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Academic Qualification:

Ph. D. in Computer & Systems Eng., Rensselaer Polytechnic Institute, Troy, NY, 1990

M. S. in Automatic Control, Beijing Institute of Technology, Beijing, China, 1986

B. S. in Control Engineering, Nanjing Univ. of Sci. & Tech., Nanjing, China, 1983

Teaching Area

Intelligent Optimization

Discrete even dynamic systems

Sustainable Manufacturing Systems

Research Area

Intelligent automation

Petri nets

Robotics

Internet of Things

Big data analytics

Cloud/edge computing

Semiconductor manufacturing

Artificial intelligence

Intelligent transportation

Working Experience

September 2016 – present: Macau University of Science and Technology, Professor at the Department of Engineering Science and Macao Institute of Systems Engineering

July 1990 – present: New Jersey Institute of Technology, ECE (Assistant Professor, Associate Professor, Professor and Distinguished Professor).

Academic Publication (selected)

Recent Books

[1] E.-S. M. El-Alfy, G. Bebis and M. Zhou, *Intelligent Image and Video Analytics*, CRC Press, New York, USA, 2023

[2] L. Li and M. Zhou, *Sustainable Manufacturing Systems: An Energy Perspective*, IEEE Press/Wiley, Hoboken, NJ, 2022.

[3] B. Huang and M. Zhou, *Supervisory Control and Scheduling of Resource Allocation Systems: Reachability Graph Perspective*, IEEE Press/Wiley, Hoboken, NJ, 2020.

Recent Journal Papers2023

[1] P. Zhang, C. Li, M. Zhou, W. Huang, A. Abusorrah and O. Bamasak, "Transaction transmission model for blockchain channels based on non-cooperative games," *Sci. China Inf. Sci.*, Vol. 66, 112105, 2023. <https://doi.org/10.1007/s11432-021-3362-9>.

[2] K. Wang, J. An, M. Zhou, Z. Shi, X. Shi and Q. Kang, "Minority-Weighted Graph Neural Network for Imbalanced Node Classification in Social Networks of Internet of People," *IEEE Internet of Things Journal*, vol. 10, no. 1, pp. 330-340, 1 Jan.1, 2023.

2022

[3] J. J. Cheng, M. Ju, M. Zhou, C. Liu, S. Gao, A. Abusorrah, and C. Jiang, "A Dynamic Evolution Method for Autonomous Vehicle Groups in a Highway Scene," *IEEE Internet of Things Journal*, vol. 9, no. 2, pp. 1445-1457, Jan. 2022.

[4] B. Huang, M. Zhou, A. Abusorrah and K. Sedraoui, "Scheduling Robotic Cellular Manufacturing Systems with Timed Petri Net, A* Search, and Admissible Heuristic Function," *IEEE Trans. on Automation Science and Engineering*, 19(1),pp. 243-250, Jan. 2022.

[5] Z. Zhao, M. Zhou and S. Liu, "Iterated Greedy Algorithms for Flow-Shop Scheduling Problems: A Tutorial," *IEEE Trans. on Automation Science and Engineering*, 19(1), pp. 251-261, Jan. 2022.

[6] Z. Huang, S. Yang, M. Zhou, Z. Li, Z. Gong and Y. Chen, "Feature Map Distillation of Thin Nets for Low-Resolution Object Recognition," *IEEE Transactions on Image Processing*, vol. 31, pp. 1364-1379, 2022.

[7] B. Hu, Z. Cao and M. Zhou, "Scheduling Real-Time Parallel Applications in Cloud to Minimize Energy Consumption," *IEEE Trans. on Cloud Computing*, vol. 10, no. 1, pp. 662-674, 1 Jan.-March 2022.

[8] X. Wang, H. Hu and M. Zhou, "Discrete Event Approach to Robust Control in Automated Manufacturing Systems," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 52, no. 1, pp. 123-135, Jan. 2022.

[9] X. Shi, Q. Kang, J. An and M. Zhou, "Novel L1 Regularized Extreme Learning Machine for Soft- Sensing of an Industrial Process," *IEEE Trans. on Industrial Informatics*, vol. 18, no. 2, pp. 1009-1017, Feb. 2022.

[10] S. Han, K. Zhu and M. Zhou, "Competition-Driven Dandelion Algorithms with Historical Information Feedback," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 52, no. 2, pp. 966-979, Feb. 2022.

[11] P. Y. Zhang, Y. Chen, M. Zhou, G. Xu; W. Huang, Y. Al-Turki and A. Abusorrah, "A Fault-tolerant Model for Performance Optimization of a Fog Computing System," *IEEE Internet of Things Journal*, vol. 9, no. 3, pp. 1725-1736, Feb. 2022.

