

Kaichen Ouyang

Email: oykc@mail.ustc.edu.cn Tel: +86 15888787619

Education Background

2020.09 – 2024.06 University of Science and Technology of China China

- Degree: Bachelor
- Major: Mathematics and Applied Mathematics GPA: 82.04/100
- Certificate: Plan for strengthening basic academic disciplines, Strengthening Foundation Plan in Mathematics

Publications

- Ouyang, K., et al *Graph Learning Metallic Glass Discovery from Wikipedia* Summit in AI for Science (JCR Q1, IF:12.0)
- Ouyang, K., et al. *Study of nonequilibrium phase transitions mechanisms in exclusive network and node model of heterogeneous assignment based on real experimental data of KIF3AC and KIF3CC motors.* European Physical Journal Plus. (JCR Q2, IF:2.8)
- Ouyang, K., et al. *Physical mechanisms of exit dynamics in microchannels of nonequilibrium transport systems.* International Journal of Modern Physics B. (JCR Q2, IF:2.6)
- Ouyang, K., et al. *Escape: an optimization method based on crowd evacuation behaviors.* Artificial Intelligence Review. (JCR Q1, IF:13.9)
- Ouyang, K., et al. *Multiple Objectives Escaping Bird Search Optimization and Its application in Stock Market Prediction Based on Transformer Model.* Scientific Reports. (JCR Q1, IF:3.9)
- Ouyang, K., et al. *Dynamic Graph Neural Evolution: An Evolutionary Framework Integrating Graph Neural Networks with Adaptive Filtering.* 2025 IEEE Congress on Evolutionary Computation (Oral)
- Ouyang, K., et al *Trend-Aware Mechanism for metaheuristic algorithms* Applied Soft Computing (JCR Q1, IF:6.6)
- Ouyang, K., et al *A Generative Adversarial Network Based Investor Sentiment Indicator: Superior Predictability for the Stock Market* Mathematics (JCR Q1, IF:2.2)
- Ouyang, K., et al *Learn from Global Correlations: Enhancing Evolutionary Algorithm via Spectral GNN* Summit in 2025 Neural Information processing Systems (Arxiv)
- Ouyang, K., et al *Rethinking Over-Smoothing in Graph Neural Networks: A Perspective from Anderson Localization* (Arxiv)
- Ouyang, K., et al *Consciousness as a Jamming Phase* (Arxiv)
- Ouyang, K., et al *Multi-Objective Mobile Damped Wave Algorithm (MOMDWA): A Novel Approach For Quantum System Control* (Arxiv)
- Ouyang, K., et al *Newton Downhill Optimizer for Global Optimization with Application to Breast Cancer Feature Selection* Biomedical Signal Processing and Control (JCR Q1, IF:4.9), *Under review*
- Ouyang, K., et al *Multi-objective Red-billed Blue Magpie Optimizer: A Novel Algorithm for Multi-objective UAV Path Planning* Results in Engineering (JCR Q1, IF:7.9), *Under review*
- Ouyang, K., et al *Beaver Behavior Optimizer: A Novel Metaheuristic Algorithm for Solar PV Parameter Identification and Engineering Problems* (JCR Q1, IF:13.0), *Under review*

Research Experience

- 2024.2 - Present, Graph Neural Networks & Material Science, Songshan Lake Materials Laboratory, RA
- 2023.5 - 2024.6, Intersection of Non-equilibrium Statistical Physics & Machine Learning, USTC, RA
- 2021.9 - Present, Evolutionary Algorithms & Machine Learning, Wenzhou University, RA
- 2021.3 - 2022.9, Non-equilibrium Statistical Physics & Complex Networks, USTC, RA

Conference Experience

- CAMMIC 2023: Discrete Optimization and Optimization of Ethanol Preparation Problem

- *IEEE ICSP 2023*: Quantitative Supervised Learning System of Light Pollution and Its Application
- *IEEE CVIDL 2023*: Intelligent Thermostatic Cold Storage Design Strategies based on Monte Carlo and Graph Neural Networks
- *MAEIE 2024*: Multi-Objective Fertilization Optimization: A New Approach for Microgrid Scheduling
- *5th Amorphous Physics and Materials Symposium 2024*, Attendee

School Experience

- 2022, Mathematical Analysis B1, Teaching Assistant
- 2024, Mathematical Modeling, Teaching Assistant
- 2024, Swarm and Evolutionary Computation (JCR Q1, IF: 8.2), Reviewer
- 2025, Knowledge-Based Systems, (JCR Q1, IF: 7.2), Reviewer
- 2025, International Joint Conference on Neural Networks (IJCNN), Reviewer
- 2025, International Conference on Intelligent Computing (ICIC), Reviewer

Honours

- 2024, Second Prize (Honorable Mention), MCM/ICM
- 2023, First Prize (Meritorious), Huashu Cup International Mathematical Contest in Modeling
- 2023, First Prize, National College Students' Mathematics Competition
- 2022, International Second Prize, Asia-Pacific Mathematical Modeling Competition
- 2020-2021, Outstanding Student Gold Award, University of Science and Technology of China

Skills

- **Language skills**: Chinese (Native), English (Fluent)
- **Computer Skills**: Microsoft Office 365, Python, MATLAB, MySQL, Java, C/C++