M.M. FARUQUE HASAN

Associate Professor, and Holder of the Kim Tompkins McDivitt '88 and Phillip McDivitt '87 Faculty Fellowship
Artie McFerrin Department of Chemical Engineering, Texas A&M University
Office: 242 Jack E. Brown Building, Texas A&M University
Address: 3122 TAMU, College Station, TX 77843-3122
Tel: 979-862-1449, Email: hasan@tamu.edu
Webpage: http://people.tamu.edu/~hasan

AREAS OF EXPERTISE

Modeling and Optimization; Machine Learning; Computer-aided Process Design and Intensification; Carbon Capture, Utilization and Storage; Sustainable Hydrogen Economy

EDUCATION

Princeton University
Postdoctoral training, Chemical Engineering 2011–2014

National University of Singapore
Ph.D., Chemical Engineering 2010

Bangladesh University of Engineering & Technology
B.S., Chemical Engineering 2005

APPOINTMENTS

Texas A&M University
Associate Professor, Artie McFerrin Department of Chemical Engineering 2020–Present
Kim Tompkins McDivitt '88 and Phillip McDivitt '87 Faculty Fellow 2018–Present
Assistant Professor, Artie McFerrin Department of Chemical Engineering 2014–2020

Texas A&M Energy Institute
Assistant Director of Decarbonization 2022–Present

Princeton University
Postdoctoral Associate, Chemical and Biological Engineering 2011–2014

National University of Singapore
Research Fellow, Chemical and Biomolecular Engineering 2010–2011

HONORS AND AWARDS

- AIChE Computing and Systems Technology (CAST) Outstanding Young Researcher Award 2021
- NSF CAREER Award 2020
- I&EC Research 2019 Class of Influential Researchers 2019
- World Technology Network Finalist Award (Environmental Category) 2018
- AIChE Journal Inaugural *Futures* Series Invited Article 2018
- American Chemical Society ACS PRF Doctoral New Investigator Award 2017
- Best Paper Award, Journal of Global Optimization 2017
- Outstanding Achievement Award, Texas A&M University Chemical Engineering 2017
- AIChE Computing & Systems Technology (CAST) Division Plenary 2017
- Invitation to National Academy of Engineering EU-US Frontiers of Engineering Symposium 2016
- Best Paper Award, Computers & Chemical Engineering (Elsevier) 2015
- DOE Ralph E. Powe Junior Faculty Enhancement Award in Engineering/Applied Sciences 2015
- Finalist, Princeton Innovation Forum 2013

- World Future Foundation Ph.D. Prize in Environmental & Sustainability Research 2010
- Best Technical Paper Award, 1st Annual Gas Symposium 2009

EDITORIAL ACTIVITIES

- Editorial Board Member (Early Career), *ACS Sustainable Chemistry & Engineering* 2021–Present
- Editorial Board Member, *Discover Chemical Engineering* 2020–Present
- Editorial Board Member, *Frontiers in Energy Research* 2018–2021
- Editorial Board Member, *BMC Chemical Engineering* 2020
- Review Editor, *Computational Methods in Chemical Engineering* 2019–Present
- Guest Editor, *Frontiers in Chemical Engineering* Special Issue 2020
- Guest Co-Editor, *Industrial & Engineering Chemistry Research* Special Issue on Frameworks for Process Intensification and Modularization 2019
- Guest Editor, *ChemEngineering* Special Issue on CO_2 Capture, Utilization and Storage 2019

LEADERSHIP

American Institute of Chemical Engineers (AIChE)

- Computing & Systems Technology (CAST) Division
    - Elected Director 2022–2024
    - Elected Area Chair for CAST 10c (Process Operations) 2023
    - Elected Area Chair for CAST 10a (Process Design) 2019
- Lead Subject Matter Expert and Lead Instructor
    - 3-day long Pilot Course "Strategies for Computer-Aided Process Intensification" 2021
    - AIChE eLearning Course "Process Design for Process Intensification" 2020
    - AIChE eLearning Course "Modeling and Simulation for Process Intensification" 2020

Texas A&M Energy Institute

- Research Coordinator: Sustainable H_2 Economy, and Carbon Capture, Utilization and Storage 2021 – Present

AIChE/RAPID Manufacturing Institute

- Lead PI, COMPLETE Project 2020–Present
- Co-Lead, SYNOPSIS Project 2018–Present
- Member, RAPID Coordination Team at Texas A&M University 2017–Present

PROFESSIONAL SOCIETIES

- Senior Member, American Institute of Chemical Engineers (AIChE) 2012–Present
- Member, Institute for Operations Research and the Management Sciences (INFORMS) 2017–Present
- Member, International Society of Global Optimization (iSoGO) 2018–Present

JOURNAL PUBLICATIONS

(**2,900+ Citations and H-index of 29**; Source: Google Scholar, accessed on May 30, 2022) (Corresponding Author is underlined, [1]Denotes Hasan Graduate Students, [2]Denotes Undergraduate Co-authors)

J1. Zantye, M. S.[1]; Gandhi, A.[1]; Wang, Y.; Vudata, S. P.; Bhattacharyya, D.; Hasan, M. M. F. Optimal Design and Integration of Decentralized Electrochemical Energy Storage with Renewables and Fossil Plants. *Energy & Environmental Science*, 2022, Accepted.

J2. Gandhi, A.[1]; Zantye, M. S.[1]; Hasan, M. M. F. Cryogenic Energy Storage: Standalone Design, Rigorous Optimization and Techno-economic Analysis. *Applied Energy*, 2022, 322, 119413.

J3. Iftakher,A.[1]; Liñán, D. A.; Mansouri, S. S.; Nahid, A.; Hasan, M. M. F.; Choudhury, M. A. A. S.; Ricardez-Sandoval, L. A.; Lee, J. H. RD-Toolbox: A Computer Aided Toolbox for Integrated Design and Control of Reactive Distillation Processes. *Computers & Chemical Engineering*, 2022, 164, 107869.

J4. Harhara, A.[1]; Hasan, M. M. F. Heat Exchanger Network Synthesis with Process Safety Compliance under Tube Rupture Scenarios. *Computers & Chemical Engineering*, 2022, 162, 107817.
J5. Monjur, M. S.[1]; Iftakher, A.[1]; Hasan, M. M. F. Separation Process Synthesis for High-GWP Refrigerant Mixtures: Extractive Distillation using Ionic Liquids. *Industrial & Engineering Chemistry Research*, 2022, 61, 12, 4390–4406.
J6. Arora, A.[1]; Zantye, M. S.[1]; Hasan, M. M. F. Sustainable Hydrogen Manufacturing via Renewable-Integrated Intensified Process for Refueling Stations. *Applied Energy*, 2022, 311, 118667.
J7. Iftakher, A.[1]; Aras, C. M.,[1]; Monjur, M. S.[1]; Hasan, M. M. F. Data-Driven Approximation of Thermodynamic Phase Equilibria. *AIChE Journal*, 2022, 68, 6, e17624.
J8. Monjur, M. S.[1]; Hasan, M. M. F. Computer-Aided Process Intensification of Natural Gas to Methanol Process. *AIChE Journal*, 2022, 68, 6, e17622.
J9. Gandhi, A.[1]; Hasan, M. M. F. Machine Learning for the Discovery of Zeolites and Porous Crystalline Materials. *Current Opinion in Chemical Engineering*, 2021, 35, 100739.
J10. Gandhi, A.[1]; Hasan, M. M. F. A Graph Theoretic Representation and Analysis of Zeolite Frameworks. *Computers & Chemical Engineering*, 2021, 155, 107548.
J11. Hasan, M. M. F.; Rossi, L. M.; Debecker, D. P.; Leonard, K. C.; Li, Z.; Makhubela, B. C. E.; Zhao, C.; Kleij, A. Can CO_2 and Renewable Carbon Be Primary Resources for Sustainable Fuels and Chemicals? *ACS Sustainable Chemistry & Engineering*, 2021, 9, 12427–12430.
J12. Tsolas, S. T.[1]; Hasan, M. M. F. Resilience-Aware Design of Interconnected Supply Chain Networks with Application to Water-Energy Nexus. *AIChE Journal*, 2021, DOI: 10.1002/aic.17386.
J13. Arora, A.[1]; Hasan, M. M. F. Flexible Oxygen Concentrators for Medical Applications. *Scientific Reports*, 2021, 11:14317.
J14. Tsolas, S.[1]; Hasan, M. M. F. Survivability-Aware Design and Optimization of Distributed Supply Chain Networks in the Post COVID-19 Era. *Journal of Advanced Manufacturing and Processing*, 2021, 3, 3 e10098.
J15. Leonard, K.; Hasan, M. M. F.; Sneddon, H.; You, F. Can Artificial Intelligence and Machine Learning be Used to Accelerate Sustainable Chemistry and Engineering? *ACS Sustainable Chemistry & Engineering*, 2021, 9, 18, 6126–6129.
J16. Monjur, M. S.[1]; Demirel, S. E.[1]; Li, J.[1]; Hasan, M. M. F. SPICE_MARS: A Process Synthesis Framework for Membrane-Assisted Reactive Separations. *Industrial & Engineering Chemistry Research*, 2021, 60, 20, 7635–7655.
J17. Zantye, M. S.[1]; Arora, A.[1]; Hasan, M. M. F. Renewable-Integrated Flexible Carbon Capture: A Synergistic Path Forward to Clean Energy Future. *Energy & Environmental Science*, 2021, 14, 3986–4008.
J18. Demirel, S. E.[1]; Li, J.[1]; Hasan, M. M. F. Membrane Separation Process Synthesis and Intensification. *Industrial & Engineering Chemistry Research*, 2021, 60, 19, 7197–7217.
J19. Demirel, S. E.[1]; Li, J.[1]; El-Halwagi, M. M.; Hasan, M. M. F. Sustainable Process Intensification using Building Blocks. *ACS Sustainable Chemistry & Engineering*, 2020, 8, 48, 17664–17679.
J20. Holtzapple, M.; Hasan, M. M. F. Solutions to Climate Change. *Chemical Engineering Progress*, 2020, 116, 13, 52–68.
J21. Arora, A.[1]; Iyer, S. S.[1]; Hasan, M. M. F. Computational Material Screening using Artificial Neural Networks for Adsorption Gas Separation. *The Journal of Physical Chemistry C*, 2020, 124, 39, 21446–21460.
J22. Roy, N.[1]; Mannan, M. S.; Hasan, M. M. F. Systematic Incorporation of Inherent Safety in Hazardous Chemicals Supply Chain Optimization. *Journal of Loss Prevention in the Process Industries*, 2020, 68, 104262.
J23. Arora, A.[1]; Hasan, M. M. F. Process Systems Engineering Applications, Challenges and Opportunities in the Toll Manufacturing Industry. *Journal of Advanced Manufacturing and Processing*, 2020, 2, 3, e10040.
J24. Bajaj, I[1]; Hasan, M. M. F. Global Dynamic Optimization using Edge-Concave Underestimator. *Journal of Global Optimization*, 2020, 77, 487–512.
J25. Harhara, A[1]; Hasan, M. M. F. Dynamic Modeling of Heat Exchanger Tube Rupture. *BMC Chemical Engineering*, 2020, https://doi.org/s42480-020-0029-1.
J26. Arora, A.[1]; Li, J.[1]; Hasan, M. M. F. Design Standardization of Unit Operations for Reducing the Capital Intensity and Cost of Small-scale Processes. *AIChE Journal*, 2020, 66(2), e16802.