[12] Y. Fu, M. Zhou, X. Guo, L. Qi and K. Sedraoui, "Multiverse Optimization Algorithm for Stochastic Biobjective Disassembly Sequence Planning Subject to Operation Failures," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 52, no. 2, pp. 1041-1051, Feb. 2022.

- [13] Z. Tan, J. Chen, Q. Kang, M. Zhou, A. Abusorrah and K. Sedraoui, "Dynamic Embedding Projection- Gated Convolutional Neural Networks for Text Classification," *IEEE Transactions on Neural Networks and Learning Systems*, vol. 33, no. 3, pp. 973-982, March 2022.
- [14] X. Luo, Z. Liu, L. Jin, Y. Zhou and M. Zhou, "Symmetric Nonnegative Matrix Factorization-Based Community Detection Models and Their Convergence Analysis," *IEEE Trans. on Neural Networks and Learning Systems*, vol. 33, no. 3, pp. 1203-1215, March 2022.
- [15] H. -C. Liu, X. Luan, M. Zhou and Y. Xiong, "A New Linguistic Petri Net for Complex Knowledge Representation and Reasoning," *IEEE Trans. on Knowledge and Data Engineering*, vol. 34, no. 3, pp. 1011-1020, 1 March 2022.
- [16] H. Li, G. Hu, J. Li and M. Zhou, "Intelligent Fault Diagnosis for Large-Scale Rotating Machines Using Binarized Deep Neural Networks and Random Forests," *IEEE Trans. on Automation Science and Engineering*, vol. 19, no. 2, pp. 1109-1119, April 2022.
- [17] Q. Wu, M. Zhou and J. Wen, "Endpoint Communication Contention-Aware Cloud Workflow Scheduling," *IEEE Trans. on Automation Science and Engineering*, vol. 19, no. 2, pp. 1137-1150, April 2022.
- [18] H. Yuan, J. Bi and M. Zhou, "Energy-Efficient and QoS-Optimized Adaptive Task Scheduling and Management in Clouds," *IEEE Trans. on Automation Science and Engineering*, vol. 19, no. 2, pp. 1233-1244, April 2022.
- [19] L. Hu, S. Yang, X. Luo, and M. Zhou "An Algorithm of Inductively Identifying Clusters from Attributed Graphs," *IEEE Trans. on Big Data*, vol. 8, no. 2, pp. 523-534, 1 April 2022.
- [20] B. Hu, S. Xu, Z. Cao and M. Zhou, "Safety-Guaranteed and Development Cost-Minimized Scheduling of DAG Functionality in an Automotive System," *IEEE Trans. on Intelligent Transportation Systems*, vol. 23, no. 4, pp. 3074- 3086, April 2022.
- [21] W. Duo, M. Zhou, and A. Abusorrah, "A Survey of Cyber Attacks on Cyber Physical Systems: Recent Advances and Challenges," *IEEE/CAA Journal of Automatica Sinica*, vol. 9, no. 5, pp. 784-800, May 2022.
- [22] H. Wu, X. Luo and M. Zhou, "Advancing Non-Negative Latent Factorization of Tensors With Diversified Regularization Schemes," *IEEE Transactions on Services Computing*, vol. 15, no. 3, pp. 1334-1344, May-June 2022.
- [23] P. Huang, Z. Li, M. Zhou, X. Li and M. Cheng, "Fuzzy Enhanced Adaptive Admittance Control of a Wearable Walking Exoskeleton with Step Trajectory Shaping," *IEEE Trans. on Fuzzy Systems*, vol. 30, no. 6, pp. 1541-1552, June 2022.
- [24] M. Ghahramani, A. O'Hagan, M. Zhou and J. Sweeney, "Intelligent Geodemographic Clustering Based on Neural Network and Particle Swarm Optimization," *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 52, no.6, pp. 3746-3756, June 2022.
- [25] X. Mou, L. -X. Mao, H. -C. Liu and M. Zhou, "Spherical Linguistic Petri Nets for Knowledge Representation and Reasoning Under Large Group Environment," *IEEE Trans. on Artificial Intelligence*, vol. 3, no. 3, pp. 402-413, June 2022.

