Curriculum Vitae

Kirti M. Yenkie

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Education and Professional Experience

09/2017 - present **Assistant Professor at Rowan University, Glassboro, New Jersey**
Department of Chemical Engineering
Current Projects:
1) Design of efficient wastewater treatment networks and water asset management
2) Solvent recovery and reuse for efficient and sustainable industrial manufacturing practices
3) Optimization of pipeline flushing and cleaning operations in a lubricant blending facility
4) Data Analytics, Machine Learning, Modeling and Optimization in cancer therapeutics
5) Isoflavone extraction from soybean meal – process optimization for commercially viable pathways
6) Understanding respiratory health in COVID19 patients using machine learning, modeling, & control
7) Management of IBS (irritable bowel syndrome) through probiotics supplement and diet management

04/2017 - 08/2017 **Postdoctoral Research Associate at University of Delaware (UD) - Newark**
Department of Chemical and Biomolecular Engineering
Project: *Systems biology models for COPD (Chronic Obstructive Pulmonary Diseases)*
Advisor: Dr. Babatunde A. Ogunnaike

01/2015 - 03/2017 **Postdoctoral Research Associate at University of Wisconsin (UW) - Madison**
Department of Chemical and Biological Engineering
Project: *Separation strategies for bio-based chemicals produced from microbial bioconversions*
Advisor: Dr. Christos T. Maravelias

01/2011 - 12/2014 **University of Illinois at Chicago (UIC), IL and Vishwamitra Research Institute (VRI), IL**
Ph.D. in Bioengineering
Thesis: *Stochastic processes from batch crystallization to in-vitro fertilization (IVF)*
Advisor: Dr. Urmila M. Diwekar

07/2010 - 11/2010 **Senior Research Fellow, Indian Institute of Technology (IIT) Bombay, India**
Department of Chemical Engineering
Project: *Metabolic modeling of cyanobacteria for enhanced ethanol production*
Advisor: Dr. Pramod P. Wangikar

07/2008 - 06/2010 **Indian Institute of Technology (IIT) Bombay, India**
M. Tech in Chemical Engineering
Thesis: *Mathematical modeling to correlate morphology and metabolism in Actinomycetes*
Advisors: Dr. Pramod P. Wangikar and Dr. Sameer R. Jadhav

08/2004 - 05/2008 **Laxminarayan Institute of Technology, RTM Nagpur University, India**
Project: *Design and performance comparison studies for rotary and belt conveyer dryers*
B. Tech in Chemical Engineering

Awards & Honors

- **Invited Seminar Speaker** and **Alumni Panelist** at IIT Bombay India for the Chemical Engineering Seminar Series, January 10, 2020
- **Invited Seminar Speaker** at MNIT Jaipur, Department of Chemical Engineering India, January 7, 2020
- Elected as the **AIChE's Environmental Division Director** for two-year term, 2020-2022
- **Invited Panelist** for the Rowan University Women in Engineering (WIE) Chapter's VINE Panel to discuss the challenges and opportunities for Women Engineers, November 15, 2019.

- **Junior Faculty Travel Award** sponsored by the NSF to attend the 2019 FOPAM (Foundations of Process Analytics and Machine Learning) Meeting (August 5-10, 2019) in Raleigh, NC
- Selected as one of the **Outstanding Young Chemical Engineering Educators** by the CACHE (Computer Aids for Chemical Engineering) Committee and invited to present at their 50th Anniversary Meeting (July 19-20, 2019), Breckenridge, CO
- **Junior Faculty Travel Award** sponsored by the NSF to attend the 2019 FOCAPD (Foundations of Computer-Aided Process Design) Meeting (July 14-18, 2019) in Copper Mountain, CO
- **Winning Team Member** of the **Inspira Health Hack Competition-2018**, conducted at the South Jersey Tech Park, Rowan University, NJ for project proposal on IBS (Irritable Bowel Syndrome) patient management tool
- **Invited Seminar Speaker** by the **AIChE-DVS** (American Institute of Chemical Engineers – Delaware Valley Section) for Continuing Education Program for Professional Development at KBR, Inc. in Newark, DE, June 19th, 2018
- **Invited Panelist** at University of Illinois at Chicago for International Engineering Alumni Q&A Panel (March 14th, 2018 and March 7th, 2017)
- **Invited Seminar Speaker** and **Winner of the NSF Advance Travel Grant** for Postdoctoral Seminar at University of Wisconsin-Green Bay (February 3rd, 2017), conducted by the Women and Science Program by UW Oshkosh
- **Best Graduate Research Award** for Women and Gender Studies at UIC's Research Symposium, April 14th, 2014
- **Conference Travel Awards**: FOPAM 2019, FOCAPD 2014, AIChE 2013 (Graduate Student Council at UIC)
- **Awarded Membership of AEMB** (2012-2013), National Biomedical Engineering Honor Society
- **Best Presentation Award** – 2010 Chemference National Conference at IIT Kanpur, India, July 13th – 14th, 2010
- **Outstanding Contribution Award** by CHEA (Chemical Engineering Association) at IIT Bombay in recognition of exceptional contribution to the department activities (2008-2010)
- **All India Rank #109 in GATE** (Graduate Aptitude Test for Engineering) -2008 and awarded 2 year scholarship from Ministry of Human Resource Development, India
- **Winner of Prodigy (01/2008) - Chemical Engineering Quiz** at Institute of Chemical Technology (ICT), Mumbai, India

