**Jin Wang, PhD**
Walt and Virginia Woltosz Endowed Professor of Chemical Engineering
318 Ross Hall, Auburn University, AL 36849-5127
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## Professional Preparation

**Tsinghua University**, Chemical Engineering, BS with distinction (1994)

**Tsinghua University**, Chemical Engineering (Biochemical engineering), PhD (1999)

**University of Texas at Austin**, Chemical Engineering (Control engineering) , PhD (2004)

## Professional Experience

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|---|---|
| 2016 – now | Walt and Virginia Woltosz Endowed Professor, Department of Chemical Engineering, Auburn University |
| 2019 – 2020 | Visiting Professor (sabbatical), Department of Chemical Engineering, University of Washington |
| 2015 – 2016 | Walt and Virginia Woltosz Endowed Associate Professor, Department of Chemical Engineering Auburn University |
| 2011 – 2015 | B. Redd Associate Professor, Department of Chemical Engineering Auburn University |
| 2006 – 2011 | B. Redd Assistant Professor, Department of Chemical Engineering Auburn University |
| 2004 – 2006 | Sr. Process Development Engineer, Advanced Micro Devices, Inc. |
| 2002 – 2004 | Process Development Engineer II, Advanced Micro Devices, Inc. |

## Honors and Awards

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| 2022 | **Creative Research & Scholarship Award**, Auburn University |
| 2022 | **Elected Senior Member of National Academy of Inventors** |
| 2021 | **The 3rd Most Cited Article from the *Journal of Process Control*** published since 2018. |
| 2019 | **The 2nd Most Downloaded *Journal of Process Control* Articles** in the last 90 days |
| 2019 | AIChE Annual Meeting Session's Best Paper Award (two) |
| 2018 | Outstanding Reviewer, *Chemometrics & Intelligent Laboratory Systems* |
| 2018 | Outstanding Reviewer, *Chemical Engineering Science* |
| 2018 | Outstanding Reviewer, *Biochemical Engineering Journal* |
| 2018 | Outstanding Reviewer, *Computers & Chemical Engineering* |
| 2017 | AIChE Annual Meeting Session's Best Paper Award |

2017 **AIChE Division 15 Best Poster Award** (5 out of over 300)

2017 **Senior Research Award for Excellence** – Auburn University

2017 Outstanding Reviewer, *Journal of Process Control*

2016 AIChE Annual Meeting Session's Best Paper Award

2014 Selected to attend **Frontiers of Engineering Education – National Academy of Engineering**

2013 Top Reviewer, *Computers & Chemical Engineering*

2011 **AIChE CAST Division Director's Presentation Award** (1 out of over 200)

2009 **Nominated for Annual Best Paper Award, *Journal of Process Control***

2009 Auburn Outreach Scholarship Award, Auburn University

2008 **Ralph E. Powe Junior Faculty Enhancement Award**, Oak Ridge Associated Universities

2005 Key Contributor Award, AMD, Inc.

2004 President's Spotlight Award, AMD, Inc.

2003 President's Spotlight Award, AMD, Inc.

**Graduate Student Advisee Awards**

2022 **Loyal Murphy, honorable mention at 10th annual Graduate Engineering Research Showcase, Auburn University (4 out of over 500)**

2021 Kiumars Badr, Department nominee for Merriwether Fellowship, Auburn University

2021 Loyal Murphy, Department Outstanding TA award, Auburn University

2020 Jangwon Lee, Department nominee for Outstanding PhD Student Award, Auburn University

2020 Alizabeth Braford, Department Outstanding TA award, Auburn University

2019 **Jangwon Lee, AIChE Annual Meeting Session's Best Paper Award**

2019 **Kerul Suthar, AIChE Annual Meeting Session's Best Paper Award**

2019 Kiumars Badr, Outstanding International Graduate Student Award, Auburn University

2019 Matthew Hilliard, Department nominee for Outstanding PhD Student Award, Auburn University

2018 Devarshi Shah, Outstanding International Graduate Student Award, Auburn University

2018 Matthew Hilliard, Department nominee for Merriwether Fellowship, Auburn University

2018 Nathan Roberts, J Alley Leadership Fellowship, Auburn University

2017 Matthew Hilliard, J Alley Leadership Fellowship, Auburn University

2017 **Nathan Roberts, AIChE Annual Meeting Session's Best Paper Award**

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|---|---|
| 2017 | **Kyle Stone, AIChE Division 15 Best Poster Award (5 out of over 300)** |
| 2017 | Nathan Roberts, Outstanding International Graduate Student Award, Auburn University |
| 2017 | Kyle Stone, Department nominee for Merriwether Fellowship |
| 2016 | **Andrew Damiani, Outstanding PhD Student Award, Auburn University** |
| 2016 | **Kyle Stone, AIChE Annual Meeting Session's Best Paper Award** |
| 2016 | Kyle Stone, J Alley Leadership Fellowship, Auburn University |
| 2014-17 | Kyle Stone, Department of Education GAANN Fellowship |
| 2015-17 | Matthew Hilliard, NSF IGERT Fellowship |
| 2014 | Min Hea Kim, Outstanding International Graduate Student, Auburn University |
| 2012-15 | Andrew Damiani, NSF IGERT Fellowship |
| 2012-15 | Zi Xiu Wang, Department of Education GAANN Fellowship |
| 2012-15 | Min Hea Kim, Graduate Travel Award, Auburn University |
| 2012-14 | Kyle Stone, Department of Chemical Engineering Harrison Fellowship, Auburn University |
| 2011-14 | Andrew Damiani, Samuel Ginn Engineering School Fellowship, Auburn University |
| 2010-13 | Meng Liang, Graduate Travel Award, Auburn University |
| 2009-12 | Hector Galicia, Graduate Travel Award, Auburn University |
| 2010-12 | Zi Xiu Wang, Department of Chemical Engineering Harrison Fellowship, Auburn University; |
| 2009-13 | Min Hea Kim, Department of Chemical Engineering Harrison Fellowship, Auburn University |
| 2012 | Hector Galicia, nominated for Distinguished Dissertation Award, Auburn University |
| 2012 | **Hector Galicia, Outstanding Graduate Student, Auburn University** |
| 2012 | **Hector Galicia, Young Researcher Travel Award, Chemical Process Control VIII** |
| 2012 | Min Hea Kim, 2nd Place Engineering Poster Presentation, Auburn University |
| 2012 | Zi Xiu Wang, McLeod Outstanding Chemical Engineering Graduate Student Teaching Award, Auburn University |
| 2011 | **Hector Galicia, CAST Division Directors' Presentation Award, AIChE** |
| 2011 | **Hector Galicia, CAST Division Student Travel Award, AIChE** |
| 2010 | Meng Liang, Graduate Travel Award, Auburn University |
| 2009 | Hector Galicia, 1st Place Engineering Poster Presentation, Auburn University |
| 2009 | Meng Liang, 2nd Place Engineering Poster Presentation, Auburn University |

**Patents Granted by US Patent and Trademark Office**

1. He Q.P., **Wang J.**, Hilliard M.V., Culture systems and methods of using same, US Patent # 11,339,360 B2, issued on May 24, 2022
2. **Wang J.** & He Q.P., Enhanced state estimation method based on information credibility, US Patent 8,515,567, issued on August 20, 2013.
3. **Wang J.**, Chong R.J. , Bode C.A. , Qin S.J. & Pasadyn A.J., Applying a self-adaptive filter to a drifting process, US Patent # 7,424,392, issued on September 9, 2008
4. He Q.P., **Wang J.** & Bode C.A., Method and apparatus for fast disturbance detection and classification, US Patent # 7,299,154, issued on November 20, 2007
5. **Wang J.** & Cherry G.A., Adjusting a sampling protocol in an adaptive control process, US Patent # 7,050,879, issued on May 23, 2006
6. **Wang J.** & Cherry G.A., Fault detection and classification based on calculating distances between data points, US Patent # 7,043,403, issued on May 9, 2006
7. Jenkins N.M., **Wang J**., Markle R.J., Coss, E. & Cusson B.K., Conflict resolution among multiple controllers, US Patent # 7,031,793, issued on April 18, 2006
8. Good R.P., Cherry G.A. & **Wang J.**, Probability constrained optimization for electrical fabrication control, US Patent # 6,959,224, issued on October 25, 2005
9. Chong R.J. & **Wang J.**, Method and apparatus for controlling a fabrication process based on a measured electrical characteristic, US Patent # 6,912,437, issued on June 28, 2005
10. Sonderman T.J., **Wang J.**, Jenkins, N.M. & Coss, C., Process control based upon a metrology delay, US Patent # 6,834,213, issued on December 21, 2004
11. Chong R.J., Green E.O. & **Wang J.**, Process control based on tool health data, US Patent # 6,804,619, October 12, 2004
12. **Wang J.**, Coss E., Cusson B.K., Pasadyn A.J., Miller M.L., Jenkins N.M. & Bode C.A., Identifying a cause of a fault based on a process controller output, US Patent # 6,778,873, issued on August 17, 2004
13. Pasadyn A.J., Sonderman T.J. & **Wang J.**, Dynamic targeting for a process control system, US Patent # 6,773,931, issued on August 10, 2004
14. **Wang J.** & Cusson B.K., Adjusting a sampling rate based on state estimation results, US Patent # 6,766,214, issued on July 20, 2004