- [26] Z. Lei, S. Gao, Z. Zhang, M. Zhou and J. Cheng, "MO4: A Many-objective Evolutionary Algorithm for Protein Structure Prediction," *IEEE Trans. on Evolutionary Computation*, vol. 26, no. 3, pp. 417-430, June 2022.
- [27] X. Zhu, M. Zhou and A. Abusorrah, "Optimizing Node Deployment in Rechargeable Camera Sensor Networks for Full-View Coverage," *IEEE Internet of Things Journal*, vol. 9, no. 13, pp. 11396-11407, 1 July 2022.
- [28] E. Q. Wu, M. Zhou, D. Hu, L. Zhu, Z. Tang, X.-Y. Qiu, P.-Y. Deng, and L.-M. Zhu, "Self-Paced Dynamic Infinite Mixture Model for Fatigue Evaluation of Pilots' Brains," *IEEE Trans. on Cybernetics*, vol. 52, no. 7, pp. 5623-5638, July 2022.
- [29] J. Bi, H. Yuan, J. Zhai, M. Zhou, and H. V. Poor, "Self-adaptive Bat Algorithm with Genetic Operations", *IEEE/CAA Journal of Automatica Sinica*, vol. 9, no. 7, pp. 1284–1294, Jul. 2022.
- [30] M. Ghahramani, M. Zhou, A. Molter and F. Pilla, "IoT-Based Route Recommendation for an Intelligent Waste Management System," *IEEE Internet of Things Journal*, vol. 9, no. 14, pp. 11883-11892, 15 July 2022.
- [31] M. Ghahramani, M. Zhou, Y. Qiao and N. Wu, "Spatiotemporal Analysis of Mobile Phone Network Based on Self- Organizing Feature Map," *IEEE Internet of Things Journal*, vol. 9, no. 13, pp. 10948-10960, 1 July 2022, doi: 10.1109/JIOT.2021.3127203.
- [32] H. Yuan, J. Bi and M. Zhou, "Geography-Aware Task Scheduling for Profit Maximization in Distributed Green Data Centers," in *IEEE Transactions on Cloud Computing*, vol. 10, no. 3, pp. 1864-1874, 1 July-Sept. 2022.
- [33] M. Shang, Y. Yuan, X. Luo and M. Zhou, "An α - β -Divergence-Generalized Recommender for Highly Accurate Predictions of Missing User Preferences," *IEEE Trans. on Cybernetics*, vol. 52, no. 8, pp. 8006-8018, Aug. 2022.
- [34] M. Zhao, G. Xiong, M. Zhou, Z. Shen, S. Liu, Y. Han and F.-Y. Wang, "PCUNet: A Context-Aware Deep Network for Coarse-to-Fine Point Cloud Completion," *IEEE Sensors Journal*, vol. 22, no. 15, pp. 15098-15110, 1 Aug. 2022.
- [35] Y. Yu, S. Gao, M. Zhou, Y. Wang, Z. Lei, T. Zhang, and J. Wang, "Scale-free network-based differential evolution to solve function optimization and parameter estimation of photovoltaic models," *Swarm and Evolutionary Computation*, Vol. 74, 101142, doi.10.1016/j.swevo.2022.101142, 2022.
- [36] S. Yao, Q. Kang, M. Zhou M. J. Rawa, and A. Abusorrah, "A survey of transfer learning for machinery diagnostics and prognostics," *Artificial Intelligence Review*, <https://doi.org/10.1007/s10462-022-10230-4>, Aug. 2022.
- [37] C. Wang, W. Pedrycz, Z. Li, and M. Zhou, "Kullback-Leibler divergence based Fuzzy C-Means clustering incorporating morphological reconstruction and wavelet frames for image segmentation," *IEEE Transactions on Cybernetics*, vol. 52, no. 8, pp. 7612-7623, Aug. 2022.
- [38] M. Cui, L. Li, M. Zhou and A. Abusorrah, "Surrogate-assisted Autoencoder-embedded Evolutionary Optimization Algorithm to Solve High-dimensional Expensive Problems," *IEEE Trans. on Evolutionary Computation*, vol. 26, no. 4, pp. 676-689, Aug. 2022.

