ZHEYU JIANG

School of Chemical Engineering
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EDUCATION

Ph.D., Purdue University, Chemical Engineering 2014 – 2018
Advisors: Rakesh Agrawal and Mohit Tawarmalani

B.Ch.E. (Honors), University of Minnesota 2010 – 2014
Advisor: Michael Tsapatsis

PROFESSIONAL APPOINTMENTS

Oklahoma State University, *Assistant Professor, School of Chemical Engineering* 2021 – Present
Corteva Agriscience, *Research Investigator, Small Molecule Discovery and Development* 2018 – 2021
Purdue University, *Graduate Research Assistant, Rakesh Agrawal group* 2014 – 2018
Dow Chemical, *PhD Intern, Engineering and Process Sciences* 2016
University of Minnesota,*Undergraduate Research Assistant, Michael Tsapatsis group* 2011 – 2014
Honeywell UOP, *Engineering Support Specialist, Simulation & Tool Development Skill Center* 2013
ExxonMobil Chemical, *Process Engineering Intern* 2012

PROFESSIONAL SERVICE

International Scientific Committee, the 10th International Conference on Foundations of Computer-Aided Process Design (FOCAPD) 2023 – 2024
Chair/Co-Chair, Computing and Systems Technology Division 10a,c,d, AIChE Annual Meeting 2023
Chair, Advances in Machine Learning, FOCAPO/CPC Conference 2023 2023
Panel Reviewer, NSF and USDA NIFA 2024
Reviewer, *AIChE J.*, *Comp. & Chem. Eng.*, *Chem. Eng. Sci.*, *Ind. & Eng. Chem. Res*, *Chem. Eng. Res. & Des.*, *ACS Omega*, *J. Taiwan Inst. Chem. Eng.*, *Chem. Eng. Trans.* 2017 – Present

HONORS AND AWARDS

Foundations of Process Analytics and Machine Learning 2023 Travel Award for Junior Faculty 2023
Early-career pioneering research featured in 2022 Futures Issue, AIChE Journal 2022
Ace of Innovation Award, Corteva Agriscience 2020
People's Choice Award, Corteva Agriscience 2019
AIChE Separations Division Graduate Student Research Award 2018
Eastman Graduate Travel Grant, Purdue University 2017
Purdue Graduate Student Government Travel Grant, Purdue University 2016
Global Excellence Scholarship, UMN 2010 – 2014
College of Science and Engineering Merit Scholarship, UMN 2012
Charles A. Mann Award, Department of Chemical Engineering and Material Science, UMN 2012

PEER-REVIEWED JOURNAL PUBLICATIONS (∗ indicates corresponding author)

8. Jiang Z*, Tawarmalani M, Agrawal R. Minimum reflux calculation for multicomponent distillation in multi-feed, multi-product columns: Mathematical model. *AIChE Journal*. 2022;68:e17929.
   - Invited article in the 2022 Futures Issue of AIChE Journal featuring pioneering early career researchers

7. Jiang Z*. A shortcut minimum reflux calculation method for distillation columns separating multicomponent homogeneous azeotropic mixtures. *Le Scientifique*. 2020;2020(1):17–25.
   - Featured in the inaugural issue of *Le Scientifique*, the peer-reviewed academic journal for Corteva scientists
6. Jiang Z, Chen Z, Huff J, Shenvi A, Tawarmalani M, Agrawal R. Global minimization of total exergy loss of multicomponent distillation configurations. *AIChE Journal*. 2019;65(11):e16737
5. Jiang Z, Mathew TJ, Huff J, Nallasivam U, Tawarmalani M, Agrawal R. Global optimization of multicomponent distillation configurations: Global minimization of total cost for multicomponent mixture separations. *Computers & Chemical Engineering*. 2019;126:249–262
4. Jiang Z, Agrawal R. Process intensification in multicomponent distillation: A review of recent advancements. *Chemical Engineering Research and Design*. 2019;147:122–145.
   - Invited review article in the special issue on 11$^{\text{th}}$ International Conference on Distillation & Absorption
3. Jiang Z, Madenoor Ramapriya G, Tawarmalani M, Agrawal R. Process intensification in multicomponent distillation. *Chemical Engineering Transactions*. 2018;69:841–846
2. Jiang Z, Madenoor Ramapriya G, Tawarmalani M, Agrawal R. Minimum energy of multicomponent distillation systems using minimum additional heat and mass integration sections. *AIChE Journal*. 2018;64(9):3410–3418
1. Agrawal KV, Topuz B, Jiang Z, Nguenkam K, Elyassi B, Francis LF, Tsapatsis M, Navarro M. Solution-processable exfoliated zeolite nanosheets purified by density gradient centrifugation. *AIChE Journal*. 2013;59(9):3458–3467.
   - Invited article in the special issue of AIChE Journal Founders Tribute to Neal R. Amundson

