

Youxian SUN Professor, Ph.D Supervisor, Academician of CAE Director, National Engineering Research Center for Industrial Automation Director, Institute of Industrial Process Control, Zhejiang University

http://mypage.zju.edu.cn/personnelCard/sunyouxian

Prof. Youxian SUN has been with the Zhejiang University since 1964. He is a professor and Ph. D supervisor in the Dept. of Control Science and Engineering, and simultaneously heads the National Engineering Research Center for Industrial Automation and Institute of Industrial Process Control at the Zhejiang University, respectively. He was educated at the Zhejiang University (BSAE 64'). He had been with University of Stuttgart as a visiting scholar by winning Alexander Von Humboldt Fellow Scholarship from 1984 to 1987. Prof. SUN has been engaged in complex industrial process modeling, control and optimization, factory integrated automation system, automatic full-set system for large-scale equipment, robust control theory and application, and wireless sensor network. He undertook or presided over a large number of major national science and technology projects, proposed and established the Chinese first National Engineering Research Center supported by the university. He organized the implementation of two major specialized programs, one of which is the High Technology Industrialization of Chinese Industrial Process Automation, took the lead in establishing the applied theory framework of modern control engineering, and creatively solved a series of key problems in pulping and papermaking process control, including fault tolerant control, fault diagnosis, simultaneous stabilization for multi-system, a new generation of completely integrated controlling system, intelligent transmitter technology, paperless recorder technology and a series of technical invention and innovation. Combined with practical applications, his research achievements have been industrialized, and obtained significant economic benefits and social benefits. His research group at Zhejiang University has published 18 books, more than 500 technical papers and owns more than 20 authorized patents. Prof. SUN's work has continually received national recognition through winning up to 30 prestigious awards, including State Science and Technology Progress, National Excellent Teaching Achievements, Provincial and Ministerial Awards. Prof. SUN is currently the Director General of Chinese Association of Automation, the Vice Director of China Instruments Manufacturers Association, the Director of Automation Committee of Chemical Industry and Engineering Society of China, and the Director General of Zhejiang Association of Automation. He was the Vice President of Pulping and Papermaking Committee of IFAC. He is also the Deputy Editor-in-Chief of Information and Control.

Education

B.S., Chemical Engineering, Zhejiang University,1959-1964Hangzhou, Zhejiang, ChinaAlexander Von Humboldt Fellow, Visiting Scholar, University of Stuttgart,1984-1987Stuttgart, GermanyStuttgart, Germany1984-1987

Work Experience

- 1964~present, Zhejiang University
- 1982~1987, Associated Professor, Zhejiang University
- 1988~present, Professor, Zhejiang University
- 1991~present, Ph. D Supervisor, Zhejiang University
- Director, National Engineering Research Center for Industrial Automation, Dept. of Control Science and Engineering, Zhejiang University
- Director, Institute of Industrial Process Control, Dept. of Control Science and Engineering, Zhejiang University

Awards and Honors

- State Science and Technology Progress Award Class II (twice)
- State Science and Technology Progress Award Class III
- National Excellent Teaching Achievements (twice)
- Provincial and Ministerial Awards Class I and Class II (more than twenties)
- Ho Leung Ho Lee Foundation Science and Technology Progress Award
- Zhejiang Science and Technology Outstanding Contributor Award
- National Young and Middle-aged Expert with Outstanding Contributions

Professional Services

- 1995~present, Academician of Chinese Academy of Engineering (CAE)
- Deputy Editor-in-Chief, Information and Control
- Director General, Chinese Association of Automation
- Vice Director, China Instruments Manufacturers Association
- Director, Automation Committee of Chemical Industry and Engineering Society of China
- Director General, Zhejiang Association of Automation
- Vice President, Pulping and Papermaking Committee of IFAC

Representative Publications

Journal Papers

- Z. Yang, Y. Wang, and Y. Sun, "Universal stabilization design for uncertain nonlinear system with sign-switching unknown control direction," International Journal of Control, vol. 86, pp. 172-182, 2013.
- 2. X. Cao, P. Cheng, J. Chen, and Y. Sun, "An online optimization approach for control and communication codesign in networked cyber-physical systems," IEEE Transactions on Industrial Informatics, vol. 9, pp. 439-450, 2013.
- 3. L. Lu, Z. Xu, W. Wang, and Y. Sun, "A new fault detection method for computer networks," Reliability Engineering and System Safety, vol. 114, pp. 45-51, 2013.
- 4. J. Fan, J. Chen, Y. Du, W. Gao, J. Wu, and Y. Sun, "Geocommunity-based broadcasting for data dissemination in mobile social networks," IEEE Transactions on Parallel and Distributed Systems, vol. 24, pp. 734-743, 2013.
- 5. C. Zhao, F. Gao, and Y. Sun, "Between-phase calibration modeling and transition analysis for phase-based quality interpretation and prediction," AIChE Journal, vol. 59, pp. 108-119, 2013.
- 6. Y. Shen, Y. Sun, and S. Li, "Adjoint transfer matrix based decoupling control for multivariable processes," Industrial and Engineering Chemistry Research, vol. 51, pp. 16419-16426, 2012.

