Xiaoming Xue

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

Bio

Xiaoming Xue is currently a Full Professor with the School of Petroleum Engineering at China University of Petroleum (East China). From 2024 to 2025, he served as 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 Prof. 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 the China University of Petroleum (East China), in 2017 and 2020, respectively, under the supervision of Prof. Kai Zhang, and the Ph.D. degree in computer science from the City University of Hong Kong in 2024, under the supervision of Prof. Kay Chen Tan and Prof. Linqi Song. His current research focuses on optimization, machine learning, and their practical applications in the petroleum industry.

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 - Oct 2024*
- **Supervisors:** Prof. Kay Chen Tan and Prof. Linqi Song

Working Experience

The Hong Kong Polytechnic University — **Hong Kong SAR, China**
Postdoctoral Fellow, Department of Data Science and Artificial Intelligence — *Nov 2024 - Nov 2025*
- **Supervisor:** Prof. Kay Chen Tan

Selected Publications

Featured Publications (*: corresponding author)

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. "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.
3. "Multitask Surrogate-Assisted Search with Bayesian Competitive Knowledge Transfer for Expensive Optimization"
   Y. Lu, K. Zhang*, Xiaoming Xue*, L. Zhang, G. Chen, C. Cao, P. Liu, and K. C. Tan
   IEEE Transactions on Evolutionary Computation (TEVC), 2025.
4. "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.
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. "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.
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. "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.
4. "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.
5. "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.
6. "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.
7. "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.
8. "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.
9. "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.
10. "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.
11. "Data-Driven Evolutionary Algorithm for Oil Reservoir Well-Placement and Control Optimization"
    G. Chen, X. Luo, J. J. Jiao*, Xiaoming Xue
    Fuel, 2022.
12. "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.
13. "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 (*: corresponding author)

1. "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.
2. "A Review on Evolutionary Multiform Transfer Optimization"
   Y. Feng, L. Feng, Xiaoming Xue, S. Kong, K. C. Tan*
   IEEE Congress on Evolutionary Computation (CEC), 2024.

Honors and Awards

1. IEEE CEC Best Paper Award, Awarded by IEEE CIS — 2025
2. Top 0.5% Scholar in Mathematical Optimization (Prior 5 Years), ScholarGPS — 2024
3. Outstanding Academic Performance Award for Research Degree Students, Awarded by CityU (25%) — 2024
4. Research Tuition Scholarship, Awarded by CityU (20%) — 2021, 2022
5. Outstanding Master's Thesis in Shandong Province (5%) — 2021
6. Interdisciplinary Contest in Modeling (ICM), Meritorious Winner (18%) — 2016
7. 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)
- IEEE Computational Intelligence Magazine (CIM)
- IEEE Transactions on Cognitive and Developmental Systems (TCDS)
- IEEE Transactions on Emerging Topics in Computational Intelligence (TETCI)
- IEEE Transactions on Artificial Intelligence (TAI)
- Nature Communications (NC)
- Artificial Intelligence Review (AIR)
- npj Artificial Intelligence (npj AI)
- Engineering Applications of Artificial Intelligence (EAAI)
- Applied Soft Computing (ASOC)
- Journal of Petroleum Science and Engineering (JPSE)
- Cognitive Computation (COGN)

Conference Reviewer

- IEEE Congress on Evolutionary Computation (CEC)
- International Joint Conference on Neural Networks (IJCNN)
- Annual AAAI Conference on Artificial Intelligence (AAAI)

Membership

- IEEE Computational Intelligence Society (CIS), Member
- China Computer Federation (CCF), Member