PEER-REVIEWED CONFERENCE PROCEEDINGS ($*$ indicates corresponding author)

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7. Jiang Z*. Online monitoring and robust, reliable fault detection of chemical process systems. *Computer Aided Chemical Engineering*. 2023;52:1621–1626
6. Ghasemi Naraghi S, Jiang Z*. Stochastic optimization of agrochemical supply chains with risk management. *Computer Aided Chemical Engineering*. 2023;52:3335–3340
5. Song Z, Jiang Z*. A data-driven modeling approach for water flow dynamics in soil. *Computer Aided Chemical Engineering*. 2023;52:819–824
4. Ghasemi Naraghi S, Jiang Z*. Stochastic Optimization of Global Agrochemical Supply Chains with Risk Management. In: *Proceedings of IISE Annual Conference and Expo 2023*. New Orleans, LA. 2023;
3. Xie J, Jiang Z*, Yao B. The Effect of Different Optimization Strategies to Physics-Constrained Deep Learning for Soil Moisture Estimation. In: *Proceedings of IISE Annual Conference and Expo 2023*. New Orleans, LA. 2023;
2. Song Z, Jiang Z*. A data-driven random walk approach for solving water flow dynamics in soil systems. In: *Proceedings of Foundations of Computer-Aided Process Operations and Chemical Process Control Conference*. San Antonio, TX. 2023;
1. Jiang Z*. A shortcut model for multicomponent homogeneous azeotropic distillation. In: *Proceedings of Foundations of Computer-Aided Process Operations and Chemical Process Control Conference*. San Antonio, TX. 2023;

SUBMITTED MANUSCRIPTS ($*$ indicates corresponding author)

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4. Miraliakbar A, Jiang Z*. Fast, Accurate, and Robust Fault Detection and Diagnosis of Industrial Processes. 2024
3. Song Z, Jiang Z*. A Data-facilitated numerical method for Richards equation to model water flow dynamics in soil. 2023. arXiv preprint arXiv:2310.02806

2. Xie J, Jiang Z*, Yao B. Physics-augmented deep learning for estimating water flow dynamics in soil systems. 2024

1. Jiang Z*, Tawarmalani M, Agrawal R. Minimum reflux calculation for multicomponent distillation in multi-feed, multi-product columns: Optimization and case studies. 2024

PATENTS

1. "Polymorphs of compounds having pesticidal activity". WO 2022/072650 A1, published on April 7, 2022

SELECTED INVITED TALKS (out of 23)

12. Jiang Z. Process Systems Engineering Applications in Sustainable Agriculture and Chemical Manufacturing. 2024. PSE Seminar Series, Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN (Host: Qi Zhang)

11. Jiang Z. Toward Sustainable, Intensified Food and Chemical Productions via Process Systems Engineering Approaches. 2024. School of Chemical, Biological and Environmental Engineering, Oregon State University, Corvallis, OR (Host: Cory Simon)

10. Jiang Z. Decarbonization of Industrial Distillation via Systems Engineering Approaches. 2023. 2023 ChemE Show, Galveston, TX (Host: Tony Cai)

9. Jiang Z. Creating a Sustainable Food Future via Systems Engineering Approaches. 2023. ACS Southwest Regional Meeting (SWRM), Oklahoma City, OK (Host: H. N. Cheng)

8. Jiang Z. Toward Sustainable Food and Chemical Productions via Systems Engineering Approaches. 2023. Cornell University, Ithaca, NY (Host: Fengqi You)
   - One of Ezra's Round Table/Systems Seminar Series featured by Cornell Systems Engineering Program