- 7. W. Xu, X. Gu, and Y. Sun, "Chaotic generalized differential evolution and its application in Texaco gasification process," Huagong Xuebao/CIESC Journal, vol. 63, pp. 2882-2886, 2012.
- 8. S. He, J. Chen, X. Li, X. Shen, and Y. Sun, "Leveraging prediction to improve the coverage of wireless sensor networks," IEEE Transactions on Parallel and Distributed Systems, vol. 23, pp. 701-712, 2012.
- 9. S. He, J. Chen, P. Cheng, Y. Gu, T. He, and Y. Sun, "Maintaining quality of sensing with actors in wireless sensor networks," IEEE Transactions on Parallel and Distributed Systems, vol. 23, pp. 1657-1667, 2012.
- S. He, J. Chen, D. K. Y. Yau, H. Shao, and Y. Sun, "Energy-efficient capture of stochastic events under periodic network coverage and coordinated sleep," IEEE Transactions on Parallel and Distributed Systems, vol. 23, pp. 1090-1102, 2012.
- 11. S. He, J. Chen, D. K. Y. Yau, and Y. Sun, "Cross-layer optimization of correlated data gathering in wireless sensor networks," IEEE Transactions on Mobile Computing, vol. 11, pp. 1678-1691, 2012.
- S. B. He, J. M. Chen, and Y. Sun, "Coverage and connectivity in duty-cycled wireless sensor networks for event monitoring," IEEE Transactions on Parallel and Distributed Systems, vol. 23, pp. 475-482, 2012.
- 13. R. Deng, J. Chen, J. Fan, and Y. Sun, "A general approach for building Linux on sensor node Imote2," Computer Standards and Interfaces, vol. 34, pp. 101-108, 2012.
- 14. R. Deng, J. Chen, C. Yuen, P. Cheng, and Y. Sun, "Energy-efficient cooperative spectrum sensing by optimal scheduling in sensor-aided cognitive radio networks," IEEE Transactions on Vehicular Technology, vol. 61, pp. 716-725, 2012.
- 15. Q. Yang, J. Luo, C. Cao, J. Lu, and Y. Sun, "Automated manipulation of micro-nano objects with SPM by using L₁ adaptive controller," International Journal of Advanced Robotic Systems, vol. 9, 2012.
- 16. Q. Yang, Z. Yang, and Y. Sun, "Universal neural network control of MIMO uncertain nonlinear systems," IEEE Transactions on Neural Networks and Learning Systems, vol. 23, pp. 1163-U1, 2012.
- 17. P. Cheng, X. Cao, J. Bai, and Y. Sun, "On optimizing sensing quality with guaranteed coverage in autonomous mobile sensor networks," Computer Communications, vol. 35, pp. 1107-1114, 2012.
- L. Chang, X. Liu, L. Dai, and Y. Sun, "Modeling, characteristic analysis, and optimization of ideal internal thermally coupled air separation columns," Industrial and Engineering Chemistry Research, vol. 51, pp. 14517-14524, 2012.
- 19. C. Zhao, Y. Sun, and F. Gao, "A multiple-time-region (MTR)-based fault subspace decomposition and reconstruction modeling strategy for online fault diagnosis," Industrial and Engineering Chemistry Research, vol. 51, pp. 11207-11217, 2012.
- 20. C. Zhao, F. Gao, and Y. Sun, "Statistical modeling and online monitoring based on between-set regression analysis," Industrial and Engineering Chemistry Research, vol. 51, pp. 8495-8509, 2012.
- 21. Y. Xiao, J. Deng, Y. Sun, and J. Chen, "Wireless monitoring and control," Wireless Communications and Mobile Computing, vol. 11, pp. 991-993, 2011.
- 22. W. Qian, L. Wang, and Y. Sun, "Improved robust stability criteria for uncertain systems with time-varying delay," Asian Journal of Control, vol. 13, pp. 1043-1050, 2011.
- 23. L. Wang, H. Shi, and Y. Sun, "Number estimation of controllers for pinning a complex dynamical network," Journal of Zhejiang University: Science C, vol. 12, pp. 470-477, 2011.
- 24. L. Lu, Z. Xu, W. Wang, and Y. Sun, "Performance degradation monitoring and speed reading compensation method for on-board radar speed sensors of trains," Zhongguo Tiedao Kexue/China Railway Science, vol. 32, pp. 93-98, 2011.
- 25. J. Chen, Q. Yu, P. Cheng, Y. Sun, Y. Fan, and X. Shen, "Game theoretical approach for channel allocation in wireless sensor and actuator networks," IEEE Transactions on Automatic Control, vol. 56, pp. 2332-2344, 2011.
- 26. J. Fan, J. Chen, Y. Du, P. Wang, and Y. Sun, "DelQue: A socially aware delegation query scheme in delay-tolerant networks," IEEE Transactions on Vehicular Technology, vol. 60, pp. 2181-2193, 2011.
- 27. J. Chen, X. Cao, Y. Zhang, W. Xu, and Y. Sun, "Measuring the performance of movement-assisted certificate revocation list distribution in VANET," Wireless Communications and Mobile Computing, vol. 11, pp. 888-898, 2011.
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- 29. J. Chen, K. Cao, K. Li, and Y. Sun, "Distributed sensor activation algorithm for target tracking with binary sensor networks," Cluster Computing, vol. 14, pp. 55-64, 2011.