Teaching and Mentoring

09/2017 – present **Course Instructor at Rowan University**

- **Chemical Engineering Thermodynamics II** – Required Junior level (Spring 2020)
- **Process Optimization** – Graduate and Senior level Elective (Spring 2018, 2019, and 2020)
- **Process Dynamics and Control** – Required Senior level (Fall 2017, 2018, 2019, and 2020)

09/2017 – present **Research Advisor at Rowan University** (5 graduate and 41 undergraduate students)

- **PhD Students:**
  John Chea (11/2018 – present, co-advised with Dr. Joe Stanzione), Fred Ghanem (01/2019 – present), Emmanuel Aboagye (09/2019 – present), Swapana Jerpoth (09/2019 – present)
- **MS Student:**
  Jake Stengel (09/2020 – present)
- **Junior/Senior Engineering Research Clinics** (Fall 2020)
  Austin Lehr, Kayla Heider, Joseph D'Intino, Anthony Wylie, James Geier, Phuong Le, Maya Desai, Marissa Martine, Kiana Ramirez, Carley Tran, Spencer Verdoni, Brianna Acosta, Nicolas Altieri, Michael Mackley, Evan Vandzura
- **Undergraduate Summer Research Students** (Summer 2020)
  Austin Lehr, Kayla Heider, Joseph D'Intino, Anthony Wylie, James Geier, Phuong Le
- **Junior/Senior Engineering Research Clinics** (Fall 2019, Spring 2020)
  Students: Eric Purcell, Casey Wagner, Gabrielle Moskalow, Vanessa Pierce, Jake Stengel, Hailey Lynch, Austin Lehr, Jordan Holman, Maya Desai, Marissa Martine, Kiana Ramirez, Samantha Resnick, Carley Tran, Spencer Verdoni, Brianna Acosta
- **Undergraduate Winter Break Research Students** (Winter 2020)
  Marissa Martine, Jake Stengel, Austin Lehr

- **Undergraduate Summer Research Students** (Summer 2019)
  Eric Purcell, Jake Stengel, Rohan Zia, Austin Lehr
- **Junior/Senior Engineering Research Clinics** (Fall 2018, Spring 2019)
  Students: Katherine Schmidt, Alex D'Aloia, Eric Purcell, Matthew Razze, Zachary Lubelski, Amanda McCahill, Gabrielle Moskalow, Rohan Zia, Amanda Christon, Julia Reilly, Vanessa Pierce, Maxim Russ, Anthony Pace, Hannah Work, Jake Stengel, Alexa Lynch
- **Undergraduate Summer Research Students** (Summer 2018)
  Student: Katherine Schmidt
- **Junior/Senior Engineering Research Clinics** (Fall 2017, Spring 2018)
  Students**:** Ian Dunn, James Dailey, Sean Burnham, Sommer Vandergrift, Matthew Schwenger, Chaun Giddings

08/2014 - 12/2014 **Teaching Associate - Applied Optimization (University of Illinois, Chicago)**
Taught a section on heuristic optimization – Genetic algorithm and simulated annealing

08/2012-05/2014 **Teaching Assistant at University of Illinois, Chicago**
- Introduction to Cell & Tissue Engineering (Spring 2014)
- Senior Design (Fall 2013)
- Introduction to Applied Optimization (Fall 2012)