- [39] J. Luo, M. Zhou and J. -Q. Wang, "A Place-Timed Petri Net-Based Method to Avoid Deadlock and Conflict in Railway Networks," *IEEE Trans. on Intelligent Transportation Systems*, vol. 23, no. 8, pp. 10763-10772, Aug. 2022.
- [40] H. Li, D. Wang, M. Zhou, Y. Fan and Y. Xia, "Multi-Swarm Co-Evolution Based Hybrid Intelligent Optimization for Bi-Objective Multi-Workflow Scheduling in the Cloud," *IEEE Transactions on Parallel and Distributed Systems*, vol. 33, no. 9, pp. 2183-2197, 1 Sept. 2022.
- [41] X. Xu, J. Li, M. Zhou and X. Yu, "Precedence-Constrained Colored Traveling Salesman Problem: An Augmented Variable Neighborhood Search Approach," *IEEE Trans. on Cybernetics*, vol. 52, no. 9, pp. 9797- 9808, Sept. 2022.
- [42] B. Huang and M. Zhou, "Symbolic Scheduling of Robotic Cellular Manufacturing Systems With Timed Petri Nets," *IEEE Trans. on Control Systems Technology*, vol. 30, no. 5, pp. 1876-1887, Sept. 2022.
- [43] X. Luo, X. Wen, M. Zhou, A. Abusorrah, and L. Huang, "Decision-Tree-Initialized Dendritic Neuron Model for Fast and Accurate Data Classification," *IEEE Trans. on Neural Networks and Learning Systems*, vol. 33, no. 9, pp. 4173- 4183, Sept. 2022.
- [44] Y. Zhou, W. Xu, Z. -H. Fu and M. Zhou, "Multi-Neighborhood Simulated Annealing-Based Iterated Local Search for Colored Traveling Salesman Problems," *IEEE Trans. on Intelligent Transportation Systems*, vol. 23, no. 9, pp. 16072- 16082, Sept. 2022.
- [45] J. Zhang, Y. Lu, L. Che and M. Zhou, "Moving-Distance-Minimized PSO for Mobile Robot Swarm," *IEEE Transactionson Cybernetics*, vol. 52, no. 9, pp. 9871-9881, Sept. 2022.
- [46] C. Lin, Z. Cao and M. Zhou, "Learning-Based Grey Wolf Optimizer for Stochastic Flexible Job Shop Scheduling," *IEEETransactions on Automation Science and Engineering*, vol. 19, no. 4, pp. 3659-3671, Oct. 2022.
- [47] F. M. Shakiba, S. M. Azizi and M. Zhou, "A Transfer Learning-Based Method to Detect Insulator Faults of High- Voltage Transmission Lines via Aerial Images: Distinguishing Intact and Broken Insulator Images," in *IEEE Systems, Man, andCybernetics Magazine*, vol. 8, no. 4, pp. 15-25, Oct. 2022.
- [48] D. Yao, L. Yang, X. Xiao and M. Zhou, "Velocity-Based Gait Planning for Underactuated Bipedal Robot on Uneven and Compliant Terrain," *IEEE Transactions on Industrial Electronics*, vol. 69, no. 11, pp. 11414-11424, Nov. 2022.
- [49] M. Cui, L. Li, M. Zhou, J. Li, and A. Abusorrah, "A Bi-population Cooperative Optimization Algorithm Assisted by an Autoencoder for Medium-scale Expensive Problems," *IEEE/CAA Journal of Automatica Sinica*, vol. 9, no. 11, pp. 1952–1966, Nov. 2022.
- [50] D. Wu, Y. He, X. Luo and M. Zhou, "A Latent Factor Analysis-Based Approach to Online Sparse Streaming FeatureSelection," *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 52, no. 11, pp. 6744- 6758, Nov. 2022.

2021

- [51] P. Zhang, S. Shu and M. Zhou, "Adaptive and Dynamic Adjustment of Fault Detection Cycles in Cloud Computing," *IEEE Trans. on Industrial Informatics*, vol. 17, no. 1, pp. 20-30, Jan. 2021.