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- 31. H. Shi, L. Wang, H. P. Dai, and Y. Sun, "Pinning synchronization of power-driven moving agent network," Kongzhi yu Juece/Control and Decision, vol. 26, pp. 253-257, 2011.
- 32. H. Shi, H. P. Dai, and Y. Sun, "Blinking adaptation for synchronizing a mobile agent network," Journal of Zhejiang University: Science C, vol. 12, pp. 658-666, 2011.
- C. Gao, L. Jian, X. Liu, J. Chen, and Y. Sun, "Data-driven modeling based on volterra series for multidimensional blast furnace system," IEEE Transactions on Neural Networks, vol. 22, pp. 2272-2283, 2011.
- Y. Zhang, W. Xu, J. Chen, and Y. Sun, "Steepest descent method based transmission power control in vehicular networks," Dianzi yu Xinxi Xuebao/Journal of Electronics and Information Technology, vol. 32, pp. 2536-2540, 2010.
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- X. Shang, J. Lu, Y. Sun, J. Liu, and Y. Ying, "Data-driven prediction of sintering burn-through point based on novel genetic programming," Journal of Iron and Steel Research International, vol. 17, pp. 1-5, 2010.
- X. Cao, J. Chen, Y. Xiao, and Y. Sun, "Building-environment control with wireless sensor and actuator networks: Centralized versus distributed," IEEE Transactions on Industrial Electronics, vol. 57, pp. 3596-3605, 2010.
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- 52. J. Chen, J. Li, S. He, Y. Sun, and H. H. Chen, "Energy-efficient coverage based on probabilistic sensing model in wireless sensor networks," IEEE Communications Letters, vol. 14, pp. 833-835, 2010.
- 53. H. Shi, L. Wang, H. Dai, and Y. Sun, "Synchronization in a power-driven moving agent network," Physica A: Statistical Mechanics and its Applications, vol. 389, pp. 3094-3100, 2010.
- 54. C. Wang, J. Chen, C. Hu, and Y. Sun, "Kernel matrix learning with a general regularized risk functional criterion," Journal of Systems Engineering and Electronics, vol. 21, pp. 72-80, 2010.
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- 57. Y. Li, Z. Wang, and Y. Sun, "Two-hop neighborhood information-based real-time routing design for sensor networks," Ruanjian Xuebao/Journal of Software, vol. 20, pp. 1931-1942, 2009.
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- F. Xia, Y. Sun, Y. C. Tian, M. O. Tade, and J. Dong, "Fuzzy feedback scheduling of resource-constrained embedded control systems," International Journal of Innovative Computing Information and Control, vol. 5, pp. 311-321, 2009.
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- 74. C. Gao, L. Jian, J. Chen, and Y. Sun, "Data-driven modeling and predictive algorithm for complex blast furnace ironmaking process," Zidonghua Xuebao/Acta Automatica Sinica, vol. 35, pp. 725-730, 2009.
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- 77. Z. Yin, X. Zhou, C. Bakal, F. Li, Y. Sun, N. Perrimon, et al., "Using iterative cluster merging with improved gap statistics to perform online phenotype discovery in the context of high-throughput RNAi screens," BMC Bioinformatics, vol. 9, 2008.
- Z. Xia, X. Huang, X. Zhou, Y. Sun, V. Ntziachristos, and S. T. C. Wong, "Registration of 3-D CT and 2-D flat images of mouse via affine transformation," IEEE Transactions on Information Technology in Biomedicine, vol. 12, pp. 569-578, 2008.
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