04/2012-12/2016 **Undergraduate and High School Student Mentor**
- Mentored undergraduate students for the NSF funded REU programs at UIC and Bose-Khorana scholars at UW-Madison
- Mentored undergraduate and high school students visiting VRI-CUSTOM

09/2009-06/2010 **Teaching Assistant at IIT Bombay, India**
- Chemical Engineering Thermodynamics (Jan-May, 2010)
- Undergraduate Reaction Engineering Laboratory (July-Dec, 2009)
- Plant Utilities (Jan-May, 2009)

06/2009 - 06/2010 **Graduate Student Mentor at IIT Bombay, India**
Mentored 15 graduate students from M. Tech 2009 batch. Responsibilities included providing sound and timely advice regarding academic and extracurricular issues

Industrial Experience

06 - 08/2012 **Summer Internship at Mallinckrodt Pharmaceuticals, St. Louis, MO**
Project: *Kinetic studies and policy predictions for API (active pharmaceutical ingredient) crystallizations*
Mentor: Dr. Keith Tomazi, Technical fellow, Mallinckrodt Pharmaceuticals (formerly Covidien)

05 - 06/2007 **Summer Internship at Indian Oil Corporation Limited (IOCL), R&D, India**
Project: *Overview of petroleum refining processes and study of diesel hydrotreating micro-reactor unit*
Mentors: Dr. Madhusudan Sau and Mr. Ganesh Butley, R&D - Hydroprocessing IOCL

Invited Seminars & Talks

03/2020 **US EPA (United States Environmental Protection Agency) Region-2 Webinar, March 19, 2020.**
Topic: *Synthesis and Systematic evaluation of Solvent Recovery Pathways*
Part of 'Building Sustainable Organizations Through an Emphasis on Professional Development' series.

02/2020 **Inspira Healthcare Executive Office, Mullica Hill, NJ, February 4, 2020**
Topic: *CRI IMPACT – Cooper Medical, Rowan & Inspira's IBS (irritable bowel syndrome) management and predictive analytics via computational tool*

01/2020 **Indian Institute of Technology (I.I.T.) Bombay, Dept. of Chemical Engineering, Mumbai, Maharashtra, India, January 10, 2020**
Topic: *Systematizing Solvent Recovery in chemical industries by applying Process Systems Engineering (PSE) principles*

01/2020 **Malaviya National Institute of Technology (M.N.I.T.), Dept. of Chemical Engineering, Jaipur, Rajasthan, India, January 7, 2020**
Topic: *Solvent Recovery in chemical industries through Process Systems Engineering (PSE) principles*

11/2019 **AIChE Annual Meeting's session in Honor of Warren K. Lewis Award Winner, Prof. Ogunnaike**
Topic: *Enhancement of Chemical Engineering Education through Design Thinking: Integration of Theory and Cyber-Assisted Methods*

07/2018 **Pazmany Peter Catholic University in Budapest Hungary, July 2, 2018**
Topic: *Methodology for Generation of Efficient Wastewater Treatment Networks and Future Directions with application of P-graph Framework and Sustainability Metrics*

06/2018 **KBR, Inc. in Newark, DE as a part of Continuing Education Program offered by AIChE-DVS**
Topic: *Generating Wastewater Treatment Networks: An integrated approach comprising of contaminant properties, technology suitability, plant design and process optimization*

01/2018 **Laxminarayan Institute of Technology (L.I.T.), R.T.M. Nagpur University, India, January 10, 2018**

01/2018 **Department of Chemical Engineering, Visvesvaraya National Institute of Technology (V.N.I.T.), Nagpur, India, January 9, 2018**
Topic: *Process Systems Engineering in Healthcare & Environment and Graduate Programs at Rowan University*

06/2017 **Air Liquide's Delaware Research and Technology Center (DRTC), DE, USA, June 29, 2017**
Topic: *Treatment Strategies and Design Decisions for COPD using Systems Engineering Principles*

02/2017 **Department of Chemical Engineering and Materials Science, Wayne State University, Detroit, MI, USA, February 24, 2017**
Topic: *Process Systems Engineering for Treatment Strategies and Design Decisions in Health and Environment*

02/2017 **Department of Natural & Applied Sciences, University of Wisconsin-Green Bay (UWGB), WI, USA, Feb 3, 2017**
Topic: *Separation Networks for Recovery of Bio-based Chemicals: Roadmap for Matching Biological and Process Feasibility*

Peer-Reviewed Publications

Publication Summary

- 17 peer-reviewed journal publications (13 first author, 5 corresponding author) and 1 book chapter
- 11 peer-reviewed conference publications (6 first author & 6 corresponding author)

Journal Publications

1. **Yenkie, K. M.***. 2020. Enhanced undergraduate learning through integration of theory and computational tools. *Chemical Engineering Education*, 54(3): 129-136.
2. Jerpoth, S.S.; Iannello, J.; Aboagye, E. A.; **Yenkie, K. M.*** 2020. Computer-aided synthesis of cost-effective perovskite crystals: an emerging alternative to silicon solar cells. *Clean Technologies and Environmental Policy*, 22, 1187-1198.
3. Chea, J.D.; Lehr, A.; Stengel, J.; Savelski, M.J.; Slater, C.S.; **Yenkie, K.M**.* 2020. Evaluation of Solvent Recovery Options for Economic Feasibility through a Superstructure-Based Optimization Framework. *Industrial & Engineering Chemistry Research*, 59(13): 5931-5944.
4. **Yenkie, K. M.***. 2019. Integrating the three E's in Wastewater Treatment: Efficient Design, Economic Viability, and Environmental Sustainability. *Current Opinion in Chemical Engineering*, 26: 131-138.
5. Wu, W.†; **Yenkie, K. M.†***; Maravelias, C. T. 2019. Synthesis and analysis of separation processes for extracellular chemicals generated from microbial conversions. *BMC Chemical Engineering*, 1(1): 1-14. † Equal Contributions, Corresponding author.

6. **Yenkie, K. M.;** Diwekar, U. M. 2018. The 'No sampling' parameter estimation algorithm for stochastic differential equations. *Chemical Engineering Research & Design*, 129: 376-383.
7. **Yenkie, K. M.;** Wu, W.; Maravelias, C. T. 2017. Synthesis and analysis of separation networks for the recovery of intracellular chemicals generated from microbial-based conversions. *Biotechnology for Biofuels*, 10:119.
8. Wu, W.; **Yenkie, K. M.**; Maravelias, C. T. 2016. A superstructure based framework for bio-separation network synthesis. *Computers and Chemical Engineering*, 96: 1-17.
9. **Yenkie, K. M.**; Wu, W.; Clark, R. L.; Pfleger, B. F.; Root, T. W.; Maravelias, C. T. 2016. Roadmap for selection of separation technologies in the recovery of bio-based chemicals: matching biological and process feasibility. *Biotechnology Advances*, 34(8): 1362-1383.
10. **Yenkie, K. M.;** Diwekar, U.; Linninger, A. A. 2016. Simulation-free estimation of reaction propensities in cellular reactions and gene signaling networks. *Computers and Chemical Engineering*, 87: 154-163.
11. Doshi, R.; Diwekar, U.; Benavides, P.; **Yenkie, K. M.**; Cabezas, H. 2014. Maximizing sustainability of ecosystem model through socio-economic policies derived from multivariable optimal control theory. *Clean Technologies and Environmental Policy*, 1-11.
12. **Yenkie, K. M.**; Diwekar, U. 2014. Uncertainty in clinical data and stochastic model for in-vitro fertilization. *Journal of Theoretical Biology*, 367: 76-85.
13. **Yenkie, K. M**.; Diwekar, U. 2014. Comparison of optimal control methods for customized drug dosage prediction in superovulation stage of in-vitro fertilization. *Computers and Chemical Engineering*, 71: 708-714.
14. **Yenkie, K. M**.; Diwekar, U.; Bhalerao, V. 2014. Modeling and prediction of outcome for the superovulation stage in in-vitro fertilization. *JFIV Reprod.Med.Genet.* 2(2):1000122(1-8).
15. **Yenkie, K. M.**; Diwekar, U. 2014. Optimal control for predicting customized drug dosage for superovulation stage of in-vitro fertilization. *Journal of Theoretical Biology*, 355: 219-228.
16. **Yenkie, K. M**.; Diwekar, U.; Bhalerao, V. 2013. Modeling the superovulation stage in in-vitro fertilization. *IEEE Trans. Biomed. Eng.*, 60(11): 3003-3008.
17. **Yenkie, K. M**.; Diwekar, U. 2013. Stochastic optimal control of seeded batch crystallizer applying Ito process. *Ind. Eng. Chem. Res*., 52:108-122.

Book Chapter

18. Diwekar, U. M.*; Nisal, A.; **Yenkie, K. M.**; Bhalerao, V. 2020. Customized Modeling and Optimal Control of Superovulation stage in in-vitro fertilization (IVF) treatment. *Control Applications for Biomedical Engineering Systems*. Elsevier. Chapter -13, pg. 383-403.

Conference Publications

1. Orosz, A.; Pimentel, J.; Cabezas, H.; Friedler, F.; **Yenkie, K. M.***. The P-graph Approach for Systematic Synthesis of Wastewater Treatment Networks. Accepted for CHISA (24th International Congress of Chemical And Process Engineering) – 2021 (originally scheduled for August 2020, now postponed to 2021 due to COVID19), Prague, Czech Republic.
2. **Yenkie, K. M.***; Chea, J. D.; Aboagye, A. A.; Savelski, M. J.; Slater, C. S. Teaching Sustainable Design through Simultaneous Evaluation of Economics and Environmental Impacts. Accepted for publication in the Conference Proceedings of Engineering Education for Sustainable Development (EESD) – 2021 (originally scheduled for June 2020, now postponed to 2021 due to COVID19), University College Cork, Ireland.
3. Aboagye, A. A., **Yenkie, K. M.***, Cabezas, H.; Friedler, F. 2020. The P-Graph Approach to Systematic Synthesis of Wastewater Treatment Networks. Proceeding of the International Conference on *Advances in Systems, Control and Computing* (AISCC-2020), Malaviya National Institute of Technology (MNIT), Jaipur, India, 27th -28th, February, 2020.
4. Schmidt, K.; Kodate, P. M.; **Yenkie, K. M.*** 2019. Improved biomarker-based diagnostics of leukemia subtypes using machine learning methods. Proceedings of the 1st International Conference on *Foundations of Process Analytics and Machine Learning* (FOPAM), The StateView Hotel – Marriot Autograph Collection, Raleigh, North Carolina, 6th -9th August, 2019.

5. Chea, J. D.; Christon, A.; Reilly, J.; Pierce, V.; Russ, M.; Slater, C. S.; Savelski, M. J.; **Yenkie, K. M.*** 2019. Framework for Solvent Recovery, Reuse, and Recycling in Industries. Proceedings of 9th International Conference on *Foundations of Computer-Aided Process Design* (FOCAPD), Copper Mountain, Colorado, 14th – 18th July, 2019.
6. **Yenkie, K. M.***; Burnham, S.; Dailey, J. M.; Cabezas, H.; Friedler, F. 2019. Generating Efficient Wastewater Treatment Networks: an integrated approach comprising of contaminant properties, technology suitability, plant design and process optimization. Proceedings of 29th *European Symposium on Computer Aided Process Engineering* (ESCAPE), Eindhoven, Netherlands, 16th – 19th June, 2019.
7. Dunn, I. C.; **Yenkie, K. M.*** 2018. Prediction of Optimal Chemotherapy Dosing Regimens: Balancing Tumor Degradation and Toxicity Effects (Paper MoAPo1.13). IFAC's *Nonlinear Model Predictive Control* (NMPC) Conference, Madison, WI, 19th – 22nd August, 2018.
8. **Yenkie, K. M.**; Diwekar, U. M. 2015. Uncertainty in clinical data and stochastic model for superovulation stage in in-vitro fertilization. Proceedings of 12th International symposium on Process Systems Engineering (PSE) and 25th *European Symposium on Computer-Aided Process Engineering* (ESCAPE), Copenhagen, Denmark, 31st May – 4th June, 2015.
9. **Yenkie, K. M.**; Diwekar, U. M. 2014. Comparison of optimal control methods for customized drug dosage prediction in superovulation stage of in-vitro fertilization. Proceedings of the 8th International conference on *Foundations of Computer-Aided Process Design* (FOCAPD), 807-812, Cle Elum, Washington, 13th-17th July, 2014.
10. **Yenkie, K. M.**; Diwekar, U. M.; Bhalerao, V. 2012. Modeling the superovulation stage in in-vitro fertilization. Proceedings of the 11th International symposium on *Process Systems Engineering* (PSE), 840-844, Singapore, 15th-19th July, 2012.
11. **Yenkie, K. M.;** Singh, K. P.; Jadhav, S.; Wangikar, P. P. Morphological model to correlate morphology and metabolism in Actinomycetes, *Chemference 2010*, Session 5:Bioprocess Engineering, S-501, Kanpur, UP, India.

Conference Presentations, Posters, Abstracts and Attendance

Virtual Meetings & Online Presentations

1. Jerpoth, S. S.; Aboagye, E. A.; Ianello, J.; **Yenkie, K. M.** Optimal Selection of Ions for Perovskite Solar Cell Synthesis through a Computational Approach. *2nd Solar Energy Systems Conference, 2020.*
2. Aboagye, E. A.; Chea, J. D.; Lehr, A.; Stengel, J.; Slater, C. S.; Savelski, M. J.; **Yenkie, K. M.** Systematic Design of Solvent Recovery Pathways: Integrating Economics and Environmental Metrics. *International Congress on Sustainability Science & Engineering (ICOSSE '20)*
3. **Yenkie, K.M.**; Pimentel, J.; Orosz, A.; Cabezas, H.; Friedler, F. Systematic Synthesis of Wastewater Treatment Networks Using the P-Graph Approach (158b). *2020 AIChE Annual Meeting & 10th Global Congress on Process Safety.*
4. **Yenkie, K. M.;** Wu, W.; Maravelias, C. T. Separation Network Synthesis: New Methods for New Problems. *24th ACS Green Chemistry & Engineering Conference*, 2020.
5. Chea, J. D.; Aboagye, E. A.; Lehr, A.; Stengel, J.; Slater, C. S.; Savelski, M. J.; **Yenkie, K. M.** Systematic design and life-cycle analysis for synthesis of solvent recovery framework. *24th ACS Green Chemistry & Engineering Conference*, 2020.
6. Chea, J. D.; Lehr, A.; Stengel, J.; Slater, C. S.; Savelski, M. J.; **Yenkie, K. M.** Synthesis and systematic evaluation of solvent recovery pathways. *ACS Spring 2020 National Meeting*
7. Aboagye, E. A.; Desai, M.; Tran, C.; **Yenkie, K. M.** Synthesis of Cost Effective and Sustainable Pathways to Wastewater Treatment. *ACS Spring 2020 National Meeting*
8. Jerpoth, S. S.; Aboagye, E. A.; Ianello, J.; **Yenkie, K. M.** Synthesis of Cost-Effective Perovskite Crystals-An Emerging Attractive Alternative to Silicon Solar Cells. *ACS Spring 2020 National Meeting*
9. Ghanem, F.; **Yenkie, K. M.** Modeling Chromate Removal Using Ion Exchangers in Drinking Water Applications. *ACS Spring 2020 National Meeting*

Podium Presentations

10. Schmidt, K.; D'Aloia, A.; Kodate, P. M.; **Yenkie, K. M.** Data Analytics and Optimization for Minimization of Chemotherapeutic Toxicity. *AIChE Annual Meeting, 2019*, 510g, Orlando, FL.

11. **Yenkie, K.M.**; Burnham, S.; Zia, R.; Cabezas, H. Generation of Wastewater Treatment Networks: Integrating Process efficiency, economics and sustainability. *AIChE Annual Meeting, 2019*, 670g, Orlando, FL.
12. **Yenkie, K. M.** Enhancement of Chemical Engineering Education through Design Thinking: Integration of Theory and Cyber-Assisted Methods. *AIChE Annual Meeting, 2019*, 273f, Orlando, FL.
13. **Yenkie, K.M.**; Burnham, S.; Zia, R.; Cabezas, H.; Friedler, F. Generation of Wastewater Treatment Networks: Process efficiency, economics and sustainability. 19th European Roundtable for Sustainable Consumption and Production (ERSCP), 10/2019, UPC, Barcelona, Spain.
14. **Yenkie, K. M.**; Chea, J. D.; Slater, C. S.; Savelski, M. J. Roadmap for Solvent Recovery, Reuse, and Recycling in Industries. 19th European Roundtable for Sustainable Consumption and Production (ERSCP), 10/2019, UPC, Barcelona, Spain.
15. **Yenkie, K. M.** Enhanced Undergraduate Learning through Integration of Theory and Computational Tools. CACHE 50th Anniversary Meeting, Future of Cyber Assisted Chemical Engineering Education, 07/2019, Breckenridge, CO.
16. **Yenkie, K. M.,** Chea, J. D.; Slater, C. S.; Savelski, M. J. Framework for Solvent Recovery, Recycling and Reuse in Industries. *ACS Green Chemistry and Engineering Conference,* 06/2019, Reston, Virginia.
17. Pierce, V.; Christon, A.; Russ, M.; Stengel, J.; Chea, J. D.; Slater, C. S.; Savelski, M. J.; **Yenkie, K. M.** Solvent Recovery Roadmap for Industries. *AIChE's Mid-Atlantic Student Regional Conference, 2019*, Penn State University, PA.
18. D'Aloia, A.; Purcell, E.; Razze, M.; **Yenkie, K.M.** Optimal Chemotherapy Dosing Regimens: Balancing Tumor Degradation and Toxicity Effects. *AIChE's Mid-Atlantic Student Regional Conference, 2019*, Penn State University, PA.
19. Burnham, S.; Zia, R.; **Yenkie, K.M.** Design and Optimization of Efficient Wastewater Treatment Networks. *AIChE's Mid-Atlantic Student Regional Conference, 2019*, Penn State University, PA.
20. Christon, A.; Reilly, J.; Slater, C. S.; Savelski, M. J.; **Yenkie, K. M.** Framework for Solvent Recovery, Reuse and Recycling in Industries. *Sustainable Packaging Symposium, 2018*, Rutgers University, NJ
21. Burnham, S.; **Yenkie, K.M.,** Cabezas, H.; Friedler, F. Design and Optimization for Generation of Efficient Wastewater Treatment Networks. *Sustainable Packaging Symposium, 2018*, Rutgers University, NJ
22. Dunn, I. C.; **Yenkie, K.M**. Prediction of Optimal Chemotherapy Dosing Regimens: Balancing Tumor Degradation and Toxicity Effects. *AIChE Annual Meeting, 2018*, 97a, Pittsburgh, PA.
23. **Yenkie, K. M.**; Dailey, J. M.; Burnham, S. Generating Wastewater Treatment Networks: An integrated approach comprising of contaminant properties, technology suitability, plant design and process optimization. *ICOSSE (International Congress on Sustainability Science and Engineering) Meeting*, 2018, Cincinnati, OH.
24. Dunn, I. C.; **Yenkie, K.M.** Optimization in Cancer Chemotherapy Regimens. *AIChE's Mid-Atlantic Student Regional Conference, 2018*, Princeton University, NJ. (*awarded first prize in paper presentation competition*)
25. Dailey, J. M.; Burnham, S.; **Yenkie, K.M**. Design of Efficient Wastewater Treatment Networks for Municipal Wastewater Treatment. *AIChE's Mid-Atlantic Student Regional Conference, 2018*, Princeton University, NJ.
26. Wu, W.; **Yenkie, K.M.**; Maravelias, C. T. General bio-separation superstructure optimization framework. *AIChE Annual Meeting, 2016*, 580e, San Francisco, CA.
27. **Yenkie, K.M.**; Diwekar, U. Stochastic optimal control for prediction of robust drug dosing policies in superovulation stage of in-vitro fertilization. *AIChE Annual Meeting*, 2015, 393d, Salt Lake City, UT.
28. **Yenkie, K. M.**; Diwekar, U. Stochastic optimal control for prediction of robust drug dosing policies in superovulation stage of in-vitro fertilization (ThB3b). *AIChE's 7th Annual Midwest Regional Conference*, 2015, IIT, Chicago, IL.
29. **Yenkie, K.M.**; Diwekar, U.; Linninger, A. Parameter estimation in cellular systems modeled as stochastic differential equations (ThB3f). *AIChE's 7th Annual Midwest Regional Conference*, 2015, IIT, Chicago, IL.
30. **Yenkie, K.M.**; Diwekar, U.; Linninger, A. Parameter estimation in cellular systems modeled as stochastic differential equations. *AIChE Annual Meeting, 2014*, 235g, Atlanta, GA.
31. **Yenkie, K.M.**; Diwekar, U. Uncertainty in clinical data and stochastic model for in-vitro fertilization. *AIChE Annual Meeting,* 2014, 376f, Atlanta, GA.
32. Doshi, R.; Diwekar, U.; Benavides, P. T. ; **Yenkie, K. M.**; Cabezas, H. 2014. Maximizing sustainability of ecosystem model through socio-economic policies derived from multivariable optimal control theory. *AIChE Annual Meeting*, 2014, 562e, Atlanta, GA.

33. **Yenkie, K. M.**; Diwekar, U. Comparison of different methods for predicting customized drug dosage in superovulation stage of in-vitro fertilization (T1B3). *AIChE's 6th Annual Midwest Regional Conference*, 2014, UIC, Chicago, IL.
34. Yenkie, K. M.; Diwekar, U. Comparison of different methods for predicting customized drug dosage in superovulation stage of in-vitro fertilization. *AIChE Annual Meeting, 2013*, 666d, San Francisco, CA.
35. **Yenkie, K.M.**; Diwekar, U.; Linninger, A.; Kim, S. A new method for parameter estimation in stochastic differential equations. *AIChE Annual Meeting, 2013,* 589e, San Francisco, CA.
36. **Yenkie, K.M.**; Diwekar, U. Comparison of different methods for predicting customized drug dosage in superovulation stage of in-vitro fertilization. *INFORMS Healthcare 2013*, MC-06(2), Chicago, IL.
37. **Yenkie, K. M.**; Diwekar, U. Optimal control for predicting drug dosage in superovulation stage of in-vitro fertilization. *AIChE's 5th Annual Midwest Regional Conference, 2013*, Fr2D(1), IIT, Chicago, IL.
38. **Yenkie, K. M.**; Diwekar, U.; Bhalerao, V. Modeling the superovulation stage in in-vitro fertilization (IVF). *AIChE Annual Meeting, 2012*, 312b, Pittsburgh, PA.
39. **Yenkie, K. M.**; Diwekar, U. Optimal control for predicting drug dosage in superovulation stage of in-vitro fertilization. *AIChE Annual Meeting, 2012*, 744ev, Pittsburgh, PA.
40. **Yenkie, K. M.**; Diwekar, U. Optimal control for predicting drug dosage in superovulation stage of in-vitro fertilization. *INFORMS Annual Meeting, 2012*, TD-20(2), Phoenix, AZ.
41. **Yenkie, K. M.**; Diwekar, U. Stochastic optimal control in batch crystallization applying Ito Processes. *AIChE Annual Meeting, 2011*, 131c, Minneapolis, MN.

Poster Presentations

1. Stengel, J.; Lehr, A.; Pierce, V.; Chea, J. D.; Slater, C. S.; Savelski, M. J.; **Yenkie, K. M.** Systematic Framework for Solvent Recovery, Reuse, and Recycling in Industries. *AIChE Annual Meeting, 2019*, 372r, Orlando, FL. (presenting students were ranked top 5 among 149 participants in Computing & Systems Technology poster competition)
2. **Yenkie, K.M.**; Pimentel, J.; Orosz, A.; Friedler, F. Systematic Synthesis of Wastewater Treatment Networks Using the P-Graph Approach. *AIChE Annual Meeting, 2019*, 562al, Orlando, FL.
3. Lehr, A.; Stengel, J.; Chea, J. D.; Slater, C. S.; Savelski, M. J.; Yenkie, K. M. Evaluation of Solvent Recovery Options for Economic Feasibility through a Superstructure-Based Framework. *AIChE Annual Student Conference 2019,* Orlando, FL. (presenting undergraduate students (underlined) won 3rd place in Computing and Process Control Category)
4. Lynch, H.; Purcell, E.; Schmidt, K.; Kodate, P. M.; **Yenkie, K. M.** Application of Machine Learning Methods to Improve Leukemia Diagnostics. *AIChE Annual Student Conference 2019,* Orlando, FL
5. **Yenkie, K. M.,** Chea, J. D.; Russ, M.; Stengel, J.; Pierce, V.; Christon, A. Solvent Recovery and Reuse for Efficient and Sustainable Industrial Manufacturing Practices. *ACS Green Chemistry and Engineering Industrial Roundtable Poster Session,* 06/2019, Reston, Virginia.
6. Pace, A.; