Xiaoming Xue

Email: xminghsueh[at]gmail.com Google Scholar: xminghsueh Personal Academic Website: xminghsueh

Bio

Xiaoming Xue is currently a Postdoctoral Fellow with the Department of Data Science and Artificial Intelligence (DSAI) at The Hong Kong Polytechnic University, working with Prof. Kay Chen Tan and Dr. Jibin Wu, as a member of the Machine Intelligence and Nature-Inspired Computing (MIND) Lab. He received the B.Eng. degree in petroleum engineering and the M.Eng. degree in oil & gas field development engineering from China University of Petroleum (East China), in 2017 and 2020, respectively, under the supervision of Prof. Kai Zhang, where he studied expensive optimization, transfer optimization, and their practical applications in the field of petroleum engineering, and the Ph.D. degree in computer science from City University of Hong Kong in 2024, under the supervision of Prof. Kay Chen Tan and Prof. Linqi Song. His current research focus is on the theoretical analysis and algorithm design of transfer optimization, as well as its practical applications.

Education

China University of Petroleum (East China) — **Qingdao, China**
B.Eng. in Petroleum Engineering — *Sep 2013 - Jun 2017*
- **Mentor:** Prof. Kai Zhang

China University of Petroleum (East China) — **Qingdao, China**
M.Eng. in Oil and Gas Field Development Engineering — *Sep 2017 - Jun 2020*
- **Supervisor:** Prof. Kai Zhang

City University of Hong Kong — **Hong Kong SAR, China**
Ph.D. in Computer Science — *Sep 2020 - Aug 2024*
- **Supervisors:** Prof. Kay Chen Tan and Prof. Linqi Song

Selected Publications

1. "A Scalable Test Problem Generator for Sequential Transfer Optimization"
   Xiaoming Xue, C. Yang, L. Feng, K. Zhang, L. Song, K. C. Tan
   IEEE Transactions on Cybernetics (TCYB), 2025.
2. "Surrogate-Assisted Search with Competitive Knowledge Transfer for Expensive Optimization"
   Xiaoming Xue, Y. Hu, L. Feng, K. Zhang, L. Song, K. C. Tan
   IEEE Transactions on Evolutionary Computation (TEVC), 2024.
3. "Solution Transfer in Evolutionary Optimization: An Empirical Study on Sequential Transfer"
   Xiaoming Xue, C. Yang, L. Feng, K. Zhang, L. Song, K. C. Tan
   IEEE Transactions on Evolutionary Computation (TEVC), 2023.
4. "Evolutionary Sequential Transfer Optimization for Objective-Heterogeneous Problems"
   Xiaoming Xue, C. Yang, Y. Hu, K. Zhang, Y. M. Cheung, L. Song, K. C. Tan
   IEEE Transactions on Evolutionary Computation (TEVC), 2021.
5. "Affine Transformation-Enhanced Multifactorial Optimization for Heterogeneous Problems"
   Xiaoming Xue, K. Zhang, K. C. Tan, L. Feng, J. Wang, G. Chen, X. Zhao, L. Zhang, J. Yao
   IEEE Transactions on Cybernetics (TCYB), 2020.

Journal Publications (*: corresponding author)

1. "A Topology-Based Single-Pool Decomposition Framework for Large-Scale Global Optimization"
   Xiaoming Xue, K. Zhang, R. Li, L. Zhang, C. Yao, J. Wang, J. Yao
   Applied Soft Computing (ASOC), 2020.
2. "A Divide-And-Conquer Optimization Paradigm for Waterflooding Production Optimization"
   Xiaoming Xue, G. Chen, K. Zhang, L. Zhang, X. Zhao, L. Song, M. Wang, P. Wang
   Journal of Petroleum Science and Engineering (JPSE), 2022.
3. "Global and Local Search Experience-Based Evolutionary Sequential Transfer Optimization"
   C. Cao, K. Zhang*, Xiaoming Xue*, K. C. Tan, J. Wang, L. Zhang, P. Liu, and X. Yan
   IEEE Transactions on Evolutionary Computation (TEVC), 2024.
4. "Competitive Knowledge Transfer-Enhanced Surrogate-Assisted Search for Production Optimization"
   C. Cao, Xiaoming Xue*, K. Zhang*, L. Song, L. Zhang, X. Yan, Y. Yang, J. Yao, W. Zhou, and C. Liu
   SPE Journal (SPE J), 2024.

5. "Multifidelity Genetic Transfer: An Efficient Framework for Production Optimization" [Highly Cited]
   F. Yin, Xiaoming Xue, C. Zhang, K. Zhang, J. Han, B. Liu, J. Wang, J. Yao
   SPE Journal (SPE J), 2021.
6. "Global and Local Surrogate-Model-Assisted Differential Evolution for Waterflooding Production Optimization"
   G. Chen, K. Zhang, L. Zhang, Xiaoming Xue, D. Ji, C. Yao, J. Yao, Y. Yang
   SPE Journal (SPE J), 2020.
7. "Efficient Hierarchical Surrogate-Assisted Differential Evolution for High-Dimensional Expensive Optimization"
   G. Chen, Y. Li, K. Zhang, Xiaoming Xue, J. Wang, Q. Luo, C. Yao, J. Yao
   Information Sciences (INS), 2021.
8. "Surrogate-Reformulation-Assisted Multitasking Knowledge Transfer for Production Optimization"
   C. Zhong, K. Zhang, Xiaoming Xue, J. Qi, L. Zhang, C. Yao, Y. Yang, J. Wang, J. Yao, W. Zhang
   Journal of Petroleum Science and Engineering (JPSE), 2022.
9. "Data-Driven Evolutionary Algorithm for Oil Reservoir Well-Placement and Control Optimization"
   G. Chen, X. Luo, J. J. Jiao, Xiaoming Xue
   Fuel, 2022.
10. "Historical Window-Enhanced Transfer Gaussian Process for Production Optimization"
    C. Zhong, K. Zhang, Xiaoming Xue, J. Qi, L. Zhang, X. Yan, H. Zhang, Y. Yang
    SPE Journal (SPE J), 2022.
11. "Source Free Semi-Supervised Transfer Learning for Diagnosis of Mental Disorders on fMRI Scans"
    Y. Hu, Z. Huang, R. Liu, Xiaoming Xue, X. Sun, L. Song, K. C. Tan
    IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2023.

Conference Publications

1. "A Theoretical Analysis of Analogy-Based Evolutionary Transfer Optimization" [Best Paper Award]
   Xiaoming Xue, L. Feng, Y. Feng, R. Liu, K. Zhang, K. C. Tan
   IEEE Congress on Evolutionary Computation (CEC), 2025.
2. "Multiobjective Sequential Transfer Optimization: Benchmark Problems and Preliminary Results"
   Xiaoming Xue, L. Feng, C. Yang, S. Liu, L. Song, K. C. Tan
   IEEE Congress on Evolutionary Computation (CEC), 2024.
3. "A Dual-Stage Pseudo-Labeling Method for the Diagnosis of Mental Disorder on MRI Scans"
   Y. Hu, Z. Huang, R. Liu, Xiaoming Xue, L. Song, K. C. Tan
   International Joint Conference on Neural Networks (IJCNN), 2022.

Honors and Awards

1. IEEE CEC Best Paper Award, Awarded by IEEE CIS	2025
2. Outstanding Academic Performance Award for Research Degree Students, Awarded by CityU (25%)	2024
3. Research Tuition Scholarship, Awarded by CityU (20%)	2021, 2022
4. Outstanding Master's Thesis in Shandong Province (5%)	2021
5. Interdisciplinary Contest in Modeling (ICM), Meritorious Winner (18%)	2016
6. Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM), First Prize (1%)	2016

Academic Service

Journal Reviewer

- IEEE Transactions on Evolutionary Computation (TEVC)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Cybernetics (TCYB)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- Journal of Petroleum Science and Engineering (JPSE)
- IEEE Transactions on Emerging Topics in Computational Intelligence (TETCI)
- Engineering Applications of Artificial Intelligence (EAAI)

Conference Reviewer

- IEEE Congress on Evolutionary Computation (CEC)
- International Joint Conference on Neural Networks (IJCNN)