J27. Kweon, H.; Lin, C.-W.; Hasan, M. M. F.; Kaner, R. B.; Sant, G. Highly permeable polyaniline-graphene oxide nanocomposite membranes for CO_2 separations. *ACS Applied Polymer Materials*, 2019, 1, 12, 3233–3241.

J28. Zantye, M. S.[1]; Arora, A.[1]; Hasan, M. M. F. Operational power plant scheduling with flexible carbon capture: A multistage stochastic optimization approach. *Computers & Chemical Engineering*, 2019, 130, 106544–106555.

J29. Iyer, S. S.[1]; Hasan, M. M. F. Mapping the Material Property Space for Feasible Process Operation: Application to Combined Natural Gas Separation and Storage. *Industrial & Engineering Chemistry Research*, 2019, *58*(24), 10455–10465. (***"I&EC Research 2019 Class of Influential Researchers" issue***)

J30. Bajaj, I.[1]; Hasan, M. M. F. UNIPOPT: Univariate Projection-based Optimization without Derivatives. *Computers & Chemical Engineering*, 2019, 127, 71–87.

J31. Demirel, S. E.[1]; Li, J.[1]; Hasan, M. M. F. A General Framework for Process Synthesis, Integration, and Intensification. *Industrial & Engineering Chemistry Research*, 2019, *58*(15), 5950–5967.

J32. Bajaj, I.[1]; Hasan, M. M. F. Deterministic Global Derivative-free Optimization of Black-Box Problems with Bounded Hessian. *Optimization Letters*, 2019, DOI: 10.1007/s11590-019-01421-0. (***Invited Special Issue Honoring Late Christodoulos A. Floudas***)

J33. Demirel, S. E.[1]; Li, J.[1]; Hasan, M. M. F. Systematic Process Intensification. *Current Opinion in Chemical Engineering*, 2019, 25, 108–113. (***Invited Review Article***)

J34. Hasan, M. M. F., Demirel, S. E.[1]; Li, J.[1] A Building Block Approach to Process Intensification. *Chemical Engineering Progress (CEP)*, 2019, 115(3), 35–43. (***Invited Article***)

J35. Li, J.[1]; Demirel, S. E.[1]; Hasan, M. M. F. Building Block-based Synthesis and Intensification of Work and Heat Exchanger Networks (WHENS). *Processes*, 2019, 7(1), 23. ***(Feature Paper)***

J36. Tsolas, S. T.[1]; Karim, M. N.; Hasan, M. M. F. Optimization of Water-Energy Nexus: A Network Representation-based Graphical Approach. *Applied Energy*, 2018, 224, 230–250.

J37. Iyer, S. S.[1]; Demirel, S. E.[1]; Hasan, M. M. F. Combined Natural Gas Separation and Storage Technology based on *in silico* Material Screening and Process Optimization. *Industrial & Engineering Chemistry Research*, 2018, *57*(49), 16727–16750.

J38. Arora, A.[1]; Iyer, S. S.[1]; Bajaj, I.[1]; Hasan, M. M. F. Optimal Methanol Production via Sorption Enhanced Reaction Process. *Industrial & Engineering Chemistry Research*, 2018, *57*(42), 14143–14161.

J39. Bajaj, I.[1]; Iyer, S. S.[1]; Hasan, M. M. F. A Trust Region-based Two Phase Algorithm for Constrained Black-box Optimization with Infeasible Initial Point. *Computers & Chemical Engineering*, 2018, 116, 306–321.

J40. Balasubramanian, P.[1]; Bajaj, I.[1]; Hasan, M. M. F. Simulation and Optimization of Reforming Reactors for Carbon Dioxide Utilization using both Rigorous and Reduced Models. *Journal of CO_2 Utilization*, 2018, *23*, 80–104.

J41. Arora, A.[1]; Iyer, S. S.[1]; Hasan, M. M. F. GRAMS: A General Framework Describing Adsorption, Reaction and Sorption-Enhanced Reaction Processes. *Chemical Engineering Science*, 2018, 192, 335–358.

J42. Li, J.[1]; Demirel, S. E.[1]; Hasan, M. M. F. Process Synthesis using a Block Superstructure with Automated Flowsheet Generation and Optimization. *AIChE Journal*, 2018, *64*(8), 3082–3100. (***Inaugural "Futures" Issue of AIChE Journal***)

J43. Tian, Y.; Demirel, S. E.[1]; Hasan, M. M. F. Pistikopoulos, E. N. An Overview of Process Systems Engineering Approaches for Process Intensification: State of the Art. *Chemical Engineering & Processing: Process Intensification*, 2018, 133, 160–210. (***Invited Review Article***)

J44. Arora, A.[1]; Bajaj, I.[1]; Iyer, S. S.[1]; Hasan, M. M. F. Optimal Synthesis of Periodic Sorption Enhanced Reaction Processes with Application to Hydrogen Production. *Computers & Chemical Engineering*, 2018, 115, 89–111.

J45. Hasan, M. M. F. An Edge-concave Underestimator for the Global Optimization of Twice-differentiable Nonconvex Problems. *Journal of Global Optimization*, 2018, *71*(4), 735–752. (***Invited Special Issue Honoring Late Christodoulos A. Floudas***)

J46. Li, J.[1]; Demirel, S. E.[1]; Hasan, M. M. F. Process Integration using Block Superstructure. *Industrial & Engineering Chemistry Research*, 2018, *57*(12), 4377–4398.

J47. Li, J.[1]; Demirel, S. E.[1]; Hasan, M. M. F. Fuel Gas Network Synthesis using Block Superstructure. *Processes*, 2018, *6*, 23. **(*Feature Paper*)**

J48. Iyer, S. S.[1]; Bajaj, I.[1]; Balasubramanian, P.[1]; Hasan, M. M. F. Integrated Carbon Capture and Conversion to Produce Syngas: Novel Process Design, Intensification and Optimization. *Industrial & Engineering Chemistry Research*. 2017, *56*(30), 8622–8648.

J49. Demirel, S. E.[1]; Li, J.[1]; Hasan, M. M. F. Systematic Process Intensification using Building Blocks. *Computers & Chemical Engineering*, 2017, *150*, 2–38. (***Invited Special Issue on Process Intensification***)

J50. Hossen, M. M.; Rahman, A. H. M. S.; Kabir, A. S.; Hasan, M. M. F.; Ahmed, S. Systematic Assessment of the Availability and Utilization Potential of Biomass in Bangladesh. *Renewable & Sustainable Energy Reviews*, 2017, *67*, 94–105.

J51. Hasan, M. M. F.; First, E. L.; Floudas, C. A. Discovery of Novel Zeolites and Multi-Zeolite Processes for *p*-Xylene Separation using Simulated Moving Bed (SMB) Chromatography. *Chemical Engineering Science*, 2017, *159*, 3–17.