- [52] H. Han, M. Zhou, Y. Zhang, and W. Cao, "KISS+ for Rapid and Accurate Pedestrian Re-identification," *IEEE Trans. on Intelligent Transportation Systems*, 22(1), pp. 394-403, Jan. 2021.
- [53] G. Fortino, C. Savaglio, G. Spezzano, and M. Zhou, "Internet of Things as System of Systems: A Review of Methodologies, Frameworks, Platforms and Tools," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 1, pp. 223-236, Jan. 2021.
- [54] Y. Wang, S. Gao, M. Zhou and Y. Yu, "A multi-layered gravitational search algorithm for function optimization and real-world problems," *IEEE/CAA Journal of Automatica Sinica*, vol. 8, no. 1, pp. 94-109, January 2021.
- [55] Z. Cao, C. Lin, and M. Zhou, "A knowledge-based cuckoo search algorithm to schedule a flexible job shop with sequencing flexibility," *IEEE Trans. on Automation Science and Engineering*, vol. 18, no. 1 pp. 56-69, Jan. 2021.
- [56] X. Luo, Z. Liu, M. Shang and M. Zhou, "Highly-Accurate Community Detection via Pointwise Mutual Information- Incorporated Symmetric Non-negative Matrix Factorization," *IEEE Trans. on Network Science and Engineering*, vol. 8, no. 1, pp. 463-476, 1 Jan.-March 2021.
- [57] X. Luo, D. Wang, M. Zhou and H. Yuan, "Latent Factor-Based Recommenders Relying on Extended Stochastic Gradient Descent Algorithms," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 2, pp. 916- 926, Feb. 2021.
- [58] H. Han, W. Ma, M. Zhou, Q. Guo and A. Abusorrah, "A Novel Semi-Supervised Learning Approach to Pedestrian Reidentification," *IEEE Internet of Things Journal*, vol. 8, no. 4, pp. 3042-3052, Feb. 2021.
- [59] B. Huang, M. Zhou, C. Wang, A. Abusorrah and Y. Al-Turki, "Deadlock-free supervisor design for robotic manufacturing cells with uncontrollable and unobservable events," *IEEE/CAA Journal of Automatica Sinica*, 8(3), pp. 597-605, March 2021.
- [60] G. Tian, N. Hao, M. Zhou, W. Pedrycz, C. Zhang, F. Ma, and Z. Li, "Fuzzy Grey Choquet Integral for Evaluation of Multicriteria Decision Making Problems with Interactive and Qualitative Indices," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, 51(3), pp. 1855-1868, March 2021.
- [61] Y. Qiao, S. Zhang, N. Wu, M. Zhou, Z. Li and T. Qu, "Efficient Approach to Failure Response of Process Module in Dual-Arm Cluster Tools With Wafer Residency Time Constraints," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 3, pp. 1612-1629, March 2021.
- [62] P. Zhang, M. Zhou and Y. Kong, "A Double-Blind Anonymous Evaluation-Based Trust Model in Cloud Computing Environments," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 3, pp. 1805- 1816, March 2021.
- [63] X. Luo, M. Zhou, Shuai Li, and M. S. Shang, "Algorithms of Unconstrained Non-negative Latent Factor Analysis for Recommender Systems," *IEEE Trans. on Big Data*, vol. 7, no. 1, pp. 227-240, March 2021.

- [64] J. Bi, H. Yuan, S. Duanmu, M. C. Zhou and A. Abusorrah, "Energy-optimized Partial Computation Offloading in Mobile- Edge Computing with Genetic Simulated-annealing-based Particle Swarm Optimization," *IEEE Internet of Things Journal*, vol. 8, no. 5, pp. 3774-3785, March 2021.
- [65] X. Xu, J. Li and M. Zhou, "Delaunay-Triangulation-Based Variable Neighborhood Search to Solve Large-Scale General Colored Traveling Salesman Problems," *IEEE Trans. on Intelligent Transportation Systems*, vol. 22, no. 3, pp. 1583- 1593, March 2021.
- [66] N. Yang, M. Zhou, B. Xia, X. Guo and L. Qi, "Inversion Based on a Detached Dual-Channel Domain Method for StyleGAN2 Embedding," *IEEE Signal Processing Letters*, vol. 28, pp. 553-557, March 2021, doi: 10.1109/LSP.2021.3059371.
- [67] B. Hu, Z. Cao and M. Zhou, "An Efficient RRT-based Framework for Planning Short and Smooth Wheeled Robot Motion under Kinodynamic Constraints," *IEEE Trans. on Industrial Electronics*, 68(4), pp. 3292-3302, April 2021.
- [68] C. Wang, W. Pedrycz, Z. Li, and M. Zhou, "Residual-driven Fuzzy C-Means Clustering for Image Segmentation," *IEEE/CAA Journal of Automatica Sinica*, vol. 8, no. 4, pp. 876-889, April 2021.
- [69] H. Yuan, J. Bi, M. Zhou, Q. Liu, and A. C. Ammari, "Biobjective Task Scheduling for Distributed Green DataCenters," *IEEE Trans. on Automation Science and Engineering*, 18(2), pp. 731-742, April 2021.
- [70] H. Yuan, H. Liu, J. Bi, and M. Zhou, "Revenue and Energy Cost-optimized Biobjective Task Scheduling for Green Cloud Data Centers," *IEEE Trans. on Automation Science and Engineering*, 18(2), pp. 817-830, April 2021.
- [71] X. Guo, M. Zhou, S. Liu., and L. Qi, "Multiresource-constrained selective disassembly with maximal profit and minimalenergy consumption," *IEEE Trans. on Auto. Sci. and Eng.*, 18(2), pp. 804-816, April 2021.
- [72] Z. Zhang, L. Teng, M. Zhou, J. Wang and H. Wang, "Enhanced Branch-and-Bound Framework for a Class of SequencingProblems," in *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 5, pp. 2726-2736, May 2021.
- [73] J. J. Cheng, C. R. Cao, M. C. Zhou, C. Liu, S. C. Gao and C. J. Jiang, "A Dynamic Evolution Mechanism for IoVCommunity in an Urban Scene," in *IEEE Internet of Things Journal*, vol. 8, no. 9, pp. 7521-7530, May 2021.
- [74] M. Zhou, Z. Cao, M. C. Zhou and J. Wang, "Finite-Frequency H-/H ∞ Fault Detection for Discrete-Time T-S Fuzzy Systems with Unmeasurable Premise Variables," *IEEE Trans. on Cybernetics*, vol. 51, no. 6, pp. 3017-3026, June 2021.
- [75] X. Guo, M. Zhou, A. Abusorrah, F. Alsokhiry and K. Sedraoui, "Disassembly Sequence Planning: A Survey," *IEEE/CAAJournal of Automatica Sinica*, vol. 8, no. 7, pp. 1308-1324, July 2021.
- [76] Z. Zhao, S. Liu, M. Zhou, and A. Abusorrah, "Dual-Objective Mixed Integer Linear Program and Memetic Algorithm for an Industrial Group Scheduling Problem," *IEEE/CAA Journal of Automatica Sinica*, vol. 8, no. 6, pp. 1199-1209, June 2021.
- [77] G. Wei, Q. Wu and M. Zhou, "A Hybrid Probabilistic Multiobjective Evolutionary Algorithm for Commercial Recommendation Systems," *IEEE Trans. on Computational Social Systems*, vol. 8, no. 3, pp. 589-598, June 2021.