**Synergistic Activities**

1. **Recruited and mentored more than 25 female graduate and undergraduate researchers**.
2. CTO and co-founder of BioSynsortia, LLC, since 2021.
3. **Developed a set of learning modules and videos through collaborating with Prof. Q. Peter He** (then at Tuskegee University and now at Auburn University). The learning modules systematically integrate biofuels technology into undergraduate chemical engineering curriculum. **The animated videos have been watched over 1 million times on YouTube by audiences all over the world**. Material website ***www.BiofuelsAcademy.org***.
4. Guest editor for *Frontier in Chemical Engineering*, special topic "Smart Manufacturing: Advances and Applications of Artificial Intelligence, Machine Learning & Industrial Internet of Things in the Chemical and Biochemical Industry", 2022-2023
5. Guest editor for *Processes*, special issue "Big Data in Biology, Life Sciences and Healthcare", 2020 - 2021.
6. **Technology Committee of IEEE Control Systems Society on Process Control, since 2020**.
7. Guest editor for *Journal of Process Control*, Special issue "Big data: Data science for process control and operations", 2018.
8. International Program Committee (Area Co-Chair for big data) for 10th IFAC Symposium on Advanced Control of Chemical Processes, 2018.
9. International Program Committee for 13th International Symposium on Process Systems Engineering, 2018.
10. **Associate editor of *Journal of Process Control*, since 2014**.
11. **Technical Committee of International Federation of Automatic Control (IFAC) TC 6.1 modeling and control of chemical and biological processes, since 2013**
12. Session chair and co-chair for various international and national conferences, including AIChE annual conference, American control conferences, since 2006.
13. Reviewer for *AIChE Journal*, *Automatica*, *Industrial and Engineering Chemistry Research, Computers & Chemical Engineering, Biomass and Bioenergy*, *Journal of Bioscience and Bioengineering*, *Bioenergy*, *Journal of Process Control*, *IEEE Transactions on Semiconductor Manufacturing, IEEE Transactions on Control Systems Technology, IEEE Transactions on Industrial Informatics, etc.*
14. Panel and ad hoc reviewer for NSF, NIH, DOE, USDA, ACS Petroleum Research Foundation, since 2009.
15. Senior member of American Institute of Chemical Engineers.
16. member of Society for Industrial Microbiology and Biotechnology.
17. Member, American Society of Chemistry.
18. Member, Institute of Electrical and Electronics Engineers.
19. Member, Society for Industrial and Applied Mathematics.
20. Member, American Association for the Advancement of Science.

**Book Chapters**

1. He Q.P., **Wang J.** & Qin S.J. (2010), An alternative stiction modeling approach and comparison of different stiction models, in *Detection and Diagnosis of Stiction in Control Loops – State of the Art and Advanced Methods*, 37-59, Jelali, M. and Huang, B. (Eds.), Springer.
   10.1007/978-1-84882-775-2_3
2. **Wang J.** & He Q.P. (2023), Microalgae-methanotroph cocultures for carbon & nutrient recovery from wastewater, in *Algal systems for resource recovery from waste and wastewater*, Lens P. (Ed.), IWA Publishing, to appear.

**Peer-Reviewed Journal Articles (google scholar citation 3913, H-index of 27)**

1. **Wang J.** & He Q.P. (2023). Methane Removal from Air: Challenges and Opportunities, *Methane*, submitted, invited paper.
2. Lee J., Kumar A., Flores-Cerrillo J., **Wang J.** & He Q.P. (2022). Feature-based Statistical Process Monitoring for Pressure Swing Adsorption Processes. *Frontiers in Chemical Engineering*, 18,
   https://doi.org/10.3389/fceng.2022.1064221
3. Badr K., He Q.P. and **Wang J.**, (2022). Knowledge-matching based computational framework for genome-scale metabolic model refinement. *Computer Aided Chemical Engineering*, 49, 919-924.
   https://doi.org/10.1016/B978-0-323-85159-6.50153-6
4. Badr K., He Q.P. & **Wang J.**, (2022), Identifying interspecies interactions within a model methanotroph-photoautotroph coculture using semi-structured and structured modeling, *IFAC-PapersOnLine*, 55(7), 106-111.
   https://doi.org/10.1016/j.ifacol.2022.07.429
5. Lee, J., Sun, Z., Tan, T. Mendez, J. Flores-Cerrillo, J., **Wang, J.**, He, Q.P. (2022) Remaining Useful Life Estimation for Ball Bearings Using Feature Engineering and Extreme Learning Machine. *IFAC-PapersOnLine*, 55(7), pp.198-203.
   https://doi.org/10.1016/j.ifacol.2022.07.444
6. Badr K., He Q.P. & **Wang J.** (2022), Matlab implementation of a novel semi-structured kinetic model for methanotroph-photoautotroph cocultures, *MethodsX*, Vol. 9,101652.
   https://doi.org/10.1016/j.mex.2022.101652.
7. He, Q.P. & **Wang, J.** (2022), Editorial, Special Issue on "Big Data in Biology, Life Sciences and Healthcare". *Processes*, Vol.10, 41.
   https://doi.org/10.3390/pr10010041.
8. Badr K., He Q.P. & **Wang J.** (2022), A novel semi-structured kinetic modeling of methanotroph-photoautotroph cocultures for biogas conversion, ***Chemical Engineering Journal***, Vol. 431 (4), 133461, (**Impact factor: 16.744**).
   https://doi.org/10.1016/j.cej.2021.133461.
9. Badr K., Whalen W., He Q.P. & **Wang J.** (2021), Fast and Easy Quantitative Characterization of Methanotroph-Photoautotroph Cocultures, ***Biotechnology and Bioengineering***, 118 (2), 703-714.
   https://doi.org/10.1002/bit.27603.

10. Roberts N., Hilliard M., He Q.P. & **Wang J.** (2020), A microalgae-methanotroph coculture platform to convert wastewater into microbial biomass for fuels and chemical production, *Frontiers in Energy Research*, Vol. 8, Article 563352. https://doi.org/10.3389/fenrg.2020.563352.

11. Lee J., Kumar K., Flores-Cerrillo J., **Wang J.** & He Q.P. (2020), Feature Based Fault Detection for Pressure Swing Adsorption Processes, *IFAC-PapersOnLine*, 53(2), 2020, 11301-11306 https://doi.org/10.1016/j.ifacol.2020.12.529.

12. Lee J., **Wang J.**, Flores-Cerrillo J. & He Q.P. (2020), Improving Featured-based Soft Sensing through Feature Selection, *IFAC-PapersOnLine*, 53(2), 2020, 11338-11343, https://doi.org/10.1016/j.ifacol.2020.12.542.

13. Qin J., Dong Y., Zhu Q., **Wang J.** & Liu Q. (2020), Bridging Systems Theory and Data Science: A Unifying Review of Dynamic Latent Variable Analytics and Process Monitoring, ***Annual Reviews in Control***, Vol. 50, 29-48 https://doi.org/10.1016/j.arcontrol.2020.09.004

14. He Q.P. & **Wang J.** (2020), Application of systems engineering principles and techniques in biological big data analytics: a review, *Processes*, 8(8), 951. https://doi.org/10.3390/pr8080951

15. Stone K., Hilliard M., Badr K., Bradford A., He Q.P., & **Wang J.** (2020), Comparative study of oxygen-limited and methane-limited growth phenotypes of *Methylomicrobium buryatense* 5GB1, *Biochemical Engineering Journal*, 161, 15, 1-13; https://doi.org/10.1016/j.bej.2020.107707

16. Shah, D., **Wang, J.,** & He, Q. P**.** (2020). Feature Engineering in Big Data Analytics for IoT-Enabled Smart Manufacturing–Comparison between Deep Learning and Statistical Learning, ***Computers & Chemical Engineering***, 106970. https://doi.org/10.1016/j.compchemeng.2020.106970

17. Lee J., Flores-Cerrillo J., **Wang J.** & He Q.P. (2020), Consistency-Enhanced Evolution for Variable Selection Can Identify Key Chemical Information from Spectroscopic Data, *Industrial & Engineering Chemistry Research*, 59, 8, 3446-3457. https://doi.org/10.1021/acs.iecr.9b06049

18. Suthar K., Shah D., **Wang J.** & He Q.P. (2019), Next-generation virtual metrology for semiconductor manufacturing: A feature-based framework. *Computers & Chemical Engineering*, *127*, pp.140-149. https://doi.org/10.1016/j.compchemeng.2019.05.016

19. He Q.P., **Wang J.,** & Shah D. (2019), Feature Space Monitoring for Smart Manufacturing via Statistics Pattern Analysis, *Computers & Chemical Engineering*, 126, 321-331. https://doi.org/10.1016/j.compchemeng.2019.04.010

20. Shah D., **Wang J.** & He Q.P. (2019), A feature-based soft sensor for spectroscopic data analysis, *Journal of Process Control*, 78, 98 – 107. https://doi.org/10.1016/j.jprocont.2019.03.016

21. Stone K., He Q.P., & **Wang J.** (2019), Two Experimental Protocols for Accurate Measurement of Gas Component Uptake and Production Rates in Bioconversion Processes, ***Nature - Scientific Reports***, 9 (1), 5899. https://doi.org/10.1038/s41598-019-42469-3

22. Bahr K., Hilliard M., Roberts N., He Q.P. and **Wang J.** (2019), Photoautotroph-Methanotroph Coculture – A Flexible Platform for Efficient Biological $CO_2$-$CH_4$ Co-utilization, *IFAC-PapersOnLine*, 52 (1), 916-921. https://doi.org/10.1016/j.ifacol.2019.06.179

23. Hilliard M., He Q.P. and **Wang J.** (2019), Dynamic Transcriptomic Data Reveal Unexpected Regulatory Behavior of Scheffersomyces stipitis, *IFAC-PapersOnLine*, 52(1), 538-543. https://doi.org/10.1016/j.ifacol.2019.06.118

24. Hilliard M., He Q.P. and **Wang J.** (2019), Interplay of Shadow Price, Phenotype and Alternative Optimal Solutions in Flux Balance Analysis, *IFAC-PapersOnLine*, 52(1), 76-81. https://doi.org/10.1016/j.ifacol.2019.06.040

25. Shah D., **Wang J.** and He Q.P. (2019), An Internet-of-things Enabled Smart Manufacturing Testbed, *IFAC-PapersOnLine*, 52(1), 562-567. https://doi.org/10.1016/j.ifacol.2019.06.122

26. Hilliard M., Damiani A., He Q.P., Jeffries T.W. & **Wang J.** (2018), Elucidating the redox balance shift in *Scheffersomyces stipitis*' fermentative metabolism using a modified genome-scale metabolic model, ***Microbial Cell Factories***, 17(1):140. https://doi.org/10.1186/s12934-018-0983-y.

27. He Q.P. & Wang J. (2018), Statistics process monitoring as a Big Data analytics tool for smart manufacturing, *Journal of Process Control*, 67, 35 – 43; **The 2nd Most Downloaded *Journal of Process Control* Articles in the last 90 days** (July 2019). **The 3rd Most Cited Article from the *Journal of Process Control* published since 2018** (Nov. 2021), **(cited: 165)** https://doi.org/10.1016/j.jprocont.2017.06.012

28. Hilliard M., Damiani A., He Q.P. & **Wang J.** (2018), A System Identification Enhanced Phenotype Phase Plane Analysis, *Computer Aided Chemical Engineering*, 44, 2503-2508. https://doi.org/10.1016/B978-0-444-64241-7.50412-2

29. He Q.P. and **Wang J.** (2018), Statistics Pattern Analysis: a Statistical Process Monitoring Tool for Smart Manufacturing, *Computer Aided Chemical Engineering*, 44, 2071-2076. https://doi.org/10.1016/B978-0-444-64241-7.50340-2

30. Suthar K., Shah D., **Wang J.** & He Q.P. (2018), Feature-based Virtual Metrology for Semiconductor Manufacturing, *Computer Aided Chemical Engineering*,44, 2083-2088. https://doi.org/10.1016/B978-0-444-64241-7.50342-6

31. Shah D., He Q.P. and **Wang J.** (2018), A spectroscopic chemometric modeling approach based on statistics pattern analysis, *IFAC-PapersOnLine*, 51(18), 369-374. https://doi.org/10.1016/j.ifacol.2018.09.328

32. Hilliard M., He Q.P. and **Wang J.** (2018), Dynamic Transcriptomic Data Analysis by Integrating Data-driven and Model-guided Approaches, *IFAC-PapersOnLine*, 51 (19), 104-107. https://doi.org/10.1016/j.ifacol.2018.09.021

33. Hilliard M., He Q.P. and **Wang J.** (2018), Using a System Identification based Framework to Elucidate How Scheffersomyces stipitis Use Redox Shift to Handle Reduced Oxygen Supply, *IFAC-PapersOnLine*, 51 (19), 110-111. https://doi.org/10.1016/j.ifacol.2018.09.018

34. Hilliard M., He Q.P. and **Wang J.** (2018), Revealing the Biological Meaning of Alternative Optimal Solutions of an *E. coli* Core Model through a System Identification Based Framework, *IFAC-PapersOnLine*, 51 (19), 42-43. https://doi.org/10.1016/j.ifacol.2018.09.032

35. **Wang J.** (2017), Commentary on "A least squares formulation to state estimation", Virtual Special Issue on the 25th Anniversary of *Journal of Process Control*, https://www.journals.elsevier.com/journal-of-process-control/virtual-special-issues/virtual-special-issue-on-the-25th-anniversary-of-journal-of#six

36. Stone S., Shah D., He Q.P., **Wang J.** (2017), A Novel Soft Sensor Approach for Estimating Individual Biomass in Mixed Cultures, *Biotechnology Progress*, Vol. 33 (2), pp 347-354. https://doi.org/10.1002/btpr.2453

37. Stone S., Hilliard M., He Q.P., **Wang J.** (2017), A mini review on bioreactor configurations and gas transfer enhancements for biochemical methane conversion, ***Biochemical Engineering Journal***, Vol. 128, 83-92 **(cited: 42)** https://doi.org/10.1016/j.bej.2017.09.003

38. Damiani A., He Q.P. and **Wang J.** (2017), A System Identification Based Framework for Genome-Scale Metabolic Model Validation and Refinement, *IFAC-PapersOnLine*, 50(1), 12502-12507. https://doi.org/10.1016/j.ifacol.2017.08.2058

39. He Q.P., **Wang J.** and Shah D. (2017), Statistical Process Monitoring for IoT-Enabled Cybermanufacturing: Opportunities and Challenges, *IFAC-PapersOnLine*, 50(1), 14946-14951. https://doi.org/10.1016/j.ifacol.2017.08.2546

40. Kim M., Liang M., He Q.P. & **Wang J.** (2016), A Novel Bioreactor to Study the Dynamics of Co-culture Systems, *Biochemical Engineering Journal*, Vol 107, 52-60. https://doi.org/10.1016/j.bej.2015.11.019

41. He Q.P., **Wang J.**, Johnson D., Knight A., Polala R., Zhang R. (2016), A Modular Approach of Integrating Biofuels Education into Chemical Engineering Curriculum: Part I – Learning Materials, *Chemical Engineering Education*, Vol 50(2), 9-17.

42. Wang Z., He Q.P. & **Wang J.** (2015), Comparison of variable selection methods for PLS-based soft sensor modeling, ***Journal of Process Control***, 26, pp 56-72 **(cited: 99)** https://doi.org/10.1016/j.jprocont.2015.01.003

43. Damiani A., He Q.P., Jeffries T.W. & **Wang J.** (2015), Comprehensive evaluation of two genome-wide metabolic network models of *Scheffersomyces stipitis*, ***Biotechnology and Bioengineering***, 112 (6), pp 1250-1262. https://doi.org/10.1002/bit.25535

44. He Q.P. & **Wang J.** (2014), Valve Stiction quantification method based on a semi-physical valve stiction model, *Industrial & Engineering Chemistry Research*, 53 (30), pp 12010–12022. https://doi.org/10.1021/ie501069n

45. Damiani A., Kim M.H., & **Wang J.** (2014) An Improved Dynamic Method to Measure $k_La$ in Bioreactors, ***Biotechnology and Bioengineering***, 111 (10), pp 2120-2125. https://doi.org/10.1002/bit.25258

46. Liang M., Damiani A., He Q.P. & **Wang J.** (2014), Elucidating xylose metabolism of *Scheffersomyces stipitis* by flux balance analysis integrated with principal component analysis, *ACS Sustainable Chemistry & Engineering*, 2014, 2 (1), pp 38–48. https://doi.org/10.1021/sc400265g

47. Liang M., He Q.P. & **Wang J.** (2014), Understanding Xylose Metabolism of Scheffersomyces stipitis through a Central Carbon Metabolic Network Model, *Journal of Advanced Chemical Engineering Research*, Vol. 3 (1), 8-17.

48. **Wang J.**, He Q.P. and Edgar T.F. (2014), State estimation for integrated moving average processes in high-mix semiconductor manufacturing, *Industrial & Engineering Chemistry Research*, 53(13), 5194-5204. https://doi.org/10.1021/ie401537d

49. Liang M., Kim M.H., He Q.P. & **Wang J.** (2013), Impact of pseudo-continuous fermentation on the ethanol tolerance of *Scheffersomyces stipitis*, *Journal of Bioscience and Bioengineering*, Vol. 116 (3), 319-326. 10.1016/j.jbiosc.2013.03.016

50. Galicia H.J., He Q.P. & **Wang J.** (2012), Comparison of the performance of a reduced-order dynamic PLS soft sensor with different updating schemes for digester control. ***Control Engineering Practice***, Vol. 20, 747-760 **(cited: 51)** https://doi.org/10.1016/j.conengprac.2012.03.014

51. He Q.P., **Wang J**., Mobley J.A., Richman J. and Grizzle W.E. (2011), Self-Calibrated Warping for Mass Spectra Alignment, ***Cancer Informatics***, Vol. 10, 85-82 **(cited: 33)** https://doi.org/10.4137/CIN.S6358

52. Galicia H., He Q.P., **Wang J.**, (2011), A Reduced order soft sensor approach and its application to a continuous digester, ***Journal of Process control***, Vol. 21(4), 489-500 **(cited: 99)** https://doi.org/10.1016/j.jprocont.2011.02.001

53. He Q.P. & **Wang J.** (2011), Statistics Pattern Analysis - A New Process Monitoring Framework and Its Application to Semiconductor Batch Processes, ***AIChE journal***, Vol. 57(1), 107-121 **(cited: 144)** https://doi.org/10.1002/aic.12247

54. **Wang J.** & He Q.P. (2010), Multivariate process monitoring based on statistics pattern analysis, ***Industrial & Engineering Chemistry Research***, Vol. 49(17), 7858-7869 **(cited: 162)** https://doi.org/10.1021/ie901911p

55. **Wang J.**, He Q.P. and Qin S.J. (2010), Stability analysis and optimal tuning of EWMA controllers: Gain adaptation vs. intercept adaptation, ***Journal of Process Control***, Vol. 20 (2), 134-142, **nominated for the Annual Best Paper Award.** https://doi.org/10.1016/j.jprocont.2009.06.002

56. **Wang, J.** (2010), Discussion on: "Closed-Loop Identification of MIMO Systems: A New Look at Identifiability and Experiment Design", *European Journal of Control*, Vol. 16(3), 240-241.

57. **Wang J.** (2010), Properties of EWMA controllers with gain adaptation, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 23(2), 159-167. 10.1109/TSM.2010.2041288

58. He Q.P. & **Wang J.** (2010), Large-scale semiconductor process fault detection using a fast pattern recognition-based method, ***IEEE Transactions on Semiconductor Manufacturing***, Vol. 23 (2), 194-200. **(cited: 78)**
10.1109/TSM.2010.2041289

59. **Wang J.**, He Q.P. and Edgar T.F. (2009), State estimation in high-mix semiconductor manufacturing, *Journal of Process Control*, Vol. 19 (2), 443-456.
https://doi.org/10.1016/j.jprocont.2008.06.015

60. He Q.P. & **Wang J.** (2007), Fault detection using K-nearest neighbor rule for semiconductor manufacturing, ***IEEE Transactions on Semiconductor Manufacturing***, (invited), Vol.20 (4), 345-354 **(cited: 470)**
10.1109/TSM.2007.907607

61. Bode C.A., **Wang J.**, He Q.P. & Edgar T.F. (2007), Run-to-run control and state estimation in high-mix semiconductor manufacturing, *Annual Reviews in Control*, (invited), Vol.31, 241-253.
https://doi.org/10.1016/j.arcontrol.2007.07.001

62. He Q.P., **Wang J.**, Pottmann M. and Qin S.J. (2007), A Curve fitting method for detecting valve stiction in oscillating control loops, ***Industrial & Engineering Chemistry Research***, vol.46 (13), 4549-4560 **(cited: 184)**
https://doi.org/10.1021/ie061219a

63. **Wang J.** & He Q.P. (2007), A Bayesian approach for disturbance detection and classification and its application to state estimation in run-to-run control, *IEEE Transactions on Semiconductor Manufacturing*, Vol.20 (2), 126-136.
10.1109/TSM.2007.895216

64. **Wang J.** & Qin S.J. (2006), Closed-loop subspace identification using the parity space, ***Automatica***, Vol. 42(2), 315-320 **(cited: 121)**
https://doi.org/10.1016/j.automatica.2005.09.012

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**Peer-Reviewed Conference Proceedings**

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99. Galicia H.J., **Wang J.** & He Q.P. (2012), Adaptive Outlier Detection and Classification for Online Soft Sensor Update, *Proceedings of the 2012 International Symposium on Advanced Control of Chemical Processes*, 402-407.

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*108.* He Q. P. and **Wang J.** (2010), Valve Stiction Modeling: First Principles vs. Data-Driven Approaches, *Proceedings of* 2010 *American Control Conference*, 3777-3782.

109. **Wang J.** and He Q.P. (2008), EWMA Run-to-Run Controllers with Gain Updating: Stability and Sensitivity Analysis, *Proceedings of 2008 American Control Conference*, 2872-2877.

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113. **Wang J.**, He Q.P. and Edgar T.F. (2007), A general framework for state estimation in high-mix semiconductor manufacturing, *Proceedings of 2007 American Control Conference*, 3636-3641.

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115. **Wang J.** & He Q.P. (2005), A new run-to-run method for oxide CMP processes, *Proceedings of SPIE's International Symposium on advanced microelectronic manufacturing*, Vol. 5755, 9-17.

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118. **Wang J.**, Qin S.J., Bode C., & Purdy M. (2003), Recursive least squares estimation and its application to shallow trench isolation, *Proceedings of SPIE's International Symposium on advanced microelectronic manufacturing*, Vol. 5044, 109-120.

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122. Du J., **Wang J.**, Zhu D., Ding F. & Yuan N. (1994). Characterization of transition from gas distribution zone to steady zone in a bubble column. *Proceedings of the 7th national Conference on Chemical Engineering (Chinese)*, 987-990.

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**Invited Seminars & Lectures**

1. **Wang J.** (2023), Genome-Scale Understanding of the Emergent Metabolic Interactions within a Model Methanotroph-Cyanobacteria Coculture, AIChE annual meeting, Orlando, FL. (**Invited Keynote Talk in AIChE 15C Bioengineering Division**)

2. **Wang J.** (2020), Microalgae-methanotroph coculture: a synthetic microbiome to help understand the rules of life, NSF-DOE Workshop on Rules of Life: Complexity in Algal Systems, July, 2020.
3. **Wang J.** (2019), Understanding Cellular Metabolism using Systems Engineering Approaches, Plant Genomes, Systems Biology and Engineering 2019, Cold Spring Harbor, NY.
4. **Wang J.** (2019), Understanding Cellular Metabolism using Systems Engineering Approaches, Department of Microbiology, San Diego State University, CA
5. **Wang J.** (2019), Process monitoring for smart manufacturing: challenges and opportunities, CommNetS-MHI Seminar Series, Center for Systems and Control, University of Southern California, CA
6. **Wang J.** (2019), Understanding Cellular Metabolism using Systems Engineering Approaches, Department of Chemical Engineering, University of British Columbia, Vancouver, Canada.
7. **Wang J.** (2019), Understanding Cellular Metabolism using Systems Engineering Approaches, Department of Biosystems Engineering, Auburn University, AL
8. **Wang J.** (2019), Understanding Cellular Metabolism using Systems Engineering Approaches, Pacific Northwest National Lab, Richland, WA.
9. Hilliard M., He Q.P. and **Wang J.** (2018), Dynamic Transcriptomic Data Analysis by Integrating Data-driven and Model-guided Approaches, 7th Foundations of Systems Biology in Engineering, Chicago, IL
10. **Wang J.** (2018), Challenges and opportunities in big data analytics for smart manufacturing: lessons learned from IoT-enabled manufacturing technology test beds, Workshop on Challenges and Opportunities in Machine Learning for Industrial Intelligence, Shenzhen, China
11. **Wang J.** (2017), Systems engineering approaches to the study of biological systems and industrial processes, Invited Seminar, Department of Chemical Engineering, University of Alabama, Tuscaloosa, AL.
12. **Wang J.** (2017), Systems engineering approaches to the study of biological systems and industrial processes, Invited Seminar, Department of Chemical Engineering, University of Washington, Seattle, WA.
13. **Wang J.** (2016), A System Identification based Framework for Genome-scale Metabolic Network Model Analysis, 3rd Wrokshop on ProBioRefine, Auburn University, AL
14. **Wang J.** (2015), A system identification based framework for genome-scale metabolic network model validation and refinement, invited talk, Modeling Life in the Lab Symposium, Carey Institute for Global Good, NY.
15. **Wang J.** (2014), Systems engineering approaches to the study of biological systems and industrial processes, Invited Seminar, Department of Chemical and Biomolecular Engineering, Vanderbilt University
16. **Wang J.** (2014), Systems engineering approaches to the study of microbes, Invited Seminar, Prof. Lidstrom's group, University of Washington.
17. **Wang J.**, He Q.P., Edgar T and Stuber J. (2013), A new advanced process control framework for high-mix semiconductor manufacturing, **Invited Keynote Speaker**, APC XXIII, Oct. 14-16, 2013, Ann Arbor, MI

18. **Wang J.** (2013), Systems engineering approaches to the study of industrial processes and biological systems, Invited Seminar, Department of Chemical Engineering, University of Pittsburgh

19. **Wang J.** (2013), Systems engineering approaches to the study of industrial processes and biological systems, Invited Seminar, School of Chemical and Biomolecular Engineering, Georgia Institute of Technology

20. **Wang J.** (2013), Experimental and In Silico Fermentation of Mixed Sugars for Lignocellulosic Ethanol Production, Invited Seminar, Dave C. Swalm School of Chemical Engineering, Mississippi State University

21. **Wang J.** (2012), Data-Driven Systems Engineering Approaches and Their Applications in Industrial Processes, Invited Seminar, Department of Chemical Engineering, The University of Texas at Austin.

22. **Wang J.** (2012), Experimental and *In Silico* Fermentation of Mixed Sugars for Lignocellulosic Ethanol Production, Invited Seminar, School of Life Science and Technology, Dalian University of Technology, P.R. China

23. **Wang J.** (2012), Data-Driven Systems Engineering Approaches and Their Applications in Industrial Processes, Invited Seminar, School of Control Science and Engineering, Dalian University of Technology, P.R. China

24. **Wang J.** (2006), Closed-loop Subspace Identification using the Parity Space, Invited Seminar, Department of Chemical Engineering, Massachusetts Institute of Technology

25. **Wang J.** (2006), Closed-loop Subspace Identification using the Parity Space, Invited Seminar, Mork Family Department of Chemical Engineering and Material Science, University of Southern California

26. **Wang J.** (2006), Closed-loop Subspace Identification using the Parity Space, Invited Seminar, Department of Chemical Engineering, Auburn University

**Presentations at National and International Meetings**

1. **Wang J.** (2023), Genome-Scale Understanding of the Emergent Metabolic Interactions within a Model Methanotroph-Cyanobacteria Coculture, AIChE annual meeting, Nov. 5-10, Orlando, FL (**Invited Keynote Talk in AIChE 15C Bioengineering Division**)
2. Khorasani R., **Wang J.** & He Q.P. (2003), A Systematic Study of Co-Digestion of Fishery Sludge and Food Waste for Biogas Production, AIChE annual meeting, Nov. 5-10, Orlando, FL.
3. Murphy L., Wang, Y. & **Wang J.** (2023), Systematic evaluation of two genome-scale models for Clostridium tyrobutyricum through knowledge matching, AIChE annual meeting, Nov. 5-10, Orlando, FL.
4. Badr K., Boersma M., Kington P., Braford A., He Q.P. & **Wang J.** (2023), Elucidation of the emergent metabolic interactions within a model methanotroph-cyanobacteria coculture for biogas valorization, 45th Symposium on Biomaterials, Fuels and Chemicals, Apr 30 – May 3, Portland, OR
5. Badr K., He Q.P. & **Wang J.** (2023), Biofilm-based Cultivation: A High Throughput and Energy-Efficient Platform for Biological Methane/Biogas Conversion, 11th World Congress of Chemical Engineering, June 4-8, Buenos Aires, Argentina. (**Keynote talk**)
6. Murphy L., Badr K., He Q.P. & **Wang J.** (2023), A Cost-Effective Screening Station Expedites the Identification of the Optimal Methanotroph-Microalgae Cocultures for a Novel Waste-to-Value Technology, 11th World Congress of Chemical Engineering, June 4-8, Buenos Aires, Argentina.
7. Braford A., Boersma M., Kington P., Kalyuzhnaya M. & **Wang J.** (2023), The effect of pre-culture condition on the methanotrophic response to the extreme oxidative stress, 45th Symposium on Biomaterials, Fuels and Chemicals, Apr 30 – May 3, Portland, OR
8. Murphy L., Wang, Y. & **Wang J.** (2023), Understanding the intertwined redox balance and energy production in Clostridium tyrobutyricum for mutant design, 45th Symposium on Biomaterials, Fuels and Chemicals, Apr 30 – May 3, Portland, OR
9. Badr K., He Q.P. & **Wang J.** (2022), Biofilm-based cultivation of methanotroph-photoautotroph coculture – a highly effective biogas valorization technology, AIChE Annual Meeting, Nov. 13-18, Phoenix, AZ.
10. Badr K., Murphy L., Zhou J., Wang Y., & **Wang J.** (2022), Understanding the redox shift in a Clostridium tyrobutyricum mutant strain for butanol production through genome-scale metabolic modeling, AIChE Annual Meeting, Nov. 13-18, Phoenix, AZ.
11. Bradford A., Badr K., Kalyuzhnaya M., He Q.P. & **Wang J.** (2022), A novel phenotype of haloalkaliphilic methanotrophs induced by extreme oxidative stress, AIChE Annual Meeting, Nov. 13-18, Phoenix, AZ.
12. Murphy L., Badr K., O'Gwynn R., He Q.P., & **Wang J.** (2022), Fed-batch screening of methanotroph-algae cocultures for wastewater treatment and valorization, AIChE Annual Meeting, Nov. 13-18, Phoenix, AZ.
13. Bradford A., Badr K., He Q.P. & **Wang J.** (2022), A novel phenotype of haloalkaliphilic methanotrophs induced by extreme oxidative stress, 44th Symposium on Biomaterials, Fuels and Chemicals, May 1 – 4, New Orleans, LA.

14. Badr K., He Q.P. & **Wang J.** (2022), Dynamic Genome-Scale Metabolic Model Predicts the Establishment of N-Exchange within a Methanotroph-Cyanobacterium Coculture, 44th Symposium on Biomaterials, Fuels and Chemicals, May 1 – 4, New Orleans, LA.
15. Suthar K., Mitchell T., Hartwig A., **Wang J.**, He Q.P. (2021), Interactive Modules for Teaching Hands-on Data Science in Engineering, 2021 AIChE Annual Meeting, Nov. 7-11, Boston, MA
16. Lee J., Sun Z., Tan T. Mendez J. Flores-Cerrillo J., **Wang J.**, He Q.P. (2021) Remaining Useful Life Prediction for Main Bearings of a Reciprocating Compressor using an Operation Condition-Corrected Health Indicator, AIChE Annual Meeting, Nov. 7-11, Boston, MA
17. Murphy L., Badr K., Whalen W., He Q.P. & **Wang J.** (2021), Equipment and Method for Batch Screening of Methanotroph-Microalgae Cocultures for Waste-to-Value Conversion, AIChE Annual Meeting, Nov. 7-11, Boston, MA
18. Badr K., He Q.P. & **Wang J.** (2021), Semi-Structured Kinetic Modeling of a Methanotroph-Cyanobacteria Coculture Can Quantify the Effect of Unknown Metabolic Interactions on Enhancing Coculture Growth, AIChE Annual Meeting, Nov. 7-11, Boston, MA
19. Badr K., He Q.P. & **Wang J.** (2021), Dynamic Genome-Scale Metabolic Modeling Suggests the Establishment of Mutualism without Co-Evolution within a Synthetic Microbiome, AIChE Annual Meeting, Nov. 7-11, Boston, MA
20. Badr K., Hilliard M., Bradford A., He Q.P. & **Wang J.** (2021), The Effect of Cultivation History on the Growth Phenotype of a Type I Methanotroph, AIChE Annual Meeting, Nov. 7-11, Boston, MA
21. Badr K., Whalen W., He Q.P. & **Wang J.** (2020), Tools for Easy, Fast and Accurate Quantitative Characterization of the Methanotroph-Photoautotroph Coculture, AIChE Annual Meeting, Nov. 16-20, Virtual
22. Roberts N., Hilliard M., He Q.P. & **Wang J.** (2020), A Microalgae-Methanotroph Coculture Platform for Fuels and Chemical Production from Wastewater, AIChE Annual Meeting, Nov. 16-20, Virtual.
23. Lee J., Kumar A., Flores-Cerrillo J., **Wang J.** & He Q.P. (2020), Statistics Pattern Analysis Based k-Nearest Neighbors (SPA-kNN) Fault Detection for Pressure Swing Adsorption Processes, 2020 AIChE Annual Meeting, Nov. 16-20, Virtual.
24. Lee J., Flores-Cerrillo J., **Wang J.** & He Q.P. (2020), Application of Feature Engineering and Selection for Spectrometry-Based Soft Sensing, 2020 AIChE Annual Meeting, Nov. 16-20, Virtual.
25. Suthar K., **Wang J.**, Jiang Z., He Q.P. (2020), Statistics Pattern Analysis-Based Multiclass Woodchip Moisture Classification System Using Short-Range Iot Wi-Fi, 2020 AIChE Annual Meeting, Nov. 16-20, Virtual.
26. Badr K., He Q.P. & **Wang J.** (2020), Exploring the Interspecies Interactions within a Methanotroph-Cyanobacteria Coculture through Genome-Scale Metabolic Modeling, 2020 AIChE Annual Meeting, Nov. 16-20, Virtual.
27. Badr K., Hilliard M., He Q.P. & **Wang J.** (2020), A dynamic genome-scale metabolic network model for a novel methanotroph-cyanobacteria coculture, 42$^{nd}$ Symposium on Biomaterials, Fuels and Chemicals, accepted and selected for oral presentation.

28. Roberts N., Hilliard M., Badr K., Whelan W., He Q.P. & **Wang J.** (2020), A novel biological platform for integrated biogas upgrading and nutrient recovery to valorize anaerobic digester, 42nd Symposium on Biomaterials, Fuels and Chemicals, accepted for poster presentation.

29. Badr K., Whelan W., Roberts N., He Q.P. & **Wang J.** (2020), Quantitative Characterization of Methanotroph-Photoautotroph Cocultures, 42nd Symposium on Biomaterials, Fuels and Chemicals, accepted and selected for oral presentation.

30. He Q.P., **Wang J.**, Mao S., Parson L., Liu B., Zeng P., Smith A., Henry D. (2020), Data-Enabled Engineering Projects (DEEPs) Modules for Data Science Education in Engineering, ASEE-SE Conference 2020, Mar 8-10, 2020, Auburn, AL

31. He Q.P., **Wang J.**, Mao S., Parson L., Liu B., Zeng P., Smith A., Henry D. (2020), Real Data and Application based Data Science Education in Engineering, ASEE-SE Conference 2020, Mar 8-10, 2020, Auburn, AL

32. Badr K., Hilliard M., Whelan W., He Q.P., Kalyuzhnaya M., Beliaev A. & **Wang J.** (2019), Understanding the Dynamics of a Methanotroph-Cyanobacterium Coculture through Kinetic Modeling and Experimental Verification, 2nd International Conference on Microbiome Engineering, Dec. 2-4, Boston, MA

33. Shah D., **Wang J.**, and He Q.P. (2019). A Smart Manufacturing Testbed To Explore The Role Of Human Learning In The Machine Learning World, INFORMS Annual Meeting 2019, Oct. 20-23, 2019, Seattle, WA

34. Stone K., He Q.P. & **Wang J.** (2019), Two Experimental Protocols for Accurate Measurement of Gas Component Uptake and Production Rates in Bioconversion Processes, 2019 AIChE Annual Meeting, Nov. 11-15, Orlando, FL

35. Roberts N., He Q.P. & **Wang J.** (2019), Nutrient Recovery from Municipal Wastewater Using a Methanotroph-Microalgae Co-Culture, 2019 AIChE Annual Meeting, Nov. 11-15, Orlando, FL

36. Hilliard M., Jeffries T., He Q.P. & **Wang J.** (2019), Dynamic Transcriptomic Profiling Reveals Novel Short-Term and Long-Term Strategies to Cope with Oxygen Limitation in Scheffersomyces Stipitis, 2019 AIChE Annual Meeting, Nov. 11-15, Orlando, FL

37. Suthar K., Jiang Z., **Wang J.**, He Q.P. (2019), Using Channel State Information for Estimating Moisture Content in Woodchips via IoT based Wi-Fi, 2019 AIChE Annual Meeting, Nov. 11-15, Orlando, FL; **AIChE Session's Best Paper Award**

38. Shah D., Flores-Cerrillo J., **Wang J.** & He Q.P. (2019), Exploring the Role of System Knowledge in Data Analytics Using an Iiot-Enabled Smart Manufacturing Testbed., 2019 AIChE Annual Meeting, Nov. 11-15, Orlando, FL

39. Badr K., Zhang J., Wang Y., & **Wang J.** (2019), Genome Scale Model Analysis of Clostridium Tyrobutyricum for Butyl Butyrate Production, 2019 AIChE Annual Meeting, Nov. 11-15, Orlando, FL

40. Badr K., He Q.P. & **Wang J.** (2019), A Dynamic Genome-Scale Metabolic Network Model for a Novel Methanotroph-Cyanobacteria Coculture, 2019 AIChE Annual Meeting, Nov. 11-15, Orlando, FL

41. Lee J., Jesus Flores-Cerrillo, **Wang J.** & He Q.P. (2019), Improving Near-Infrared Spectrum-Based Soft Sensor Performance through Variable Selection, 2019 AIChE Annual Meeting, Nov. 11-15, Orlando, FL **AIChE Session's Best Paper Award**

42. Lee J., Kumar A., Flores-Cerrillo J., **Wang J.** & He Q.P. (2019), Fault Detection for Pressure Swing Adsorption Processes, 2019 AIChE Annual Meeting, Nov. 11-15, Orlando, FL

43. Lee J., **Wang J.** and He Q.P. (2019), A Guided Genetic Algorithm for Variable Selection, Annual Data Science Forum – Machine Learning in Science and Engineering Symposium, Atlanta, GA

44. Shah, D., **Wang J.** and He Q.P. (2019), An IIoT-enabled Smart Manufacturing Testbed to Explore the Role of Human Learning in the Machine Learning World, Annual Data Science Forum – Machine Learning in Science and Engineering Symposium, June 10-12, 2019, Atlanta, GA

45. Hilliard M., Jeffries J., He Q.P. & **Wang J.** (2019), Dynamic Transcriptomic Profiling Reveals Novel Short-term and Long-term Strategies to Cope with Oxygen Limitation in Scheffersomyces Stipitis, Annual Data Science Forum – Machine Learning in Science and Engineering Symposium, June 10-12, 2019, Atlanta, GA.

46. Hilliard M., He Q.P. & **Wang J.** (2019), Alternative Optimal Solutions in Flux Balance Analysis Give Rise to Hidden Phenotype, Annual Data Science Forum – Machine Learning in Science and Engineering Symposium, June 10-12, 2019, Atlanta, GA.

47. Badr K., Hilliard M., He Q.P. & **Wang J.** (2019), Kinetic Modeling of a Novel Methanotroph-Cyanobacterium Coculture for Biogas Conversion, Annual Data Science Forum – Machine Learning in Science and Engineering Symposium, June 10-12, 2019, Atlanta, GA.

48. Shah D., **Wang J.** and He Q. P. (2019), Data Characterization, Visualization and Analytics for an IIoT-enabled Smart Manufacturing Testbed, 2019 AIChE Spring Meeting, March 31 - April 4, 2019, New Orleans, LA

49. Lee J., **Wang J.** and He Q. P. (2019), A Novel Variable Selection Method for Spectrum-Based Soft Sensor Development, 2019 AIChE Spring Meeting, March 31 - April 4, 2019, New Orleans, LA

50. Bahr K., Roberts N., He Q.P. & **Wang J.** (2018), Understanding the Stability and Robustness of a Methanotroph-Cyanobacterium Coculture through Kinetic Modeling and Experimental Verification, 2018 AIChE Annual Conference, Oct. 28 – Nov. 2, Pittsburgh, PA.

51. Hilliard M., He Q.P. & **Wang J.**, Dynamic Transcriptomic Profiling of Scheffersomyces Stipitis Reveals Key Information of Its Gene Regulatory Network at Genome-Scale, 2018 AIChE Annual Conference, Oct. 28 – Nov. 2, Pittsburgh, PA.

52. Roberts N., He Q.P. & **Wang J.**, Using Methanotroph-Microalgae Coculture for Wastewater Treatment, 2018 AIChE Annual Conference, Oct. 28 – Nov. 2, Pittsburgh, PA.

53. Shah D., He Q.P. & **Wang J.**, Big Data and Iot: A Demonstration Testbed of Multi-Stage Centrifugal Pumping System, 2018 AIChE Annual Conference, Oct. 28 – Nov. 2, Pittsburgh, PA.

54. Stone K., He Q.P. & **Wang J.**, Methane-limited vs oxygen-limited growth of *Methylomicrobium Buryatense* 5GB1: a systems approach, 2018 AIChE Annual Conference, Oct. 28 – Nov. 2, Pittsburgh, PA.

55. Roberts N.*, Hilliard M.*, Bahr K.*, He Q.P. & **Wang J.**, Efficient and robust biological $CH_4/CO_2$ co-utilization through Coculture of methanotrophs and microalgae, 40th Symposium on Biotechnology for Fuels and Chemicals, Apr. 29 – May 3, 2018, Clear Water, FL

56. Stone K.*, He Q.P. & **Wang J.**, An Experimental and Computational Study of the Intracellular Pathways in Methylomicrobium buryatense, a Promising Methanotroph Strain, Apr. 29 – May 3, 2018, Clear Water, FL

57. Roberts N.*, Hilliard M.*, Bahr K.*, He Q.P. & **Wang J.**, Coculture of Methanotrophs and Microalgae – a Flexible Platform for Biological $CH_4/CO_2$ Co-Utilization, 2017 AIChE Annual Conference, Oct. 28 – Nov. 3, 2017, Minneapolis, MN. **AIChE Session's Best Paper Award**

58. Stone K.*, He Q.P. & **Wang J.**, Systematic Carbon and Growth Analysis of a Promising Methanotroph Strain, 2017 AIChE Annual Conference, Oct. 28 – Nov. 3, 2017, Minneapolis, MN. **AIChE Division 15 Best Poster Award**

59. He Q.P. & **Wang J.**, Challenges and Opportunities of Statistical Process Monitoring in Advancing Smart Manufacturing, 2017 AIChE Annual Conference, Oct. 28 – Nov. 3, 2017, Minneapolis, MN.

60. Hilliard M.*, He Q.P. & **Wang J.**, Understanding the Metabolic Shift of Scheffersomyces Stipitis from Aerobic Growth to Oxygen-Limited Fermentation at Genome-Scale, 2017 AIChE Annual Conference, Oct. 28 – Nov. 3, 2017, Minneapolis, MN.

61. Stone K.*, He Q.P. & **Wang J.**, Characterizing a promising methanotroph strain through a complete carbon and growth analysis, 39th Symposium on Biotechnology for Fuels and Chemicals, May 1-4, 2017, San Francisco, CA.

62. Hilliard M.*, He Q.P. & **Wang J.**, Elucidating the meaning of alternative optimal solutions in flux balance analysis, 2016 AIChE Annual Conference, San Francisco, Nov. 14-18, CA.

63. Damiani A.*, Kim M.H.*, He Q.P. & **Wang J.**, Understanding the metabolism of *Scheffersomyces stipitis* during the transition from aerobic growth to fermentation conditions, 2016 AIChE Annual Conference, San Francisco, Nov. 14-18, CA.

64. Stone K.*, Hilliard M.*, He Q.P. & **Wang J.**, Fermentation Design and Gas Transfer Considerations for Biochemical Methane Conversion, 2016 AIChE Annual Conference, San Francisco, Nov. 14-18, CA. **AIChE Session's Best Paper Award**

65. Shah D.*, Hancock A. Skjellum A, He Q.P. & **Wang J.**, IoT-enabled cybermanufacturing: challenges and possibilities, 2016 AIChE Annual Conference, San Francisco, Nov. 14-18, CA.

66. Shah D.*, He Q.P. & **Wang J.**, Improved soft sensors for mixed culture system monitoring, 2016 AIChE Annual Conference, San Francisco, Nov. 14-18, CA.

67. Kim M.H.*, He Q.P. & **Wang J.**, Oxygen utilization rate (OUR) alone does not define the optimal condition for ethanol production with Scheffersomyces stipitis, 38th Symposium on Biotechnology for Fuels and Chemicals, Apr 25-29, 2016, Baltimore, MD.

68. He Q.P., **Wang J.,** Skjellum A., Shah D. & Lemus C., Statistics Pattern-Based Big Data Analytics Framework for Iot-Enabled Cybermanufacturing, 2016 AIChE Spring Conference, Apr 10 – 14, Houston, TX

69. **Wang J.**, A system identification based framework for genome-scale metabolic network model validation and refinement, invited talk, Modeling Life in the Lab Symposium, Carey Institute for Global Good, NY (cross listed under invited lecture).

70. Kim M.H.*, He Q.P. & **Wang J.**, Quantifying the effects of oxygen utilization rate on ethanol production by S. stipitis under controlled chemostat, 2015 AIChE Annual Conference, Salt Lake City, Nov. 8 – 13, UT.

71. Stone K*, Shah D*. Zamora A., He Q.P. & **Wang J.**, A novel soft sensor approach for estimating individual biomass in mixed cultures, 2015 AIChE Annual Conference, Salt Lake City, Nov. 8 – 13, UT.

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73. He Q.P., **Wang J.**, Integrating biofuels educational modules into two chemical engineering courses, 2015 ASEE-SE Annual Conference, April 12-14, 2015, Gainesville, FL

74. He Q.P., **Wang J.**, Integrating Biofuels Education into Chemical Engineering Curriculum, The sixth Frontiers of Engineering Education (FOEE) Symposium, October 26-29, 2014, Irvine, CA

75. Kim M.H., Damiani A., He Q.P. and **Wang J.**, A novel co-culture system for ethanolic fermentation from lignocellulosic sugars, Sun Grant Regional Conference on Southern Crossroads: Progress In the Science & Technology of Biomass Production, Processing and Use, Feb. 2 – 4, 2015, Auburn, AL

76. Damiani A., He Q.P., Jeffries T. and **Wang J.**, iAD824: An improved genome-scale metabolic network model for *Scheffersomyces stipitis*, Sun Grant Regional Conference on Southern Crossroads: Progress In the Science & Technology of Biomass Production, Processing and Use, Feb. 2 – 4, 2015, Auburn, AL

77. Damiani A., He Q.P. and **Wang J.**, A system identification based approach for phenotype phase plane analysis, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA

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79. Stone K., He Q.P. and **Wang J.**, Biological conversion of methane: a comprehensive review, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA

80. Kim M., Damiani A., He Q.P. and **Wang J.**, Kinetic modeling of co-cultured Saccharomyces cerevisiae and Scheffersomyces stipitis, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA

81. Wang Z., He Q.P. and **Wang J.**, New criteria for evaluating variable selection performance, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA

82. Damiani A., He Q.P., Jeffries T. and **Wang J.**, Comprehensive evaluations of two genome-scale models of Scheffersomyces stipitis, Metabolic Engineering Conference X, June. 15 – June 19, 2014, Vancouver, BC, Canada

83. Damiani A., He Q.P. and **Wang J.**, A system identification based framework for metabolic network analysis and its application to genome scale models of Scheffersomyces stipitis, 36th Symposium on Biotechnology for Fuels and Chemicals Apr. 28-May 1, 2014, Clearwater Beach, FL

84. He Q.P., **Wang J.**, Educate chemical engineers for renewable and sustainable fuels and chemicals: opportunities and challenges, 2014 ASEE Southeastern Section Conference, Mercer University School of Engineering, Mar. 30 – Apr. 1, 2014, Macon, GA

85. **Wang J.**, He Q.P. and Edgar T., Non-threaded Run-to-Run Control, 14$^{th}$ European Advanced Process Control and Manufacturing Conference, Apr. 7-9, 2014, Rome, Italy

86. He Q.P and **Wang J.**, A New Virtual Metrology Approach for Semiconductor Manufacturing Processes, 14th European Advanced Process Control and Manufacturing Conference, Apr. 7-9, 2014, Rome, Italy

87. Liu J, Damiani A, **Wang J.**, *In silico* characterization of fermentative metabolism in recombinant *S. cerevisiae*. AIChE Southern Regional Conference; Mar 21-23, 2014; Mayaguez, Puerto Rico.

88. Liu J, Gupta P, Damiani A, **Wang J.**, An improved genome-scale metabolic network model of *Scheffersomyces stipitis*. Nov. 3-8, 2013, San Francisco, CA.

89. Damiani A., Kim M.H., Liang M., and **Wang J.**, A modified dynamic method for measuring $k_L a$, AIChE Annual Meeting, Nov. 3-8, 2013, San Francisco, CA

90. Damiani A., He Q.P., and **Wang J.**, Comprehensive evaluation of two genome-wide metabolic network models on *Scheffersomyces stipitis*, AIChE Annual Meeting, Nov. 3-8, 2013, San Francisco, CA

91. Wang Z., He Q.P., and **Wang J.**, Comparison of different variable selection methods for PLS soft sensor development, AIChE Annual Meeting, Nov. 3-8, 2013, San Francisco, CA

92. Kim M.H., Liang M., He Q.P. and **Wang J.**, A novel co-culture system for pseudo-continuous ethanolic fermentation from lignocellulosic sugars, AIChE Annual Meeting, Nov. 3-8, 2013, San Francisco, CA

93. **Wang J.**, He Q.P., Edgar T and Stuber J., A new advanced process control framework for high-mix semiconductor manufacturing, **Invited Keynote Speak**, APC XXIII, Oct. 14-16, 2013, Ann Arbor, MI

94. He Q.P., & **Wang J.**, Reducing Energy and Chemical Consumption in Kraft Pulping Process through a Soft Sensor Enabled Self-adaptive Control Approach, The 3rd International Conference on Sustainable Chemical Product and Process Engineering (SCPPE 2013), May 27-30, 2013, Dalian, China

95. Liang M., He Q.P., & **Wang J.**, Elucidating xylose metabolism of *Scheffersomyces stipitis* for lignocellulosic ethanol production, The 3rd International Conference on Sustainable Chemical Product and Process Engineering (SCPPE 2013), May 27-30, 2013, Dalian, China

96. Liang M., He Q.P., & **Wang J.**, Rational design of cofactor engineering strategies through metabolic network analysis, 35th Symposium on Biotechnology for Fuels and Chemicals, Apr 29 – May 2, 2013, Portland, OR.

97. Damiani A., He Q.P., & **Wang J.**, Comprehensive Evaluation of Two Genome-Wide Metabolic Network Models on *Scheffersomyces stipitis*, 35th Symposium on Biotechnology for Fuels and Chemicals, 2013, Portland, OR.

98. **Wang J.**, He Q.P. & Edgar T.F., Improved state estimation for high-mix semiconductor manufacturing, AIChE annual meeting, 2012, Pittsburgh, PA.

99. He Q.P. & **Wang J.**, A semi-physical valve stiction model and its application for stiction quantification, AIChE annual meeting, 2012, Pittsburgh, PA.

100. Liang M., Kim M.H., He Q.P., Jeffries T & **Wang, J.**, metabolic network modeling of redox balancing and ethanol production in *Scheffersomyces stipitis*, AIChE annual meeting, 2012, Pittsburgh, PA.

101. Galicia H.J., He Q.P. & **Wang J.**, Intelligent recursive soft sensor adaptation via Bayesian outlier detection and classification, AIChE annual meeting, 2012, Pittsburgh, PA.

102. Kim, M.H., Liang, M., He, Q.P. & **Wang, J.**, Efficient bioconversion of glucose/xylose mixtures for ethanol production using a novel co-culture system, AIChE annual meeting, 2012, Pittsburgh, PA.

103. Kim, M.H., Liang, M., He, Q.P. & **Wang, J.**, Pseudo-continuous fermentation – an effective way to study the dynamics of co-culture systems. 34th Symposium on Biotechnology for Fuels and Chemicals, 2012, New Orleans, LA.

104. Liang, M., Kim, M.H., He, Q.P. & **Wang, J.**, Reconstruction of the central carbon metabolism of *Pichia stipitis*. 34th Symposium on Biotechnology for Fuels and Chemicals, 2012, New Orleans, LA

105. Liang, M., Kim, M.H., He, Q.P. & **Wang, J.**, Elucidation of redox balance in xylose fermentation with Pichia stipitis. 34th Symposium on Biotechnology for Fuels and Chemicals, 2012, New Orleans, LA

106. Galicia H.J., He Q.P. & **Wang J.**, Fault detection and diagnosis in the Statistics Pattern Analysis framework. AIChE annual meeting, 2011, Minneapolis, MN. **AIChE CAST Division Director's Presentation Award**

107. Galicia H.J., He Q.P. & **Wang J.**, Online outlier detection with a Bayesian supervisory approach for recursive soft sensor update. AIChE annual meeting, 2011, Minneapolis, MN.

108. Kim, M.H., Liang, M., He, Q.P. & **Wang, J.**, Pseudo-Continuous Fermentation Using a Novel Bioreactor to Facilitate the Study of a Co-Culture System for Ethanol Production. AIChE annual meeting, Oct. 16-21, 2011, Minneapolis, MN.

109. He Q.P. & **Wang J.**, Multivariate statistical analysis based statistics pattern analysis, AIChE annual meeting, 2010, Salt Lake City, UT

110. Galicia H.J., He Q.P., **Wang J.**, Hodges R., Krishnagopalan G., Cullinan H., Outlier detection and process monitoring with application to a recursive soft sensor update for digester control, AIChE annual meeting, 2010, Salt Lake City, UT

111. Liang M., He Q.P. & **Wang J.**, Pseudo-continuous operation: an effective way to improve ethanol tolerance of *Pichia stipitis* in hexose/pentose fermentation, The Society for Industrial Microbiology Annual Meeting, August 1-5, 2010, San Francisco, CA.

112. Liang M., He Q.P. and **Wang J.**, Improving Ethanol Tolerance of *Pichia stipitis* Via Continuous Fermentation with Cell Retention, AIChE Annual Meeting, November 8-13, 2009. Nashville, TN

113. Galicia1 H., He Q.P., **Wang J.**, Hodges R.E, Krishnagopalan G.A and Cullinan H.T., A Multi-Model Recursive Dynamic Soft Sensor for Digester Control, AIChE Annual Meeting, November 8-13, 2009. Nashville, TN

114. Akanda M., **Wang J.**, Cheng Z.Y. and Chin B., Investigation on Effects of Different Factors on Biosensor Performance via Numerical Simulation, AIChE Annual Meeting, November 8-13, 2009. Nashville, TN

115. He Q.P. and **Wang J.**, Statistics Pattern Analysis and Its Application to Semiconductor Process Monitoring, AIChE Annual Meeting, November 8-13, 2009. Nashville, TN

116. He Q.P. and **Wang J.**, Valve Stiction Modeling: Data-Driven Vs. First Principles, AIChE Annual Meeting, November 8-13, 2009. Nashville, TN

117. **Wang J.**, He Q.P., Edgar T.F., Control Performance Monitoring for EWMA Controllers, AEC/APC Symposium XXI, September 27-30, 2009, Ann Abhor, MI

118. He Q.P. and **Wang J.**, Fundamental Properties of Statistics Pattern Analysis, AEC/APC Symposium XXI, September 27-30, 2009, Ann Abhor, MI

119. Akanda MH, **Wang J**, Chin B & Zheng ZY (2008), Elucidation of Biosensing Processes through Simulation, *AIChE 2008 Annual Meeting*, Nov 16-21, Philadelphia, PA

120. Galicia H, He QP & **Wang J** (2008), A Subspace Identification Based Dynamic Soft Sensor Approach for Digester Control, *AIChE 2008 Annual Meeting*, Nov 16-21, Philadelphia, PA

121. He QP & **Wang J** (2008), A New Algorithm for Spectrum Alignment by Maximizing Correlations among Signature Peaks, *AIChE 2008 Annual Meeting*, Nov 16-21, Philadelphia, PA

122. He QP & **Wang J** (2008), A Correlation Pattern based Algorithm for Process Monitoring, *AIChE 2008 Annual Meeting*, Nov 16-21, Philadelphia, PA

123. He QP & **Wang J** (2008), Valve Stiction Detection and Quantification in Oscillatory Control Loops, *AIChE 2008 Annual Meeting*, Nov 16-21, Philadelphia, PA

124. He Q.P. & **Wang J.** (2008), A Novel Non-Threaded FDC Framework for High-Mix Semiconductor Manufacturing, *AEC/APC Symposium XX*, Oct 4 – 8, Salt Lake City, UT

125. **Wang J.** & He Q.P. (2008), A novel approach for cancer diagnosis and prognosis using omics data, 5th NIH Early Detection Research Network Scientific Workshop, Mar. 17-20, Bethesda, MD

126. Chen Y. & **Wang J.** (2007), Mathematical modeling of sugar fermentation in bioethanol production, *60th Annual Meeting of the Southeastern Branch of the American Society for Microbiology*, Nov. 8-10,Auburn, AL.

127. He Q.P, **Wang J.** & Barnes M. (2007), Ovarian cancer early detection using proteomic data - a systems engineering approach for biomarker discovery, *AIChE 2007 Annual Meeting*, Nov. 4-9, Salt Lake City, UT.

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132. **Wang J.** (2007), Stability and sensitivity analysis of an EWMA controllers with gain updating, *AEC/APC Symposium XIX*, Sep. 15-20, Indian Wells, CA

133. **Wang J.** & He Q.P., (2006), On state estimation in high-mix semiconductor manufacturing using a Gauss-Markov model, *AIChE 2006 Annual Meeting*, Nov. 12-17, San Francisco, CA

134. He Q.P. & **Wang J.** (2006), A multivariate fault detection method using k-nearest-neighbor rule, *AIChE 2006 Annual Meeting*, Nov. 12-17, San Francisco, CA

135. **Wang J.** & He Q.P., (2006), On state estimation in low-volume high-mix semiconductor manufacturing, *AEC/APC Symposium XVIII*, Sep. 29-Oct. 6, Westminster, CO

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147. Qin S.J., Ljung L. & **Wang J.** (2002), Subspace identification methods using parsimonious model formulation, *AIChE 2002 Annual Meeting*, Nov. 3-8, Indianapolis, IN.

148. **Wang J.**, & Qin S. J. (2001), SIMPCA – subspace identification method via PCA, *AIChE 2001 Annual Meeting*, Nov. 4-9, Reno, NA.

149. **Wang J.**, & Qin S. J. (2000), A new subspace identification approach based on principal component analysis, *AIChE 2000 Annual Meeting*. Nov. 12-17, Los Angeles, CA.