J52. Boukouvala, F.; Hasan, M. M. F.; Floudas, C. A. Global Optimization of Generalized Constrained Grey-box Models: New Method and its Application to Constrained PDEs for Pressure Swing Adsorption. *Journal of Global Optimization*, 2017, *67*, 3–42. (***Best Paper Award from Journal of Global Optimization in 2017***)

J53. Guzman, Y. A., Hasan, M. M. F., Floudas, C. A. Performance of Convex Underestimators in a Branch-and-Bound Framework. *Optimization Letters*, 2016, *10*(2), 283–308.

J54. Liu, T.; First, E. L.; Hasan, M. M. F.; Floudas, C. A. A Multi-scale Approach for the Discovery of Zeolites for Hydrogen Sulfide Removal. *Computers & Chemical Engineering*, 2016, *91*, 206–218.

J55. Hasan, M. M. F.; First, E. L.; Boukouvala, F.; Floudas, C. A. A Multi-scale Framework for CO_2 Capture, Utilization, and Sequestration: CCUS and CCU. *Computers & Chemical Engineering*, 2015, *81*, 2–21. (***Best Paper Award from Computers & Chemical Engineering Journal in 2015***)

J56. Niziolek, A. M., Onel, O., Hasan, M. M. F., Floudas, C. A. Municipal Solid Waste to Liquid Transportation Fuels - Part II: Process Synthesis and Global Optimization Strategies. *Computers & Chemical Engineering*, 2015, *74*, 184–203.

J57. Onel, O., Niziolek, A. M., Hasan, M. M. F., Floudas, C. A. Municipal Solid Waste to Liquid Transportation Fuels - Part I: Mathematical Modeling of a Municipal Solid Waste Gasifier. *Computers & Chemical Engineering*, 2014, *71*, 636–647.

J58. Hasan, M. M. F., Boukouvala, F., First, E. L., Floudas, C. A. Nationwide, Regional and Statewide CO_2 Capture, Utilization and Sequestration Supply Chain Network Optimization. *Industrial & Engineering Chemistry Research*, 2014, *53*(18), 7489–7506. (***Selected for the Cross-Journal ACS Virtual Issue on Carbon Capture and Sequestration***)

J59. First, E. L., Hasan, M. M. F., Floudas, C. A. Discovery of Novel Zeolites for Natural Gas Purification through Combined Material Selection and Process Optimization Approach. *AIChE Journal*, 2014, *60*(5), 1767–1785. (***Part of the Best Paper Initiative***)

J60. Hasan, M. M. F., First, E. L., Floudas, C. A. Cost-effective CO_2 Capture based on *in silico* Screening of Zeolites and Process Optimization. *Physical Chemistry Chemical Physics*, 2013, *15*, 17601–17618**.**

J61. Hasan, M. M. F., Baliban, R. C., Elia, J. A., Floudas, C. A. Modeling, Simulation and Optimization of Post-combustion CO_2 Capture for Variable Feed CO_2 Concentration and Feed Flow. Part 1: Chemical Absorption and Membrane Processes. *Industrial & Engineering Chemistry Research*, 2012, *51*(48), 15642–15664.

J62. Hasan, M. M. F., Baliban, R. C., Elia, J. A., Floudas, C. A. Modeling, Simulation and Optimization of Post-combustion CO_2 Capture for Variable Feed CO_2 Concentration and Feed Flow. Part 2: Pressure Swing Adsorption and Vacuum Swing Adsorption Processes. *Industrial & Engineering Chemistry Research*, 2012, *51*(48), 15665–15682.

J63. Jagannath, A., Hasan, M. M. F., Al-Fadhli, F. M., Karimi, I. A., Allen, D. T. Minimize Flaring through Integration with Fuel Gas Networks. *Industrial & Engineering Chemistry Research*, 2012, *51* (39), 12630–12641.

J64. Razib, M. S., Hasan, M. M. F., Karimi, I. A. Preliminary Synthesis of Work Exchange Networks. *Computers & Chemical Engineering*. 2012, *37*, 262–277.

J65. Hasan, M. M. F., Karimi, I. A., Avison C. M. Preliminary Synthesis of Fuel Gas Networks to Conserve Energy & Preserve the Environment. *Industrial & Engineering Chemistry Research.* 2011, *50*(12), 7414–7427.
J66. Hasan, M. M. F., Karimi, I. A. Piecewise Linear Relaxation of Bilinear Programs using Bivariate Partitioning. *AIChE Journal*. 2010, *56*, 1880–1893.
J67. Hasan, M. M. F., Karimi, I. A., Alfadala, H. E., Jayaraman, G. Synthesis of Heat Exchanger Networks with Non-isothermal Phase Changes. *AIChE Journal*. 2010, *56*(4), 930–945.
J68. Hasan, M. M. F., Zheng, A. M., Karimi, I. A. Minimizing Boil-Off Losses in LNG Transportation. *Industrial & Engineering Chemistry Research*. 2009, *48*(21), 9571–9580.
J69. Hasan, M. M. F., Karimi, I. A., Alfadala, H. E., Grootjans, H. Operational Modeling of Multi-Stream Heat Exchangers with Phase Changes. *AIChE Journal.* 2009, *55*(1), 150–171.

JOURNAL ARTICLES CURRENTLY UNDER REVIEW

J70. Harhara, A.[1]; Arora, A.[1]; Hasan, M. M. F. Process Safety Consequence Modeling using Artificial Neural Networks for Approximating Heat Exchanger Overpressure Severity.
J71. Gandhi, A.[1]; Zantye, M. S.[1]; Hasan, M. M. F. Integration of Cryogenic Energy Storage with Renewables and Power Plants: Optimal Strategies and Cost Analysis.
J72. Hasan, M. M. F.; Zantye, M. S.[1]; Kazi, M.-K. Challenges and Opportunities in Carbon Capture, Utilization and Storage: A Process Systems Engineering Perspective.
J73. Zantye, M. S.[1]; Gandhi, A.[1]; Li, M.[1]; Arora A.[1]; Sengalani, P. S.; Wang, Y.; Vudata, S. P.; Bhattacharyya, D.; Hasan, M. M. F. THESEUS: A Techno-Economic Design, Integration and Downselection Framework for Energy Storage.

BOOK CHAPTERS

B1. Bajaj, I.[1]; Arora, A.[1]; Hasan, M. M. F. Black-Box Optimization: Methods and Applications. Pardalos, P. M., Rasskazova, V., Vrahatis, M. N. (Eds.) *Black Box Optimization, Machine Learning, and No-Free Lunch Theorems*. 2021, p. 35–65, New York, NY: Springer.
B2. Li, J.[1]; Demirel, S. E.[1]; Hasan, M. M. F. Fuel Gas Network Synthesis using Block Superstructure. In Henson, M. A. (Eds.) *Feature Papers for Celebrating the Fifth Anniversary of the Founding of Processes*, 2019, 16–40. MDPI.
B3. Hasan, M. M. F. Multi-scale Process Systems Engineering for Carbon Capture, Utilization, and Storage: A Review. In Papadopoulos, A., Seferlis, P. (Eds.), *Materials and Process Systems for CO_2 Capture: Modelling, Design, Control and Integration*, 2017, West Sussex, UK: John Wiley & Sons Ltd.
B4. Guzman, Y. A., Hasan, M. M. F., Floudas, C. A. Computational Comparison of Convex Underestimators for Use in a Branch-and-Bound Global Optimization Framework. In Rassias, T. M., Floudas, C. A., Butenko, S. (Eds.), *Optimization in Science and Engineering*, 2014, 229–246. New York, NY: Springer.

PATENTS AND INVENTION DISCLOSURES

P1. Holtzapple, M.; Hasan, M. M. F.; Monjur, M. S.[1] Cryogenic Separation of Carbon Dioxide, Sulfur Oxides, and Nitrogen Oxides from Flue Gas. U.S. Patent Application # US-2022-0203298-A1, **2022**.
P2. Hasan, M. M. F., Iyer, S. S.[1], Bajaj, I.[1], Arora, A.[1], Balasubramanian, P[1]. Integrated carbon capture and conversion for production of syngas. US Patent 11,229,871, **2021**.
P3. Hasan, M. M. F.; Arora, A.[1] Cyber-Physical System Design, Integration and Control for Home-based Flexible Oxygen Generation and Delivery. Invention Disclosure Submitted to Texas A&M University on December 14, **2020**.
P4. First, E. L., Hasan, M. M. F., and Floudas, C. A. Methods of Separating Molecules, Patent No: US 10,239,012 B2, **2019**.

PEER-REVIEWED CONFERENCE PUBLICATIONS

C1. Iftakher, A.[1]; Aras, C. M.[1]; Monjur, M. S.[1]; Hasan, M. M. F. GEMS: Guaranteed Error-bounded Modeling of Surrogates. Proceedings of *the 2022 American Control Conference (ACC)*. Accepted.

C2. Zantye, M. S.[1]; Gandhi, A.[1]; Li, M.[1]; Arora, A.[1]; Hasan, M. M. F. A Systematic Framework for the Integration of Carbon Capture, Renewables and Energy Storage Systems for Sustainable Energy. *Proceedings of the 14th International Symposium on Process Systems Engineering – PSE 2021+ June 19-23, 2022, Kyoto,* Japan. Accepted.