- [78] G. Wang, Q.-S. Jia, M. Zhou, J. Bi, J. Qiao, and A. Abusorrah, "Artificial neural networks for water quality soft- sensing in wastewater treatment: a review," *Artificial Intelligence Review*, DOI: 10.1007/s10462-021- 10038-8, June 2021.
- [79] X. Wang, Q. Kang, M. Zhou, L. Pan and A. Abusorrah, "Multiscale Drift Detection Test to Enable Fast Learning in Nonstationary Environments," *IEEE Trans. on Cybernetics*, vol. 51, no. 7, pp. 3483-3495, July 2021.
- [80] Q. Peng, Y. Xia, M. Zhou, Xin Luo, S. Wang, Y. Wang, C. Wu, S. Pang, and M. Lin, "Reliability-aware and Deadline- constrained Mobile Service Composition over Opportunistic Networks," *IEEE Trans. on Auto Sci. and Eng.*, vol. 18, no.3, pp. 1012-1025, July 2021.
- [81] H. Yuan and M. Zhou, "Profit-Maximized Collaborative Computation Offloading and Resource Allocation in Distributed Cloud and Edge Computing Systems," *IEEE Trans. on Automation Science and Engineering*, vol. 18, no. 3, pp. 1277- 1287, July 2021.
- [82] X. Wang, M. Zhou, Q. Zhao, S. Liu, X. Guo, and L. Qi, "A Branch and Price Algorithm for Crane Assignment and Scheduling in Slab Yard," *IEEE Trans. on Automation Science and Engineering*, vol. 18, no. 3, pp. 1122- 1133, July 2021.
- [83] X. S. Lu, M. Zhou and K. Wu, "A Novel Fuzzy Logic-Based Text Classification Method for Tracking Rare Events on Twitter," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, 51(7): 4324-4333, July 2021.
- [84] N. Yang, Z. Zheng, M. Zhou, X. Guo, L. Qi and T. Wang, "A Domain-Guided Noise-Optimization-Based Inversion Method for Facial Image Manipulation," *IEEE Trans. on Image Processing*, vol. 30, pp. 6198-6211, 2021.
- [85] P. Zhang, M. Zhou, Q. Zhao, A. Abusorrah and O. Bamasak, "A Performance-Optimized Consensus Mechanism for Consortium Blockchains Consisting of Trust-varying Nodes," *IEEE Trans. on Network Science and Engineering*, vol. 8,no. 3, pp. 2147-2159, 1 July-Sept. 2021.
- [86] X. Luo, Z. Yuan, M. Zhou, Z. Liu, and M. Shang, "Non-Negative Latent Factor Model Based on β -Divergence for Recommender Systems," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 8, pp. 4612- 4623, Aug.2021.
- [87] S. Han, K. Zhu, M. Zhou and X. Cai, "Information-Utilization-Method-Assisted Multimodal Multiobjective Optimization and Application to Credit Card Fraud Detection," *IEEE Trans. on Computational Social Systems*, vol. 8, no. 4, pp. 856-869, Aug. 2021.
- [88] L. Zhang, H. Han, M. C. Zhou, Y. Al-Turki and A. Abusorrah, "An Improved Discriminative Model Prediction Approach to Real-time Tracking of Objects with Camera as Sensors," *IEEE Sensors Journal*, vol. 21, no. 15, pp. 17308-17317, 1 Aug. 2021.
- [89] Q. Kang, S. Yao, M. Zhou, K. Zhang and A. Abusorrah, "Effective Visual Domain Adaptation via Generative Adversarial Distribution Matching," *IEEE Trans. on Neural Networks and Learning Systems*, vol. 32, no. 9, pp. 3919-3929, Sept. 2021.
- [90] Z. H. Huang, S. Yang, M. Zhou, Z. Gong, A. Abusorrah, C. Lin, and Z. Huang, "Making Accurate Object Detection at the Edge: Review and New Approach," *Artificial Intelligence Review*, <https://doi.org/10.1007/s10462-021-10059-3>, Sept. 2021.
- [91] Z. Tan, C. Wang, C. Yan, M. Zhou and C. Jiang, "Protecting Privacy of Location-Based Services in Road Networks," *IEEE Trans. on Intelligent Transportation Systems*, vol. 22, no. 10, pp. 6435-6448, Oct. 2021.

- [92] Z. Cao, D. Zhang and M. Zhou, "Modeling and Control of Hybrid 3-D Gaits of Snake-Like Robots," *IEEE Trans. on Neural Networks and Learning Systems*, vol. 32, no. 10, pp. 4603-4612, Oct. 2021.
- [93] J. Luo, M. Zhou and J. -Q. Wang, "AB&B: An Anytime Branch and Bound Algorithm for Scheduling of Deadlock- Prone Flexible Manufacturing Systems," *IEEE Trans. on Automation Science and Engineering*, vol. 18, no. 4, pp. 2011-2021, Oct. 2021.
- [94] X. Zhu and M. Zhou, "Multiobjective Optimized Cloudlet Deployment and Task Offloading for Mobile-Edge Computing," *IEEE Internet of Things Journal*, vol. 8, no. 20, pp. 15582-15595, 15 Oct.15, 2021.
- [95] H. Yuan, J. Bi and M. Zhou, "Temporal Task Scheduling of Multiple Delay-Constrained Applications in Green Hybrid Cloud," *IEEE Transactions on Services Computing*, vol. 14, no. 5, pp. 1558-1570, 1 Sept.-Oct. 2021.
- [96] F. M. Shakiba and M. Zhou, "Novel Analog Implementation of a Hyperbolic Tangent Neuron in Artificial Neural Networks," *IEEE Trans. on Industrial Electronics*, vol. 68, no. 11, pp. 10856-10867, Nov. 2021.
- [97] Y. Qiao, M. Zhou, N. Wu, Z. Li and Q. Zhu, "Closing-Down Optimization for Single-Arm Cluster Tools Subject to Wafer Residency Time Constraints," *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 11, pp.6792-6807, Nov. 2021.
- [98] Y. Feng, M. Zhou, F. Tian, C. -B. Yan and K. Xing, "Deadlock Prevention Controller for Automated Manufacturing Systems Modeled by S⁴PR," *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 12, pp. 7403-7412, Dec. 2021.
- [99] S. Yang, Y. Wen, L. He, M. Zhou and A. Abusorrah, "Sparse Individual Low-Rank Component Representation for Face Recognition in the IoT-Based System," *IEEE Internet of Things Journal*, vol. 8, no. 24, pp. 17320-17332, 15 Dec. 2021.
- [100] C. Wang, W. Pedrycz, Z. Li, M. Zhou and S. S. Ge, "G-image Segmentation: Similarity-preserving Fuzzy C- Means with Spatial Information Constraint in Wavelet Space," *IEEE Trans. on Fuzzy Systems*, vol. 29, no. 12, pp. 3887-3898, Dec. 2021.

Research Grants

Learning-based Intelligent Optimization Methods for Smart Warehousing in Logistics Industry, FDCT Modeling and Analysis of the Life Cycle of Disasters and Contingent Events via Big Data, FDCT Internet- oriented On-line Data Privacy Protection, PRC Ministry of Science and Technology

Professional Certification and Awards

2022 Best Semiconductor Manufacturing Automation Paper in Application, Y. Qiao, M. Zhou, N. Wu, Z. Li and Q. Zhu, "Closing-Down Optimization for Single-Arm Cluster Tools Subject to Wafer Residency Time Constraints," *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 11, pp. 6792-6807, Nov. 2021, Technical Committee on Semiconductor Manufacturing Automation, IEEE Robotics & Automation

2022 Top #89 in the world ranking and #58 in United States ranking among Top 1000 Scientists in Computer Science in theworld, Research.com in its 2022 Edition

2021 Fellow, National Academy of Inventors (NAI)

2021 Co-Advisor, Best Student Paper Award, Zengmei Zhuo, Xin Luo, and MengChu Zhou, "An Auxiliary Learning Task- Enhanced Graph Convolutional Network Model for Highly-accurate Node Classification on Weakly Supervised Graphs," *2021 IEEE International Conference on Smart Data Services*, September 5-11, 2021.

