9/2022, 1/4.

31. *The influence of international oil prices on the exchange rates of oil exporting countries: Based on the hybrid copula function* (doi.org/10.1016/j.resourpol.2022.102734), **SCI, Resources Policy**, 8/2022, 1/5.

32. *Electric load prediction based on a novel combined interval forecasting system* (https://doi.org/10.1016/j.apenergy.2022.119420), **SCI, Applied Energy**, 9/2022, 1/3.

33. *Design and research of hybrid forecasting system for wind speed point forecasting and fuzzy interval forecasting* (https://doi.org/10.1016/j.eswa.2022.118384), **SCI, Expert Systems with Applications**, 9/2022, 1/4.

34. *An ensemble forecasting system for short-term power load based on multi-objective optimizer and fuzzy granulation* (https://doi.org/10.1016/j.apenergy.2022.120042), **SCI, Applied Energy**, 9/2022, 1/4.

35. *A deep-learning wind speed interval forecasting architecture based on modified scaling approach with feature ranking and two-output gated recurrent unit* (https://doi.org/10.1016/j.eswa.2022.118419), **SCI, Expert Systems with Applications**, 1/2023, 1/4.

36. *Ensemble forecasting system based on decomposition-selection-optimization for point and interval carbon price prediction* (https://doi.org/10.1016/j.apm.2022.09.004), **SCI, Applied Mathematical Modelling**, 1/2023, 1/5.

37. *A novel decomposition-ensemble model for forecasting short-term load-time series with multiple seasonal patterns* (doi.org/10.1016/j.asoc.2018.01.017), **SCI, Renewable Energy**,1/2018,2/2.

38. *Multi-step ahead forecasting in electrical power system using a hybrid forecasting system* (10.1016/j.renene.2018.01.113), **SCI, Applied Energy**,1/2018,2/4.

39. *A novel combined model based on advanced optimization algorithm for short-term wind speed forecasting* (10.1016/j.apenergy.2018.02.070), **SCI, International Journal of Environmental Research and Public Health**,2/2018,2/3.

40. *Air Pollution Forecasts: An Overview* (10.3390/ijerph15040780), **SCI, Applied Energy**,4/2018,2/4.

41. *A hybrid system for short-term wind speed forecasting* (10.1016/j.apenergy.2018.06.053), **SCI, Applied Energy**,6/2018,2/4.

42. *Novel analysis-forecast system based on multi-objective optimization for air quality index* (doi.org/10.1016/j.jclepro.2018.10.129), **SCI, Journal of Cleaner Production**,10/2018,2/4.

43. *A hybrid forecasting system based on a dual decomposition strategy and multi-objective optimization for electricity price forecasting* (doi.org/10.1016/j.apenergy.2018.11.034), **SCI, Applied Energy**,11/2018,2/2.

44. *Hybrid wind energy forecasting and analysis system based on divide and conquer scheme: A case study in China* (doi.org/10.1016/j.jclepro.2019.03.036), **SCI, Journal of Cleaner Production**,3/2019,2/5.

45. *A novel hybrid model for short-term wind power forecasting* (/doi.org/10.1016/j.asoc.2019.03.035), **SCI, Applied Soft Computing**, 3/2019,2/4.

46. *A hybrid short-term electricity price forecasting framework: Cuckoo search-based feature selection with singular spectrum analysis and SVM* (doi.org/10.1016/j.eneco.2019.05.026), **SSCI, Energy Economics**,6/2019,2/3.

47. *Research and Application of a Novel Hybrid Model Based on a Deep Neural Network for Electricity Load Forecasting: A Case Study in Australia* (doi:10.3390/en12132467), **SCI, Energies**,6/2019,2/4.

48. *Container throughput forecasting using a novel hybrid learning method with error correction strategy* (doi.org/10.1016/j.knosys.2019.07.024), **SCI, Knowledge-Based Systems**,7/2019,2/3.

49. *Multi-step wind speed forecasting based on numerical simulations and an optimized stochastic ensemble method* (doi.org/10.1016/j.apenergy.2019.113833), **SCI, Applied Energy**,9/2019,2/4.

50. *Research and Application of a Novel Hybrid Model Based on a Deep Neural Network Combined with Fuzzy Time Series for Energy Forecasting* (doi:10.3390/en12183588), **SCI, Energies**,9/2019,2/4.

51. *Research and Application of a Novel Combined Model Based on Multi-objective Optimization for Multistep-Ahead Electric Load Forecasting* (doi.org/10.3390/en12101931), **SCI, Energies**, 5/2019, 2/3.

52. *A novel hybrid system based on multi-objective optimization for wind speed forecasting* (10.1016/j.renene.2019.04.157), **SCI, Renewable Energy**, 5/2019,2/5.

53. *A novel system for multi-step electricity price forecasting for electricity market management* (10.1016/j.asoc.2019.106029), **SCI, Applied Soft Computing**,12/2019,2/4.

54. *Developing a deep learning framework with two-stage feature selection for multivariate financial time series forecasting* (10.1016/j.eswa.2020.113237), **SCI, Expert Systems with Applications**,1/2020,2/5.

55. *A novel hybrid air quality early-warning system based on phase-space reconstruction and multi-objective optimization: A case study in China* (10.1016/j.jclepro.2020.121027), **SCI, Journal of Cleaner Production**,3/2020,2/3.

56. *A novel dynamic ensemble air quality index forecasting system* (doi.org/10.1016/j.apr.2020.04.010), **SCI, Atmospheric Pollution Research**,4/2020,2/3.

57. *A novel hybrid model based on multi-objective Harris hawks optimization algorithm for daily PM2.5 and PM10 forecasting* (doi.org/10.1016/j.asoc.2020.106620), **SCI, Applied Soft Computing**,8/2020,2/5.

58. *Point and interval forecasting for metal prices based on variational mode decomposition and an optimized outlier-robust extreme learning machine* (doi.org/10.1016/j.resourpol.2020.101881), **SSCI, Resources Policy**,9/2020,2/4.

59. *Wind speed forecasting system based on gated recurrent units and convolutional spiking neural networks* (doi.org/10.1016/J.APENERGY.2021.116842), **SCI, Applied Energy**,4/2021,2/4.

60. *Two novel hybrid linear and nonlinear models for wind speed forecasting* (doi.org/10.1016/j.enconman.2021.114162), **SCI, Energy Conversion and Management**,4/2021,2/3.

61. *Double ensemble system for wind energy forecasting based on generalized autoregressive conditional heteroskedasticity and neural network models with variational mode decomposition* (10.1080/15567036.2021.1922550), **SCI, Energy Sources Part A-Recovery Utilization and Environmental Effects**,5/2021,2/2.
62. *Wind speed prediction system based on data pre-processing strategy and multi-objective dragonfly optimization algorithm* (doi.org/10.1016/j.seta.2021.101346), **SCI, Sustainable Energy Technologies and Assessments**,6/2021,2/3.
63. *A novel combined model for wind speed prediction - Combination of linear model, shallow neural networks, and deep learning approaches* (doi.org/10.1016/J.ENERGY.2021.121275), **SCI, Energy**,6/2021,2/4
64. *Ensemble wind speed forecasting with multi-objective Archimedes optimization algorithm and sub-model selection* (doi.org/10.1016/j.apenergy.2021.117449), **SCI, Applied Energy**,7/2021,2/4.
65. *An advanced weighted system based on swarm intelligence optimization for wind speed prediction* (doi.org/10.1016/j.apm.2021.07.024), **SCI, Applied Mathematical Modelling**, 8/2021,2/4.
66. *A wind speed interval forecasting system based on constrained lower upper bound estimation and parallel feature selection* (doi.org/10.1016/j.knosys.2021.107435), **SCI, Knowledge-Based Systems**,8/2021,2/3.
67. *PM2.5 prediction and related health effects and economic cost assessments in 2020 and 2021: Case studies in Jing-Jin-Ji, China* (10.1016/j.knosys.2021.107487), **SCI, Knowledge-Based Systems**,9/2021,2/4.
68. *Comparison of the goodness-of-fit of intelligent-optimized wind speed distributions and calculation in high-altitude wind-energy potential assessment* (doi.org/10.1016/j.enconman.2021.114737), **SCI, Energy Conversion and Management**, 9/2021,2/3.
69. *Research of a combined wind speed model based on multi-objective ant lion optimization algorithm* (10.1002/2050-7038.13189), **SCI, International Transactions on Electrical Energy Systems**,11/2021,2/4.
70. *A combined forecasting strategy for the improvement of operational efficiency in wind farm* (doi.org/10.1063/5.0065937), **SCI, Journal of Renewable and Sustainable Energy**,12/2021,2/4.
71. *Design of a combined wind speed forecasting system based on decomposition-ensemble and multi-objective optimization approach* (doi.org/10.1016/j.apm.2021.07.024), **SCI, Applied Mathematical Modelling**,1/2021,2/4.
72. *A novel hybrid fine particulate matter (PM2.5) forecasting and its further application system: Case studies in China* (10.1002/for.2785), **SSCI, Journal of Forecasting**, 5/2021,2/4.
73. *Wind Power Curve Modeling with Hybrid Copula and Grey Wolf Optimization* (doi.org/ 10.1109/TSTE.2021.3109044), **SCI, IEEE Transactions on Sustainable Energy**, 9/2021,2/4.
74. *Carbon price forecasting system based on error correction and divide-conquer strategies* (doi.org/10.1016/j.asoc.2021.107935), **SCI, Applied Soft Computing**,9/2021,2/3.
75. *A multivariable hybrid prediction system of wind power based on outlier test and innovative multi-objective optimization* (doi.org/10.1016/j.energy.2021.122333), **SCI, Energy**, 10/2021,2/4.
76. *Air quality deterministic and probabilistic forecasting system based on hesitant fuzzy sets and nonlinear robust outlier correction* (doi.org/10.1016/j.knosys.2021.107789), **SCI, Knowledge-Based Systems**,12/2021,2/4.
77. *A newly combination model based on data denoising strategy and advanced optimization algorithm for short-term wind speed prediction* (doi.org/10.1007/s12652-021-03595-x), **Journal of Ambient Intelligence and Humanized Computing**,1/2022,2/4.
78. *A multi-component hybrid system based on predictability recognition and modified multi-objective optimization for ultra-short-term onshore wind speed forecasting* (https://doi.org/10.1016/j.renene.2022.02.005), **SCI, Renewable Energy**, 2/2022,2/3.
79. *Short-term wind power prediction optimized by multi-objective dragonfly algorithm based on variational mode decomposition* (doi.org/10.1016/j.chaos.2022.111982), **SCI, Chaos, Solitons & Fractals**,3/2022,2/4.
80. *An integrated power load point-interval forecasting system based on information entropy and multi-objective optimization* (doi.org/10.1016/j.apenergy.2022.118938), **SCI, Applied Energy**,3/2022,2/4.
81. *Research of a novel short-term wind forecasting system based on multi-objective Aquila optimizer for point and interval forecast* (https://doi.org/10.1016/j.enconman.2022.115583), **SCI, Energy Conversion and Management**,5/2022,2/4.
82. *Multi-step air quality index forecasting via data preprocessing, sequence reconstruction, and improved multi-objective optimization algorithm* (https://doi.org/10.1002/for.2872), **SSCI, Journal of Forecasting**,5/2022,2/5.
83. *Ensemble wind speed prediction system based on envelope decomposition method and fuzzy inference evaluation of predictability* (https://doi.org/10.1016/j.asoc.2022.109010), **SCI, Applied Soft Computing**,5/2022,2/4.
84. *Deterministic and uncertainty crude oil price forecasting based on outlier detection and modified multi-objective optimization algorithm* (10.1016/j.resourpol.2022.102780), **SSCI, Resources Policy**,5/2022,2/3.
85. *Short-term photovoltaic power forecasting based on signal decomposition and machine learning optimization* (https://doi.org/10.1016/j.enconman.2022.115944), **SCI, Energy Conversion and Management**,7/2022,2/4.
86. *Power grid operation optimization and forecasting using a combined forecasting system* (https://doi.org/10.1002/for.2888), **SSCI, Journal of Forecasting**,7/2022,2/3.
87. *Combined water quality forecasting system based on multi-objective optimization and improved data decomposition integration strategy* (10.1002/for.2905), **SSCI, Journal of Forecasting**,8/2022,2/3.
88. *A non-ferrous metal price ensemble prediction system based on innovative combined kernel extreme learning machine and chaos theory* (https://doi.org/10.1016/j.resourpol.2022.102975), **SSCI, Resources Policy**, 9/2022,2/5.
89. *Uncertainty quantification of PM2.5 concentrations using a hybrid model based on characteristic decomposition and fuzzy granulation* (https://doi.org/10.1016/j.jenvman.2022.116282), **SCI, Journal of Environmental Management,** 9/2022,2/5.
90. *What Should Lenders Be More Concerned About? Developing A Profit-driven Loan Default Prediction Model* (https://doi.org/10.1016/j.eswa.2022.118938), **SCI, Expert Systems with Applications**,9/2022,2/3.
91. *Research and Application of a Hybrid Wind Energy Forecasting System Based on Data Processing and an Optimized Extreme Learning Machine* (doi:10.3390/en11071712), **SCI, Energies**,7/2018, 3/4.
92. *Particle-swarm optimization of ensemble neural networks with negative correlation learning for forecasting short-term*

wind speed of wind farms in western China (doi.org/10.1016/j.ins.2019.07.074), **SCI, Information Sciences**,7/2019, 3/5.

93. *Wind Speed Forecasting System Based on the Variational Mode Decomposition Strategy and Immune Selection Multi-Objective Dragonfly Optimization Algorithm* (doi:10.1109/ACCESS.2019.2957062), **SCI, IEEE Access**,12/2019, 3/3.

94. *Research on Combined Model Based on Multi-Objective Optimization and Application in Wind Speed Forecast* (doi.org/10.3390/app9030423), **SSCI**, **Applied Sciences-Basel**, 1/2019, 3/4.

95. *Hybrid system based on a multi-objective optimization and kernel approximation for multi-scale wind speed forecasting* (10.1016/j.apenergy.2020.115561), **SCI, Applied Energy**,7/2020, 3/4.

96. *A Hybrid System Based on LSTM for Short-Term Power Load Forecasting* (doi.org/10.3390/en13236241), **SCI, Energies**,11/2020, 3/3.

97. *A novel interval forecasting system for uncertainty modeling based on multi-input multi-output theory: A case study on modern wind stations* (doi.org/10.1016/j.renene.2020.08.139), **SCI, Renewable Energy**,8/2020,3/3.

98. *Ensemble Forecasting System for Short-Term Wind Speed Forecasting Based on Optimal Sub-Model Selection and Multi-Objective Version of Mayfly Optimization Algorithm* (doi.org/10.1016/j.eswa.2021.114974), **SCI, Expert Systems with Applications**, 4/2021, 3/4.

99. *Forecasting Chinese carbon emissions using a novel grey rolling prediction model* (doi.org/10.1016/j.chaos.2021.110968), **SCI, Chaos, Solitons & Fractals**,4/2021, 3/5.

100. *Impacts of haze pollution on China's tourism industry: A system of economic loss analysis* (doi.org/10.1016/j.jenvman.2021.113051), **SCI, Journal of Environmental Management**, 6/2021, 3/3.

101. *Decomposition-selection-ensemble forecasting system for energy futures price forecasting based on multi-objective version of chaos game optimization algorithm* (doi.org/10.1016/j.resourpol.2021.102234), **SSCI, Resources Policy**,7/2021, 3/4.

102. *Ultra-short-term wind-speed bi-forecasting system via artificial intelligence and a double-forecasting scheme* (doi.org/10.1016/j.apenergy.2021.117452), **SCI, Applied Energy**, 7/20121, 3/3.

103. *Ensemble system for short term carbon dioxide emissions forecasting based on multi-objective tangent search algorithm* (doi.org/10.1016/j.jenvman.2021.113951), **SCI, Journal of Environmental Management**,10/2021, 3/4.

104. *Ensemble power load forecasting based on competitive-inhibition selection strategy and deep learning* (https://doi.org/10.1016/j.seta.2021.101940), **SCI, Sustainable Energy Technologies and Assessments**,12/2021, 3/3.

105. *Novel hybrid extreme learning machine and multi-objective optimization algorithm for air pollution prediction* (doi.org/10.1016/j.apm.2022.01.023), **SCI, Applied Mathematical Modelling**,2/2022, 3/3.

106. *Decomposition-Selection-Ensemble Prediction System for Short-Term Wind Speed Forecasting* (https://doi.org/10.1016/j.epsr.2022.108186), **SCI, Electric Power Systems Research**,6/2022, 3/4.

107. *Game current-state opacity formulation in probabilistic resource automata* (https://doi.org/10.1016/j.ins.2022.09.030), **SCI, Information Sciences**, 9/2022, 3/4.

108. *Artificial Combined Model Based on Hybrid Nonlinear Neural Network Models and Statistics Linear Models Research and Application for Wind Speed Forecasting* (10.3390/su10124601), **SCI&SSCI, Sustainability**, 12/2018, 4/4.

109. *Research and application based on the swarm intelligence algorithm and artificial intelligence for wind farm decision system* (doi.org/10.1016/j.renene.2018.11.061), **SCI, Renewable Energy**, 11/2018, 4/4.

110. *A novel sub-models selection algorithm based on max-relevance and min-redundancy neighborhood mutual information* (doi.org/10.1016/j.ins.2019.01.075), **SCI, Information Sciences**, 2/2019, 4/4.

111. *Integrated Forecasting Method for Wind Energy Management: A Case Study in China* (doi.org/10.3390/pr8010035), **SCI, Processes**, 4/4.r

112. *A Novel Framework for Forecasting, Evaluation and Early-Warning for the Influence of PM10 on Public Health* (doi.org/10.3390/ATMOS12081020), **SCI, Atmosphere**, 8/2021, 4/4.

113. *Advanced traffic congestion early warning system based on traffic flow forecasting and extenics evaluation* (doi.org/10.1016/j.asoc.2022.108544), **SCI, Applied Soft Computing**, 1/2022, 4/4.

114. *Novel deterministic and probabilistic combined system based on deep learning and self-improved optimization algorithm for wind speed forecasting* (doi.org/10.1016/j.seta.2022.102186), **SCI, Sustainable Energy Technologies and Assessments,** 3/2022, 4/4.

115. *Ensemble wind speed forecasting system based on optimal model adaptive selection strategy: Case study in China* (https://doi.org/10.1016/j.seta.2022.102535), **SCI, Sustainable Energy Technologies and Assessments**, 3/2022, 4/4.

116. *A Novel Air Pollutant Concentration Prediction System Based on Decomposition-Ensemble Mode and Multi-Objective Optimization for Environmental System Management* (10.3390/systems10050139), **SSCI, Systems**, 9/2022, 4/4.

117. *Research on a combined model based on linear and nonlinear features - A case study of wind speed forecasting* (doi.org/10.1109/access.2019.2957174), **SCI, Renewable Energy**, 5/2018,6/7.

118. *Distribution parameter-determining method comparison for airborne wind energy potential assessment in the eastern coastal area of China* (10.1016/j.seta.2022.102161), **SCI, Sustainable Energy Technologies and Assessments**, 8/2022, 1/4.

119. *Research on the construction of stock portfolios based on multiobjective water cycle algorithm and KMV algorithm* (https://doi.org/10.1016/j.asoc.2021.108186), **SCI, Applied Soft Computing**, 12/2021, 1/3.

120. *Design and research of hybrid forecasting system for wind speedpoint forecasting and fuzzy interval forecasting* (https://doi.org/10.1016/j.eswa.2022.118384), **SCI, Expert Systems with Applications**, 8/2022, 1/4.

121. *Impacts of haze pollution on China's tourism industry:A system of economic loss analysis* (https://doi.org/10.1016/j.jenvman.2021.113051), **SCI, Journal of Environmental Management**, 6/2021, 3/3.

122. *Wind speed interval prediction model based on variational model decomposition and multi-objective optimization* (https://doi.org/10.1016/j.asoc.2021.107848), **SCI, Applied Soft Computing**, 9/2021, 1/2.

123. *Multivariable short-term electricity price forecasting using artificial intelligence and multi-input multi-output scheme* (https://doi.org/10.1016/j.eneco.2022.106471), **SCI, Energy Economics**, 12/2022, 3/4.

124. *An innovative combined model based on multi-objective optimization approach for forecasting short-term wind speed: A*

case study in China (https://doi.org/10.1016/j.renene.2022.10.123), **SCI, Renewable Energy**, 11/2022, 2/4.

125. *Multivariate selection-combination short-term wind speed forecasting system based on convolution-recurrent network and multi-objective chameleon swarm algorithm* (https://doi.org/10.1016/j.eswa.2022.119129), **SCI, Expert Systems with Applications**, 11/2022, 1/4.

Professional Certification and Awards

1. Special allowance granted by the State Council in 2018; In 2020, be selected as the leading talent of Dalian; Won the title of Dalian Excellent Teacher in 2017; Won the title of Excellent Instructor of Master's Degree Thesis in Liaoning Province in 2018; Lanzhou University Innovation and Entrepreneurship Action Plan "Excellent Instructor" in 2013.

2. In 2019, won the 2018 Liaoning Excellent Master's Thesis Instructor; In 2018 and 2020, won the 2018 and 2020 Dongbei University of Finance and Economics Excellent Master's Thesis Instructor; In 2018, won the second prize in Liaoning Natural Science Academic Achievement Award; Won the third prize of Jiangxi Natural Science Award in 2018; Won the second prize of the 2018 Liaoning Provincial General Higher Education Teaching Achievement Award; Won the second and third prizes of 2017 Dalian Excellent Science and Technology Achievement Award.

3. In 2017, presided over a major project of the National Social Science Foundation of China (*Research on economic loss assessment and prevention countermeasures of haze pollution in the age of big data*).

4. **From 2008 to 2014, served as the head coach of mathematical modeling at Lanzhou University and guided undergraduates to win 197 mathematical modeling competitions, including (1) 18 first prizes and 38 second prizes in the American College Students' Mathematical Modeling Competition; (2) It has won 6 first prizes, 28 second prizes, 39 special prizes in Gansu Province and more than 60 other prizes in the National Undergraduate Mathematical Modeling Contest. In addition, the winning rate of the 27th American College Students Mathematical Modeling Contest exceeded that of some famous universities in China, such as Tsinghua University.**

5. In 2016, as the head coach of mathematical modeling in the School of Statistics of Dongbei University of Finance and Economics, guided the undergraduate students of the School of Statistics to win 7 first prizes and 17 second prizes in the American Undergraduate Mathematical Modeling Contest, **with the award rate exceeding that of some famous domestic universities such as Peking University and Tsinghua University**; As the head coach of mathematical modeling of Dongbei University of Finance and Economics, in 2017, there were 117 guiding teams, winning 14 first prizes and 42 second prizes in total. In 2018, there were 86 guiding teams, winning 10 first prizes and 29 second prizes in total; In 2019, 33 teams were guided to participate, winning 3 first prizes and 8 second prizes.

6. In 2020, as the head coach of mathematical modeling at Dongbei University of Finance and Economics, led 37 teams to participate in the American Undergraduate Mathematical Modeling Contest and **won 2 Outstanding Winners (only 37 of the 20948 teams in the world won outstanding awards in 2020, with an award probability of 0.177%). One team also won the ASA Title Award issued by the American Institute of Statistics (only 5 of the 20948 teams in the world won this award in 2020).** One team won the first prize and ten teams won the second prize. The modeling contest for American college students not only cultivates students' practical ability to solve practical problems but also cultivates undergraduates' scientific and technological innovation ability.

7. **In 2020 and 2022, be selected into the list of Clarivate global highly cited researchers in interdisciplinary and engineering fields for three consecutive years; In 2019, be selected into Chinese Most Cited Researcher-Elsevier in Mathematics (93 scholars in Chinese Mainland's mathematics circle were selected in this list, and Professor Jianzhou Wang ranked third in H index). In 2020, be selected for the statistics category list of Chinese Most Cited Researcher-Elsevier (13 scholars from the statistical community of Chinese Mainland were selected in this list, and Professor Jianzhou Wang ranked second in the H index). In 2021, be selected into the statistics category list of Chinese Most Cited Researcher-Elsevier (a total of 20 scholars from the Chinese Mainland statistical community were selected in this list, and Professor Jianzhou Wang ranked third in the H index), and be selected into Stanford University's "Top 2% of the World's Top Scientists" list.**

8. The paper *A case study on a hybrid wind speed forecasting method using BP neural network* was published by the world's largest science and technology Press Elsevier, which is one of the most popular 25 (top) articles in 2013 (No. 3 in mathematics, No. 21 in engineering, and No. 22 in computer science).

9. **Main invention**: 4 computer software copyrights were approved in 2018.

Journal Editorship

1. Guest Editor in Chief and Guest Editor of *Energies*
2. Guest Editor in Chief of *Frontiers in Ecology and Evolution*

Personal Website

http://scholar.must.edu.mo/scholar/101273