C3. Iftakher, A.[1]; Aras, C. M.[1]; Monjur, M. S.[1]; Hasan, M. M. F. Guaranteed Error-bounded Surrogate Modeling and Application to Thermodynamics. *Proceedings of the 14th International Symposium on Process Systems Engineering – PSE 2021+ June 19-23, 2022, Kyoto,* Japan. Accepted.

C4. Monjur, M. S.[1]; Iftakher, A.[1]; Hasan, M. M. F. Sustainable Process Intensification of GHG Refrigerant Separation and Management: A Multiscale Material Screening and Process Design Approach. *Proceedings of the 14th International Symposium on Process Systems Engineering – PSE 2021+ June 19-23, 2022, Kyoto,* Japan. Accepted.

C5. Tsolas, S. D.[1]; Hasan, M. M. F. Resilience and Survivability-aware Optimal Design and Operation of Interconnected Supply Chains. *Proceedings of the 31th European Symposium on Computer Aided Process Engineering (ESCAPE31)*, Metin Türkay, Erdal Aydin (Eds.), 2021.

C6. Monjur, M. S.[1]; Demirel, S. E.[1]; Li, J.[1]; Hasan, M. M. F. A Computer-Aided Platform for Simultaneous Process Synthesis and Intensification. *Proceedings of the 31th European Symposium on Computer Aided Process Engineering (ESCAPE31)*, Metin Türkay, Erdal Aydin (Eds.), 2021.

C7. Zantye, M. S.[1]; Li, M.[1]; Hasan, M. M. F. Optimal Integration of Renewables, Flexible Carbon Capture, and Energy Storage for Reducing CO_2 emissions from Fossil Power Plants. *Proceedings of the 31th European Symposium on Computer Aided Process Engineering (ESCAPE31)*, Metin Türkay, Erdal Aydin (Eds.), 2021.

C8. Arora, A.[1]; Li, J.[1]; Zantye, M. S.[1]; Hasan, M. M. F. Process Design Frameworks for Economic Utilization of Small-Scale and Unconventional Feedstocks. *Computer Aided Chemical Engineering*, 2019, 47, 83–88.

C9. Demirel, S. E.[1]; Li, J.[1]; Hasan, M. M. F. Sustainable Process Intensification using Building Blocks. *Computer Aided Chemical Engineering*, 2019, 47, 157–162.

C10. Harhara, A.[1]; Hasan, M. M. F. Incorporating Process Safety into Heat Exchange Network Synthesis and Operation. *Computer Aided Chemical Engineering*, 2019, 47, 221–226.

C11. Tsolas, S. D.[1]; Karim, M. N.; Hasan, M. M. F. Systematic Design, Analysis and Optimization of Water-Energy Nexus. *Computer Aided Chemical Engineering*, 2019, 47, 227–232.***(Best Poster Presentation Award in FOCAPD 2019 Conference, Colorado)***

C12. Li, J.[1]; Demirel, S. E.[1]; Hasan, M. M. F. Systematic Process Intensification involving Zeotropic Distillation. *Computer Aided Chemical Engineering*, 2019, 47, 421–426.

C13. Bajaj, I.[1]; Hasan, M. M. F. A Projection-based Data-Driven Method for High-Dimensional Black-Box Optimization. *Computer Aided Chemical Engineering*, 2018, 44, 973–978.

C14. Demirel, S. E.[1]; Li, J.[1]; Hasan, M. M. F. A General Framework for Process Synthesis, Integration, and Intensification. *Computer Aided Chemical Engineering*, 2018, 44, 445–450.

C15. Li, J.[1]; Demirel, S. E.[1]; Hasan, M. M. F. Simultaneous Process Synthesis and Process Intensification using Building Blocks. *Computer Aided Chemical Engineering*, 2017, 40, 1171–1176.

C16. Bajaj, I.[1]; Hasan, M.M.F. A Novel Derivative-Free Optimization Method based on Single Dimension Projection. In Proceedings of FOCAPO/CPC 2017.

C17. Bajaj, I.[1]; Hasan, M. M. F. Effective Sampling, Modeling and Optimization of Constrained Black-Box Problems. *Computer Aided Chemical Engineering*, 2016, 38, 553–558.

C18. Iyer, S.S.[1]; Hasan, M. M. F. A Novel Plug-and-Store Technology for Natural Gas Purification and Storage. *In Proceedings of Composite & Advanced Materials Expo (CAMX)*, Dallas, TX, October 28, 2015.

C19. Liu, T.; First, E. L.; Hasan, M. M. F.; Floudas, C. A. Discovery of New Zeolites for H_2S Removal through Multi-scale Systems Engineering. *Computer Aided Chemical Engineering*, 2015, 37, 1025–1030.

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C22. Hasan, M. M. F.; Karimi, I. A.; Farooq, S.; Rajendran, A.; Amanullah, M. Surrogate-based VSA Optimization for Post-combustion CO_2 Capture. *Computer Aided Chemical Engineering*, 2011, *29*, 402–406.
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C25. Hasan, M. M. F.; Karimi, I. A. Process Synthesis using Integrated Energy Networks. In *Design for Energy and the Environment*, Proceedings of FOCAPD 2009; El-Halwagi, M. M., Linninger, A. A. (Editors), 2009, 254 – 260.
C26. Razib, M. S.; Hasan, M. M. F.; Karimi, I. A. Optimal Synthesis of Compressor Networks. In *Design for Energy and the Environment*, Proceedings of FOCAPD 2009; Halwagi, M. M., Linninger, A. A. (Editors), 2009, 263–270.
C27. Hasan, M. M. F.; Razib, M. S.; Karimi, I. A. Optimization of Compressor Networks in LNG Operations. In *Proceedings of the 10th International Symposium on Process Systems Engineering– PSE'09*, 2009, 1767–1772.
C28. Hasan, M. M. F.; Li J; Karimi, I. A. Process Systems Engineering Challenges in the Oil & Gas Industries. In: Daud WRW (Editor), Proc. RSCE-SOMChE, 2008; v2: pages K1–7.
C29. Hasan, M. M. F.; Karimi, I. A.; Alfadala H. E. Modeling Phase Change in Heat Exchanger Network Synthesis. In *Proceedings of the 18th European Symposium on Computer Aided Process Engineering– ESCAPE18*, Lyon, France, Jun. 1–4, 2008.
C30. Hasan, M. M. F.; Karimi, I. A.; Alfadala, H. E; Grootjans H. Modeling and Simulation of Main Cryogenic Heat Exchanger in a Base-load Liquefied Natural Gas Plant. *Computer Aided Chemical Engineering*, 2007, 219–224.
C31. Hasan, M. M. F.; Islam, A. M. W.; Syeda, S. R. Formation and Disintegration of Air Jet in Liquids. In *proceedings of the 5th IMEC & 10th APM*, Dhaka, Bangladesh, 2005, 82–86.

WORKSHOPS

W1. "Optimal Process Intensification using SPICE: A Tool for Systematic Process Design and Discovery", Invited workshop at the Advanced Manufacturing and Processing Conference (AMPc), June 2, 2022, Hyatt Regency Bethesda, Bethesda, MD.
W2. "Strategies for Computer-Aided Process Intensification", A three-day pilot course for the AIChE RAPID Institute members, October 5–7, 2021 (Virtual).
W3. "Computer-aided Process Intensification for Sustainable Process Design and Discovery: Methods and Tools", KAIST, September 08, 2021 (Virtual).

INVITED PRESENTATIONS

I1. "Sustainable Process Synthesis and Intensification of Chemical Enterprises (SPICE)", 2022 CAST Outstanding Young Researcher **Award Presentation**, February 1, 2022 (Virtual).
I2. "Carbon Capture, Utilization, and Storage (CCUS): *Methods, Processes, and Supply Chains*", PETE Graduate Seminar, Department of Petroleum Engineering, Texas A&M University, November 16, 2021.
I3. "Computer-aided Process Intensification for Sustainable Process Design and Discovery: Methods and Tools", **Departmental Seminar**, Dept. of Chemical Engineering and Materials Science, Wayne State University, October 20, 2021 (Virtual).
I4. "Computer-aided Process Intensification for Sustainable Process Design and Discovery: Methods and Tools", 13th AIChE Southwest Process Technology Conference, Houston, TX, October 1, 2021.
I5. "Flexible Oxygen Concentrators for Medical Applications", AIChE Pandemic Advance Capabilities & Engineering (PACE) Workshops, September 29, 2021 (Virtual).