2020 Meritorious Service Award for meritorious and significant service to SMC as VP Conferences & Meetings and SMCSecretary, IEEE Systems, Man, and Cybernetics Society

2020 Best Application Paper Award, H. Yuan, J. Bi and M. Zhou, "Energy Cost and Performance-Sensitive Bi-objective Scheduling of Tasks in Clouds," *2020 IEEE 17th International Conference on Networking, Sensing and Control (ICNSC)*, Nanjing, China

2020 Best Paper Award, Y. Wang, K. Plataniotis, J. Wang, M. Hou, M. Zhou, N. Howard, J. Peng, R. Huang, S. Patel, and D. Zhang, "The Cognitive and Mathematical Foundations of Analytic Epidemiology," in *Proc. of the 19th IEEE International Conference on Cognitive Informatics and Cognitive Computing (ICCI*CC'20)*, Beijing, China, Sept. 26-28, 2020.

2020 Edison Patent Award (for the patent titled *Vacuum Distillation and Desalination*, **U.S Patent 10661194**), the Research & Development Council of New Jersey

2019 Excellence in Research Prize and Medal, New Jersey Institute of Technology
2019 Highly cited scholar in engineering by Web of Science/Clarivate Analytics
2018 Highly cited scholar in engineering by Web of Science/Clarivate Analytics

2018 Outstanding Researcher Award, Newark College of Engineering, New Jersey Institute of Technology

2018 M. Ghahramani, M. Zhou (Advisor) and C. T. Hon, "Spatio-temporal analysis of mobile phone data for interaction recognition," in *Proc. of 2018 IEEE 15th International Conference on Networking, Sensing and Control (ICNSC)*, Zhuhai, China, March 27-29, 2018 (Best Student Paper Award).

Journal Editorship

1. Editor-in-Chief, IEEE/CAA Journal of Automatica Sinica, 2018-2022
2. Associate Editor, IEEE Internet of Things Journal, 2018-present
3. Associate Editor, Research, 2021-present
4. Editorial Advisory Board Member, Journal of Industrial Information Integration, 2020-present
5. Associate Editor, IEEE/CAA Journal of Automatica Sinica, 2014-2016
6. Deputy Editor-in-Chief, IEEE/CAA Journal of Automatica Sinica, 2017-2018
7. Editorial Board Member, Frontiers of Information Technology & Electronic Engineering, 2015-
8. Founding Editor, IEEE Press Book Series on Systems Science and Engineering, 2011-present
9. Editor, IEEE Trans. on Automation Science and Engineering, 2008-2013
10. Associate Editor, IEEE Trans. on Intelligent Transportation Systems, 2012-present
11. Associate Editor, IEEE Trans. on Automation Sciences and Engineering, 2004-2007
12. Associate Editor, IEEE Trans. on Industrial Informatics, 2006-2015

13. Associate Editor, IEEE Trans. on Systems, Man, and Cybernetics: Systems, 2013-2016, 2019-present
14. Associate Editor, IEEE Trans. on Systems, Man, and Cybernetics, Part A: Systems and Humans, 2003-2013
15. Associate Editor, IEEE Trans. on Systems, Man, and Cybernetics, Part B: Cybernetics, 2002-2005
16. Managing Editor, IEEE Trans. on Systems, Man, and Cybernetics, Part C: Review and Applications, 2005-2008,
17. Editor, International Journal of Intelligent Control and Systems, 1996-2004
18. Editor-in-Chief, International Journal of Intelligent Control and Systems, 2005-2011
19. AE, IEEE Trans. on Robotics and Automation, 1997-2000
20. Member of the Editorial Review Board, International Journal of Cognitive Informatics and Natural Intelligence, 2005-present
21. Member of the Editorial Board, Enterprise Information Systems, 2008-present
22. Member of the Editorial Advisory Board of the Advances in Cognitive Informatics and Natural Intelligence (ACINI)Book Series, IGI, www.idea-group.com, 2007-present
23. Editorial Board Member, Journal of Engineering and Applied Science, 2007-present.
24. Editorial Board Member, Journal of Zhejiang University-Science C (Computers and Electronics),(<http://www.zju.edu.cn/jzus/>), 2009-2014