7. Jiang Z. Decarbonization of Industrial Distillation via Shortcut modeling, Global Optimization, and Process Intensification – Recent Advancements, Case Studies, and Future Perspectives. 2023. Phillips 66 Research Center, Bartlesville, OK (Host: Karthik Marimuthu)
   - Inaugural quarterly seminar series in 2023 for AIChE Bartlesville Chapter

6. Jiang Z. AI Applications in Chemical Process Industry. 2023. AIChE Spring Meeting, Houston, TX (Host: Senthil Krishnamoorthy)

5. Jiang Z. Creating a Sustainable Manufacturing and Food Future via Process Systems Engineering Innovations. 2021. School of Industrial Engineering and Management, Oklahoma State University, Stillwater, OK (Host: Joseph Nuamah)

4. Jiang Z. Creating a Sustainable Food Future by 2050 via Systems Engineering Innovations. 2021. Chemical and Biological Engineering Department, University of Wisconsin, Madison, WI (Host: Victor Zavala)

3. Jiang Z. Advancing Future-generation Separation Technologies via Process Systems Engineering Innovations. 2021. Chemical and Biological Engineering Department, University of Wisconsin, Madison, WI (Host: Victor Zavala)

2. Jiang Z. Innovating Future-generation Separation Processes via Systems Engineering. 2020. Prof. Fengqi You's group, Cornell University, Ithaca, NY (Host: Fengqi You)

1. Jiang Z. A Modeling Approach to Designing Effective Solvent Exchange and Recycle Processes for Agrochemical Active Ingredient Manufacturing. 2019. Crop Protection Product Design & Process Summit, Indianapolis, IN (Host: Abraham Schuitman)

STUDENT MENTORSHIP

Graduate Students: Zeyuan Song (Spring 2022 – Present), Saba Ghasemi Naraghi (Spring 2022 – Present), Alireza Miraliakbar (Spring 2023 – Present), Mehrdad Zomorodiyan (Spring 2023 – Present, coadvised by Dr. Yu Feng)

Undergraduate Students: Nate Peak (Spring 2023, OSU Freshman Research Scholar), Tylee Kareck (Fall 2023 – Present, OSU CEAT Undergraduate Research Scholar)

DISSERTATION COMMITTEE

Suhao Chen (now Assistant Professor in Industrial Engineering at South Dakota Mines)	Summer 2022
Batuhan Bal (CHE Ph.D. proposal & thesis defense committee)	Fall 2023, Spring 2024
Rashed Islam (CHE M.S. thesis defense committee)	Fall 2023
Ricky Reed (IEM M.S. thesis defense committee)	Fall 2023

TEACHING (student course evaluation results are based on a total score of 5)

Lead Instructor, CHE 3113 – Rate Operations II, OSU (4.0, 4.4, N/A)	Spring 22, 23, 24
Lead Instructor, CHE 6010 – CHE Graduate Seminar, OSU (4.5, N/A)	Fall 23, Spring 24
Lead Instructor, CHE 2581 – CHE Sophomore Seminar, OSU (4.7)	Fall 2022
Co-Instructor, CHE 4124 – Chemical Engineering Design I, OSU (4.5, 4.4)	Fall 21, 23
Teaching Assistant, CHE 450 – Design and Analysis of Process Systems, Purdue (N/A)	Spring 2017
Teaching Assistant, CHE 378 – Heat and Mass Transfer, Purdue (N/A)	Fall 2015

ACTIVITIES

Service to the University: *Member*, chemical engineering faculty search committee (2022); *Committee Member*, CEAT Scholars (2023), Freshman Research Scholars (2023 – Present)

Outreach: OSU LGBTQ Safe Zone Ally Program (2023), Oklahoma State Science and Engineering Fair (2022, 2023), CEAT Annual Graduate Research Symposium (2023), OSU CEAT Discovery Days (2023), OSU Rural Renewal Initiative (2022 in Tillman County, 2023 in Harmon County)

PROFESSIONAL SOCIETIES

American Institute of Chemical Engineers (AIChE), American Chemical Society (ACS), Institute of Industrial and Systems Engineers (IISE), Institute for Operations Research and the Management Sciences (INFORMS)