I6. "CO_2 Capture, Utilization and Storage: Research Challenges and Opportunities", NOV, Navasota, TX, July 23, 2021.
I7. "Sustainable Process Design and Discovery using Building Blocks", ETH Zurich, April 24, 2021 (Virtual)
I8. "Edge-concave Underestimators for Global Dynamic Optimization", SIAM Conference on Computational Science and Engineering (CSE21), March 1–5, 2021 (Virtual).
I9. "Synergistic Process Intensification: Design Frameworks, and Applications" **Keynote**, 6th International Conference on Chemical Engineering, Dhaka, Bangladesh, Dec. 20–22, 2020 (Virtual).
I10. "A New Class of Global Underestimators for Nonconvex Functions", INFORMS Annual Meeting, November 7 – 13, 2020 (Virtual).
I11. "Computer-aided Process Intensification for Sustainable Process Design and Discovery", Fall 2020 CBE **Departmental Seminar**, Department of Chemical & Biological Engineering, University of Wisconsin-Madison, October 27, 2020 (Virtual Visit).
I12. "Computer-aided Process Intensification for Sustainable Process Design and Discovery", **Distinguished Alumni Lecture**, Bangladesh University of Engineering & Technology, October 10, 2020.
I13. "Systemic Process Intensification: Challenges, New Perspectives and Future Directions", **Featured and Session Plenary**, 9th International Conference on Foundations of Computer-Aided Process Design (FOCAPD 2019), Copper Mountain, Colorado, United States, July 16, 2019.
I14. "Design and Decision-Making in CO_2 Capture and Utilization", Ascend Performance Materials, Houston, TX, USA, February 6, 2019.
I15. "Design Frameworks for Small-scale, Distributed and Unconventional Feedstocks", **Keynote**, 2nd International Conference on Functional Materials and Chemical Engineering (ICFMCE), Abu Dhabi, UAE, November 21, 2018.
I16. "CO_2 Capture, Utilization and Storage: A Multi-scale Framework", Texas A&M University Society of Petroleum Engineers and American Institute of Chemical Engineers Joint Seminar Series. Oct. 11, 2018.
I17. "Process Systems Engineering for Energy and the Environment", Research Presentation at the Advisory Council Meeting, Department of Chemical Engineering, Texas A&M University, April 20, 2018.
I18. "New Projection-based Derivative-free Optimization", INFORMS Optimization Society Conference, University of Colorado Denver, March 24, 2018.
I19. "Systematic Design and Intensification of Chemical Processes using Building Blocks", Departmental Seminar, Bangladesh University of Engineering & Technology, Dhaka, Bangladesh, January 9, 2018.
I20. "Applications of Chemical Engineering in Oil & Gas Industry", Texas A&M University AIChE-SPE Oil Industry Lecture. November 2, 2017.
I21. "Process Synthesis using Grid Superstructure", **Division Plenary**, Computing & Systems Technology Division, AIChE Annual Meeting, Minneapolis, MN, USA, October 29, 2017.
I22. "Global Optimization based on Edge-Concave Underestimators", INFORMS Annual Meeting, Houston, TX, October 22, 2017.
I23. "Edge-Concave Underestimators for Global Optimization", 15th EUROPT Workshop on Advances in Continuous Optimization, Montreal, Quebec, Canada, July 13, 2017.
I24. "Data-Driven Feasibility Mapping and Optimization", Workshop on Data-Driven Model Reduction, Scientific Frontiers, and Applications, Texas A&M University, College Station, TX, USA, April 27, 2017.
I25. "Data-Driven Approximation and Optimization of Constrained Black-box Problems", Texas Optimization Day, Texas A&M University, College Station, TX, USA, April 4, 2016.
I26. "A Multi-scale Framework for CO_2 Capture, Utilization and Storage", CO_2 Capture Symposium at US-Korea Conference (UKC 2015), Atlanta, GA, USA, August 01, 2015.
I27. "Multi-scale Systems Engineering for Safe and Sustainable Materials, Processes, and Supply Chains", Mary Kay O'Connor Process Safety Center Steering Committee Meeting, Houston, January 21, 2015.
I28. "Multi-scale Systems Engineering for Carbon Capture, Utilization, and Storage", Texas A&M University, College Station, TX, USA, May 27, 2014.
I29. "A Multi-scale Framework for Carbon Capture, Utilization, and Storage (CCUS)", Mississippi State University, Starkville, MS, USA, March 27, 2014.

I30. "CO_2 Capture, Utilization and Storage: From Material Screening to Process Optimization to Supply Chain Management", Wayne State University, Detroit, MI, USA, February 21, 2014.
I31. "CO_2 Capture, Utilization and Storage: From Material Screening to Process Optimization to Network Design", Air Products and Chemicals Inc., Allentown, PA, USA, December 05, 2013.

RESEARCH PRESENTATIONS

(Presenting author is underlined)

T1. Manali S. Zantye, Akhil Arora, M. M. Faruque Hasan. INFORMS Annual Meeting, November, 2021.
T2. Akhilesh Gandhi, and M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T3. Ahmed Harhara, and M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T4. Ashfaq Iftakher, Chinmay M. Aras, Mohammed Sadaf Monjur, and M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T5. Chinmay Aras, Ahmed Harhara1, M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T6. Manali S. Zantye, Akhil Arora, M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T7. Manali S. Zantye, Akhilesh Gandhi, Mengdi Li, Yifan Wang, Sai Pushpitha Vudata, Pavitra Senthamilselvan Sengalani, Debangsu Bhattacharyya, M.M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T8. Akhil Arora, Manali S. Zantye, M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T9. Mengdi Li, Akhilesh Gandhi, Manali S. Zantye and M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T10. Mohammed Sadaf Monjur, Mark Holtzapple, M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T11. Mohammed Sadaf Monjur, M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T12. Mohammed Sadaf Monjur, M. M. Faruque Hasan. *AIChE Annual Meeting*, November, 2021.
T13. Bianca Williams, Sophie Kim, Mohammed Sadaf Monjur, Suryateja Ravutla, Fani Boukjouvala, Selen Cremaschi, M. M. Faruque Hasan, Simon Leyland, Joannah Otashu. *AIChE Annual Meeting*, November, 2021.
T14. Manali S. Zantye and M. M. Faruque Hasan. 6th International Conference on Chemical Engineering, Dhaka, Bangladesh, Dec. 20–22, 2020.
T15. Ahmed Harhara, Akhil Arora and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T16. Ahmed Harhara, and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T17. Akhil Arora and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020. ***(Received AIChE CAST Directors' Student Presentation Finalist Award)***
T18. Akhil Arora and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T19. Akhil Arora and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T20. Akhilesh Gandhi and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T21. Akhilesh Gandhi, Salih E. Demirel, Jianping Li and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T22. Jianping Li, Mohammed Sadaf Monjur, Salih E. Demirel and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T23. Manali S. Zantye, Mengdi Li, Yifan Wang, Sai Pushpitha Vudata, Pavitra Senthamilselvan Sengalani, Debangsu Bhattacharyya and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T24. Manali S. Zantye, Akhil Arora and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T25. Mengdi Li, Manali S. Zantye, Debangsu Bhattacharyya and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T26. Mohammed Sadaf Monjur, Salih E. Demirel, Jianping Li and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T27. Mohammed Sadaf Monjur, Jianping Li, Salih E. Demirel and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T28. Spyridon D. Tsolas, M. Nazmul Karim and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.
T29. Spyridon D. Tsolas and M. M. Faruque Hasan. *AIChE Annual Meeting*, Virtual, November, 2020.

T30. Spyridon D. Tsolas and M. M. Faruque Hasan. *Enterprise and Infrastructure Resilience Workshop*, Virtual, October, 2020.
T31. Spyridon D. Tsolas and M. M. Faruque Hasan. *Enterprise and Infrastructure Resilience Workshop*, October, 2020.
T32. Yuhe Tian, Salih E. Demirel, Jianping Li, Styliani Avraamidou, Anjan Kumar Tula, Mario Richard Eden, M. M. Faruque Hasan, Rafiqul Gani and Efstratios N. Pistikopoulos. *AIChE Annual Meeting*, Orlando, November, 2019.
T33. Mohammed Sadaf Monjur, Jianping Li, Salih E. Demirel and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T34. Jianping Li, Salih E. Demirel and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T35. Salih E. Demirel, Jianping Li and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019. ***(Received AIChE CAST Directors' Student Presentation Finalist Award)***
T36. Spyridon D. Tsolas, M. Nazmul Karim and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T37. Spyridon D. Tsolas, M. Nazmul Karim and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T38. Sun Hye Kim, Salih E. Demirel, Jianping Li, M. M. Faruque Hasan, Matthew Realff and Fani Boukouvala
T39. Jianping Li and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T40. Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T41. Salih E. Demirel, Shachit S. Iyer, Jianping Li, Anjan Kumar Tula, Mario Richard Eden, Rafiqul Gani and M. M. Faruque Hasan, . *AIChE Annual Meeting*, Orlando, November, 2019.
T42. Akhil Arora, Jianping Li, Manali Zantye and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T43. M. M. Faruque Hasan, Rafiqul Gani and Efstratios N. Pistikopoulos. *AIChE Annual Meeting*, Orlando, November, 2019.
T44. Manali S. Zantye, Sai Pushpitha Vudata, Yifan Wang, Debangsu Bhattacharyya and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T45. Salih E. Demirel, Jianping Li and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T46. Manali S. Zantye, Akhil Arora and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T47. Akhil Arora and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T48. Jianping Li, Salih E. Demirel and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T49. Ahmed Harhara, M. Sam Mannan and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T50. Akhilesh Gandhi, Salih E. Demirel, Jianping Li and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T51. Manali S. Zantye and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T52. Srinikhita Vankadari, Salih E. Demirel, Jianping Li and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T53. Akhil Arora, Ishan Bajaj and M. M. Faruque Hasan. *AIChE Annual Meeting*, Orlando, November, 2019.
T54. Akhil Arora, Shachit S. Iyer, Ishan Bajaj, M.M. Faruque Hasan. *12th Natural Gas Conversion Symposium*, San Antonio, TX, USA, Jun. 6, 2019.
T55. Akhil Arora, M.M. Faruque Hasan. *Workshop on Data-Driven Model Reduction, Scientific Frontiers, and Applications*, Texas A&M University, College Station, TX, USA, Apr. 29, 2019.
T56. Akhil Arora, Jianping Li, M.M. Faruque Hasan. *AIChE Spring Meeting*, New Orleans, LA, USA, Apr. 1, 2019.
T57. Salih E. Demirel, Jianping Li, M.M. Faruque Hasan. *AIChE Spring Meeting*, New Orleans, LA, USA, Apr. 3, 2019.
T58. Akhil Arora, M.M. Faruque Hasan. *AIChE Spring Meeting*, New Orleans, LA, USA, Apr. 1, 2019.
T59. Ahmed Harhara, Mannan, M. S., M.M. Faruque Hasan. *AIChE Spring Meeting*, New Orleans, LA, USA, Mar. 31–Apr. 4, 2019.

T60. Manali S. Zantye, M.M. Faruque Hasan. *C3E Women in Energy 2018 Symposium*, Stanford University, CA, USA, Dec. 4, 2018.
T61. Akhil Arora, Shachit S. Iyer, Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T62. Akhil Arora, Ishan Bajaj, Shachit S. Iyer, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T63. Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T64. Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T65. Ishan Bajaj, Shachit S. Iyer, Akhil Arora, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T66. Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018. ***(Received AIChE CAST Directors' Student Presentation Finalist Award)***
T67. Salih E. Demirel, Jianping Li, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T68. Salih E. Demirel, Jianping Li, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T69. Salih E. Demirel, Jianping Li, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T70. Jianping Li, Salih E. Demirel, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T71. Jianping Li, Salih E. Demirel, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T72. Jianping Li, Salih E. Demirel, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T73. Shachit S. Iyer, Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, USA, Oct-Nov, 2018.
T74. Shachit S. Iyer, Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, USA, Oct-Nov, 2018.
T75. Manali S. Zantye, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T76. Manali S. Zantye, M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T77. Spyridon Tsolas, Karim, M. N., M.M. Faruque Hasan. *AIChE Annual Meeting*, Pittsburgh, October, 2018.
T78. Akhil Arora; Jianping Li; Manali S. Zantye; M.M. Faruque Hasan. *2nd Natural Gas Utilization Workshop*, College Station, TX, USA, August 13-14, 2018.
T79. Akhil Arora; Shachit S. Iyer; Ishan Bajaj; M.M. Faruque Hasan. *2nd Natural Gas Utilization Workshop*, College Station, TX, USA, August 13-14, 2018.
T80. Ishan Bajaj, M.M. Faruque Hasan. *Process Systems Engineering PSE2018*. San Diego, CA, USA, July 1-5, 2018. ***(Received a PSE Young Researcher Award and a Travel Grant)***
T81. Salih E. Demirel, Jianping Li, M.M. Faruque Hasan. *Process Systems Engineering PSE2018*. San Diego, CA, USA, July 1-5, 2018. ***(Received a PSE Young Researcher Award and a Travel Grant)***
T82. Priyadarshini Balasubramanian, Ishan Bajaj, M.M. Faruque Hasan. *ICChE 2017*, Dhaka, Bangladesh, Dec. 20-22, 2017.
T83. Jianping Li, Salih E. Demirel, M.M. Faruque Hasan. *AIChE Annual Meeting*, Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017. ***(AIChE CAST Division Area Plenary)***
T84. M.M. Faruque Hasan, Salih E. Demirel, Jianping Li, Shachit S. Iyer, Akhil Arora. *AIChE Annual Meeting*, Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.
T85. Jianping Li, Salih E. Demirel, Akhil Arora, M.M. Faruque Hasan. *AIChE Annual Meeting*, Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017. ***(Received AIChE CAST Directors' Student Presentation Finalist Award)***
T86. Salih E. Demirel, Jianping Li, M.M. Faruque Hasan. *AIChE Annual Meeting*, Minneapolis, USA, Oct-Nov, 2017.
T87. Salih E. Demirel, Jianping Li, M.M. Faruque Hasan. *AIChE Annual Meeting*, Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.
T88. Shachit S. Iyer, Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.
T89. Shachit S. Iyer, Salih E. Demirel, M.M. Faruque Hasan. *AIChE Annual Meeting*, Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.
T90. Shachit S. Iyer, Salih E. Demirel, M.M. Faruque Hasan. *AIChE Annual Meeting*, Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.
T91. Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.
T92. Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.

T93. Priyadarshini Balasubramanian, Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting,* Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.
T94. Spyridon Tsolas, Karim, M. N., M.M. Faruque Hasan. *AIChE Annual Meeting,* Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.
T95. Akhil Arora, Shachit S. Iyer, M.M. Faruque Hasan. *AIChE Annual Meeting,* Minneapolis, MN, USA, Oct. 29-Nov. 3, 2017.
T96. Efstratios E. Pistikopoulos, David Sholl, M.M. Faruque Hasan, Salih E. Demirel, Yuhe Tian. *AIChE Annual Meeting,* Minneapolis, MN, USA, Oct. 29-Nov.3, 2017.
T97. Jianping Li, Salih E. Demirel, M.M. Faruque Hasan. *27th European Symposium on Computer Aided Process Engineering – ESCAPE 27*, Barcelona, Spain, October 1-5, 2017. ***(Received NSF Travel Grant)***
T98. M.M. Faruque Hasan. *Global Optimization Conference GOC-2017*, College Station, March 30, 2017.
T99. Ishan Bajaj, M.M. Faruque Hasan. 2017 *AIChE Spring Meeting*, San Antonio, TX, USA, March 29, 2017.
T100. Jianping Li, Salih E. Demirel, M.M. Faruque Hasan. 2017 *AIChE Spring Meeting*, San Antonio, TX, USA, March 28, 2017.
T101. Ishan Bajaj, M.M. Faruque Hasan. FOCAPO/CPC 2017, January 8-12, Tucson, AZ, 2017. ***(Received FOCAPO/CPC Conference Travel Grant)***
T102. Balasubramanian, P.[1], Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, San Francisco, CA, USA, November 13–18, 2016. ***(Received Session's Best Presentation Award, AIChE Annual Meeting 2016)***
T103. Jianping Li, Salih E. Demirel, M.M. Faruque Hasan. *AIChE Annual Meeting*, San Francisco, CA, USA, November 13–18, 2016.
T104. Shachit S. Iyer, M.M. Faruque Hasan. *AIChE Annual Meeting*, San Francisco, CA, USA, November 13–18, 2016.
T105. Salih E. Demirel, Jianping Li, M.M. Faruque Hasan. *AIChE Annual Meeting*, San Francisco, CA, USA, November 13–18, 2016.
T106. Ishan Bajaj, M.M. Faruque Hasan *AIChE Annual Meeting*, San Francisco, CA, USA, November 13–18, 2016.
T107. Shachit S. Iyer, Priyadarshini Balasubramanian, Ishan Bajaj, M.M. Faruque Hasan. *AIChE Annual Meeting*, San Francisco, CA, USA, November 13–18, 2016.
T108. Demirel S. E.[1], Jianping Li, M.M. Faruque Hasan. *AIChE Spring Meeting*, Houston, TX, April 12, 2016.
T109. Shachit S. Iyer, M.M. Faruque Hasan. *AIChE Spring Meeting*, Houston, TX, April 12, 2016.
T110. Shachit S. Iyer, M.M. Faruque Hasan. *Composite & Advanced Materials Expo (CAMX)*, Dallas, TX, October 28, 2015.
T111. M.M. Faruque Hasan, Eric L. First, Fani Boukouvala, C. A. Floduas. *AIChE Annual Meeting*, Atlanta, GA, USA, November 16–21, 2014.
T112. M.M. Faruque Hasan, Eric L. First, Fani Boukouvala, C. A. Floduas. *AIChE Annual Meeting*, Atlanta, GA, USA, November 16–21, 2014.
T113. Tingting Liu, Eric L. First, M.M. Faruque Hasan, C. A. Floduas. *Foundations of Computer-Aided Process Design (FOCAPD 2014)*, Washington, USA. July 13-17, 2014.
T114. M.M. Faruque Hasan, Eric L. First, Fani Boukouvala, C. A. Floduas. *Foundations of Computer-Aided Process Design (FOCAPD 2014)*, Washington, USA. July 13-17, 2014.
T115. Eric L. First, M.M. Faruque Hasan, C. A. Floduas. *Foundations of Computer-Aided Process Design (FOCAPD 2014)*, Washington, USA. July 13-17, 2014.
T116. M.M. Faruque Hasan, Eric L. First, Fani Boukouvala, C. A. Floduas. *ACS National Meeting*, Dallas, TX, March 16–20, 2014.
T117. M.M. Faruque Hasan, Fani Boukouvala, C. A. Floduas. *AIChE Annual Meeting*, San Francisco, CA, USA, November 2–8, 2013.
T118. M.M. Faruque Hasan, Eric L. First, C. A. Floduas. *AIChE Annual Meeting*, San Francisco, CA, USA, November 2–8, 2013.
T119. M.M. Faruque Hasan, Richard C. Baliban, Josephine Elia, C. A. Floduas. *AIChE Annual Meeting*, Pittsburgh, PA, USA, October 28 – November 2, 2012.

T120. M.M. Faruque Hasan, M. S. Razib, I. A. Karimi. *10th International Symposium on Process Systems Engineering– PSE'09*, Salvador, Bahia, Brazil. August 16-20, 2009.
T121. M.M. Faruque Hasan, Jie Li , I. A. Karimi. *Symposium of Malaysian Chemical Engineers (SOMChE 2008) in conjunction with the 21st Regional Symposium on Chemical Engineering (RSCE 2008)*, Malaysia, 2008.
T122. M.M. Faruque Hasan, I. A. Karimi, Hasan E. Alfadala. *1st Annual Gas Symposium*, Doha, Qatar, January 10–12, 2009.
T123. M.M. Faruque Hasan, I. A. Karimi, Hasan E. Alfadala. *1st Annual Gas Symposium*, Doha, Qatar, January 10–12, 2009. ***(Received Best Technical Paper Award)***
T124. M.M. Faruque Hasan, I. A. Karimi, Hasan E. Alfadala, Henk Grootjans. Presented in *AIChE Annual Meeting*, San Francisco, USA, November 12–17, 2006.

PROFESSIONAL SERVICE

- **Professional Society Leadership:**
  - Director, Computing & Systems Technology CAST Division of the American Institute of Chemical Engineers, AIChE (2022–2024)
  - Area Chair (10c), Computing & Systems Technology CAST Division of the American Institute of Chemical Engineers, AIChE (2023)
  - Area Chair (10a), Computing & Systems Technology CAST Division of the American Institute of Chemical Engineers, AIChE (2019)
- **International Conference Program Committees:**
  - Advanced Manufacturing and Processing Conference (AMPC), June 1–4, 2022
  - Chemical Process Control (CPC) and Foundations of Computer-Aided Process Operations (FOCAPO), San Antonio, USA, January 8–12, 2023
  - ICFMCE 2021 (International Conference on Functional Materials and Chemical Engineering), Bangkok, Thailand, December 13-15, 2021.
  - 14th International Symposium on Process Systems Engineering (PSE 2021), Kyoto, Japan, July 19–23, 2021
  - European Symposium on Computer Aided Process Engineering (ESCAPE-31), Istanbul, Turkey, 2021
  - 6th International Conference on Chemical Engineering (ICChE), Dhaka, Bangladesh, Dec. 20–22, 2020
  - ICFMCE 2019 (International Conference on Functional Materials and Chemical Engineering), Bangkok, Thailand, December 15-17, 2019.
  - Foundations of Computer Aided Design (FOCAPD), Copper Mountain, Colorado, USA, July 14–18, 2019.
  - ICFMCE (International Conference on Functional Materials and Chemical Engineering), Abu Dhabi, 2018.
  - 4th North American Symposium on Chemical Reaction Engineering (NASCRE-4), Houston, TX, 2019.
  - 13th International Symposium on Process Systems Engineering (PSE-2018), San Diego, CA, 2018.
- **Proposal Review and Panels:**
  - NSF (EEC, ENG/CBET, ENG/CMMI), 2015, 2016, 2019, 2020, 2021, 2022
  - DOE Office of Technology Transitions, 2019
  - ACS Petroleum Research Fund, 2016, 2018, 2020, 2021
- **Other Panels:**
  - Technology Roadmap Development, RAPID Manufacturing Institute, 2017
- **Sessions Organization and Chairing:**
  - Process Systems Engineering (PSE) Conference (2018)
  - INFORMS Annual Meeting (2020, 2018)
  - Global Optimization Conference (2017)
  - AIChE Annual Meeting (2021, 2020, 2019, 2018, 2017, 2016, 2015): more than 20 sessions in total
  - Natural Gas Utilization Workshop (2018)
  - Composite & Advanced Materials Expo CAMX (2015)
- **Journal Manuscript Review:**
  Nature Communications, Automatica, ACS Sustainable Chemistry & Engineering, AIChE Journal, Computers & Chemical Engineering, Energy & Fuels, Industrial Engineering & Chemistry Research, International Journal

of Hydrogen Energy, Journal of CO_2 Utilization, Chemical Engineering Journal, Chemical Engineering Research and Design, Energy, Energies, Journal of Global Optimization, Journal of Optimization Theory and Applications, European Journal of Operational Research, Optimization Letters, IEEE Access, Journal of Chemical Technology & Biotechnology, Applied Energy, Processes, Applied Thermal Engineering, Energy Systems, Journal of Cleaner Production, Journal of Computational and Applied Mathematics, Current Opinion in Chemical Engineering, Energy Technology, Water, RSC Advances.

- **Conference Abstracts and Papers Peer Review:**
  - 31th European Symposium on Computer Aided Process Engineering (ESCAPE31)
  - Foundations of Computer Aided Design (FOCAPD 2019)
  - 12th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS 2019), Brazil
  - American control conference ACC (2018, 2017)
  - World Congress of International Federation of Automatic Control IFAC WC (2017)
  - ADCONIP (2017)
  - International Symposium on Advanced Control of Chemical Processes ADCHEM (2015)
- **Workshops:**
  - NSF Workshop on Modular Process Intensification (2017)
  - NSF Workshop on Food-Energy-Water Nexus (2017)
  - NSF Workshop, Interdisciplinary Frontiers of Designing Engineering Materials Systems (2016)
  - DOE AMO Process Intensification Workshop (2015)

SERVICE TO TEXAS A&M UNIVERSITY

- **Departmental:**
  - Member, Graduate Committee (2018–Present)
  - Member, Tenure & Promotion (T&P) Committee (2021)
  - Member, Plant Design Committee for supporting UG capstone plant design (2020–Present)
  - Member, Graduate Admission and Recruitment Committee (2017–2021)
  - Member, Undergraduate Committee (2014–2017, 2018–Present)
  - Member, Course committee for CHEN425–Process Integration, Simulation and Economics (2014–Present)
  - Member, Awards Committee (2017–2019)
  - Member, Lindsay Lecture Committee (2017)
  - Member, Strategic Planning Committee (2016-2017)
  - Member, Sub-committee for faculty search in Multiscale Process System Engineering (2014–2015)
  - Member, PhD Qualifying Exam Committee (2015, 2016)
- **College of Engineering**
  - Judge, Junior FIRST Lego League (Jr. FLL) Expo Event (2015), where the College of Engineering and Women in Engineering teamed up to host the Expo Event.
  - Member of 24 PhD and 9 MS these committees in chemical engineering, industrial and systems engineering, mechanical engineering, and petroleum engineering departments since 2014.
- **University-wide:**
  - Reviewer, Diversity Excellence Fellowship applications (2019)
  - Texas A&M Energy Institute Lecture Series and Seminar Coordinator (2018–2020)

TEACHING

- **Graduate Courses:**
  - CHEN 689: Process Synthesis, Integration, and Intensification
    - Spring 2016, Spring 2020
  - ICPE 618 601: Carbon Capture, Utilization and Storage
    - Spring 2017, Spring 2018, Spring 2019, Spring 2020, Spring 2021
- **Undergraduate Courses:**
  - CHEN 323: Chemical Engineering Heat Transfer Operations

        - Spring 2017, Spring 2018, Spring 2021, Spring 2022
    - CHEN 425: Process Integration, Simulation and Economics
        - Fall 2014, Fall 2015, Fall 2016, Fall 2017, Fall 2018, Spring 2019, Fall 2019, Fall 2021
    - CHEN 481: Seminar
        - Fall 2020

CURRENT RESEARCH GROUP

- **Ph.D. Students (7):**
    - Ashfaq Iftakher (Jan. 2021–Present), Chemical Engineering, Texas A&M University
    - Austing Johnes (Jan. 2021–Present), Co-advised with Dr. Faisal Khan, Chemical Engineering, Texas A&M University
    - Chinmay M. Aras (Oct. 2020–Present), Chemical Engineering, Texas A&M University
    - Mengdi Li (Oct. 2019–Present), Chemical Engineering, Texas A&M University
    - Akhilesh Gandhi (Oct. 2018–Present), Chemical Engineering, Texas A&M University
    - M. Sadaf Monjur (Oct. 2018–Present), Chemical Engineering, Texas A&M University
    - Manali Sunil Zantye (Oct. 2019–Present), Chemical Engineering, Texas A&M University
- **M.S. Students (2):**
    - Sulagna Roy (Oct. 2021–Present), Chemical Engineering, Texas A&M University
    - Shanez Momin (Oct. 2021–Present), Chemical Engineering, Texas A&M University
- **Undergraduate Students (4):**
    - Kathryn Dickerson (2022), Ryan Nguyen (2022), Bhavik Bhatt (2022), Hiba Namany (2022)

PAST STUDENTS

- **Ph.D. Students Graduated (8):**
    - Ahmed Harhara, Ph.D. in Chemical Engineering, August, 2022; Current Position: Data Scientist at Charles Schwab, Austin, Texas. *Thesis Title: Incorporating Process Safety in Heat Exchanger Network Synthesis.*
    - Spyridon Tsolas, Ph.D. in Chemical Engineering, August, 2021; Current Position: Senior Research Specialist, Core R&D, Dow Chemical Company, Lake Jackson, Texas. *Thesis Title: Design and Analysis of Water-Energy Nexus as Interconnected Networks for Sustainability, Survivability and Resilience.*
    - Akhil Arora, Ph.D. in Chemical Engineering, August, 2021; Current Position: Battery Algorithm Simulation Engineer, Apple Inc. *Thesis Title: Process Design, Optimization and Material Screening Methods for Small-Scale Chemical Manufacturing with Application to Unconventional Natural Gas.*
    - Jianping Li, Ph.D. in Chemical Engineering, August, 2020; Current Position: Keegstra Postdoctoral Researcher, University of Wisconsin–Madison. *Thesis Title: Methods and Algorithms for Process Synthesis and Intensification using Building Blocks.*
    - Salih Emre Demirel, Ph.D. in Chemical Engineering, August 2020; Current Position: Senior Research Specialist, Core R&D, Dow Chemical Company, Lake Jackson, Texas. *Thesis Title: Methods for Systematic Process Intensification.*
    - Shachit Iyer, Ph.D. in Chemical Engineering, May 2019; Current Position: Senior Research Specialist, Core R&D, Dow Chemical Company, Lake Jackson, Texas. *Thesis Title: Multiscale Optimization Frameworks for Integrated Process and Material Design and Intensification.*
    - Ishan Bajaj, Ph.D. in Chemical Engineering, May 2019; Current Position: Assistant Professor, Indian Institute of Technology (IIT) - Rookee. *Thesis Title: Optimization Methods and Algorithms for Classes of Black-Box and Grey-Box Problems.*

- Nitin Roy, Ph.D. in Chemical Engineering (Co-advised with Prof. M. Sam Mannan), December 2018; Current Position: Tenure-track Assistant Professor, California State University, Sacramento. *Thesis Title: Development and Application of Process Safety Indices in Early Design Phase of Chemical Supply Chain*.

- **M.S. Students Graduated (5):**
  - Manali S. Zantye, M.S. in Chemical Engineering, August, 2019; Current Position: PhD Student, Texas A&M University. *Thesis Title: Operational Scheduling of Power Plants with Flexible Carbon Capture under Uncertain Electricity Prices.*
  - OreOluwa Adetimirin, M.Sc. in Energy, May, 2019; Current Position: Consultant in a Houston-based Oil and Gas Company. *Thesis Title: Optimization and Scheduling of a Hybrid Energy-Powered Carbon Capture Plant.*
  - Changyeong Song, M.Sc. in Energy, August, 2018; Current Position: Research Staff, Korea Research Institute of Chemical Technology, KRICT). *Thesis Title: Thermodynamic Limits and Energetic Analysis of Chemical Process Intensification.*
  - Jiaxing Tang, M.Sc. in Energy, August, 2018; Current Position: Graduate Student. *Thesis Title: Flexible Carbon Capture Exploiting Dynamic Changes in Electricity Price.*
  - Priyadarshini Balasubramanian, M.S. in Chemical Engineering, August, 2019; Current Position: Research Engineer at CH2M. *Thesis Title: CO_2 Capture and Conversion to Syngas: Rigorous Modeling, Optimization and Superstructure-based Process Synthesis.*

- **Undergraduate Students (11):**
  Mentored students who subsequently enrolled in graduate school are underlined.
  - Max Romero (2021), Akshay Punoose (2020), Patrick Blumenthal (2020), Mihir Annaldasula (2017–2018), Clayton Cromer (2018), Logan Duran (2017), Ashish Patel (2017), Hanlin Wang (2017), Safeer Hafeez (2017), Robert Blando (2017), Kae Leong (2017), Colton A. Cunningham (2016), Ricardo Tafarelo M. Araujo (2015), Haoyang Li (2015).
- **Visiting Scholars (1):**
  - Hongbum Choi (2022), Chemical Engineering, KAIST, South Korea
  - Kyungjae Tak (2016), Chemical Engineering, Yonsei University, South Korea.

- **Graduate Teaching Fellows (3):**
  - Salih Emre Demirel (2017 Fall, 2017 Spring)
  - Ishan Bajaj
  - Dr. Jonathan Raftery (2015 Fall, 2016 Fall)

STUDENTS' ACHIEVEMENTS, AWARDS, AND LEADERSHIP

- **American Institute of Chemical Engineers (AIChE)**
  - **2020** AIChE CAST Directors' Student Presentation Award Finalist (Akhil Arora)
  - **2019** AIChE CAST Directors' Student Presentation Award Finalist (Salih Emre Demirel)
  - **2018** AIChE CAST Directors' Student Presentation Award Finalist (Ishan Bajaj)
  - **2017** AIChE CAST Directors' Student Presentation Award Finalist (Jianping Li)
  - **2016** Best Presentation of the Session (Priyadarshini Balasubramanian)
- **Texas A&M Energy Conference**
  - **2021** Best Presentation Award (Akhilesh Gandhi)
- **Society of Women Engineers (SWE) Annual Conference, Anaheim, California**
  - **2021** Winner in Graduate Research Presentation Competition (Manali Zantye)
  - **2020** 3rd Place in Graduate Research Presentation Competition (Manali Zantye)
- **Foundations of Computer Aided Process Design (FOCAPD) Conference**

- **2019** Best Poster Award, FOCAPD Conference, Copper Mountain, Colorado (Spyridon Tsolas)
- **2019** Travel Award, FOCAPD Conference, Copper Mountain, Colorado (Ahmed Harhara, Jianping Li, Akhil Arora, Salih Emre Demirel, Spyridon Tsolas)

- **C3E Women in Clean Energy Symposium, Stanford University**
  - **2018** Invited Participant (Manali Zantye)
- **Process Systems Engineering (PSE) Conference**
  - **2018** PSE Young Researcher Award (Ishan Bajaj)
- **Foundations of Computer Aided Process Operations (FOCAPO) Conference**
  - **2016** Travel Award, FOCAPO-CPC Conference, Tucson, Arizona (Ishan Bajaj)
- **University-wide Awards**
  - **2019** Lamiya Zahin Memorial Safety Scholarship (Ahmed Harhara)
  - **2019** Texas A&M Energy Institute Fellowship (Salih Emre Demirel)
  - **2019** Graduate Student Research and Presentation Grant (Akhilesh Ghandhi)
  - **2019** Graduate Student Research and Presentation Grant (Salih Emre Demirel)
  - **2019** Fellow, Academy of Future Faculty, Texas A&M University (Jianping Li)
  - **2018** Graduate Student Research and Presentation Grant (Manali Zantye)
  - **2018** Winner, Utilities Challenge, Texas A&M University-wide (Winning Team: Ishan Bajaj, Akhil Arora, Spyridon Tsolas, Salih Emre Demirel, Shachit Iyer)
  - **2017 Fall** Graduate Teaching Fellowship, College of Engineering (Salih Emre Demirel)
  - **2017** Fellow, Academy of Future Faculty, Texas A&M University (Salih Emre Demirel)
  - **2017 Spring** Graduate Teaching Fellowship, College of Engineering (Salih Emre Demirel)
  - **2017** Graduate Student Research and Presentation Grant (Shachit Iyer)
  - **2017** Graduate and Professional Student Council Travel Award (Akhil Arora)
  - **2017** Graduate and Professional Student Council Travel Award (Ishan Bajaj)
  - **2016** Graduate and Professional Student Council Travel Award (Shachit Iyer)
  - **2015** Fellow, Academy of Future Faculty, Texas A&M University (Ishan Bajaj)
- **Departmental Awards**
  - **2020** Brunner Barnes Fellowship (Jianping Li)
  - **2019** Brunner Barnes Fellowship (Jianping Li)
  - **2018** Outstanding Graduate Research Award (Ishan Bajaj)
- **Texas A&M Chemical Engineering Graduate Students' Association (CHEGSA)**
  - **2020** Best Oral Presentation Award (Jianping Li)
  - **2019** Vice President - External (Jianping Li)
  - **2016** Poster Award, (Salih Emre Demirel)
  - **2016** Poster Award, (Jianping Li)
- **Texas A&M Energy Research Society** *(One of the largest student organizations at Texas A&M University with more than 500 members)*
  - **2018-19** President (Akhil Arora)
  - **2018-19** Executive Vice President/Treasurer (Spyridon Tsolas)
  - **2018-19** External Outreach Chair (Akhilesh Gandhi)
  - **2017-18** External Outreach Chair (Akhil Arora, Spyridon Tsolas)
  - **2016-17** Vice President/Treasurer (Shachit Iyer)
  - **2016-17** Vice President/Treasurer (Ishan Bajaj)
  - **2015-16** Finance and Outreach Committee Officer (Ishan Bajaj)
- **Texas A&M Energy Conference** *(A Student-led University-wide Annual Conference with more than 200 Participants from the Academia and the Industry)*
  - **2019** Conference Chair (Akhil Arora)
  - **2018** Conference Director (Salih Emre Demirel, Manali Zantye)
  - **2018** Panel Discussion Moderator (Spyridon Tsolas)