

Professor (Research) Mengchu Zhou

Fellow of IEEE, IFAC, AAAS, CAA and NAI

Department of Engineering Science, Faculty of Innovation Engineering

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PhD. Supervisor

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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).

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

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,

- 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 "Algorithm of Inductively Identifying Clusters from Attributed *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] Advances and *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, "Enhanced Adaptive Admittance Control of a Wearable Walking Exoskeleton with Step Trajectory *IEEE Trans. on Fuzzy Systems*, vol. 30, no. 6, pp. 1541-1552, June 2022.
- [24] 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 July1, 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, July2022.
- [29] J. Bi, H. Yuan, J. Zhai " *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 July15, 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 July1, 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] " -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] " -free network-based differential evolution Swarm and *Evolutionary Computation*, Vol. 74, 101142, doi.10.1016/j.swevo.2022.101142, 2022.
- [36] " for machinery diagnostics and *Artificial Intelligence Review*, <https://doi.org/10.1007/s10462-022-10230-4>, Aug. 2022.
- [37] C. Wang, W. Pedrycz, Z. Li, and M. Zhou, "Leibler divergence based Fuzzy C-Means clustering incorporating *IEEE Transactions on Cybernetics*, vol. 52,no. 8, pp. 7612-7623, Aug. 2022.
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- [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, 0.000008882 0 596.04 842.52 reW* nBT/F2 9.

- 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] Fast -Tree-Initialized Dendritic Neuron Model for *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.
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- 2021**
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- [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.
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- [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.
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Detection at the Edge: Review and New *Artificial Intelligence Review*, <https://doi.org/10.1007/s10462-021-10059-3>, Sept. 2021.
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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 Society.
- 2022 Top #89 in the world ranking and #58 in United States ranking among Top 1000 Scientists in Computer Science in the world, [Research.com](https://www.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, Learning Task-Enhanced Graph Convolutional Network Model for Highly-accurate Node Classification on Weakly Supervised *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 SMCS Secretary, 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, *Cognitive and Mathematical Foundations of Analytic Proc. of the 19th IEEE International Conference on Cognitive Informatics and Cognitive Computing -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. *-temporal analysis of mobile phone data for interaction 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

Personal Website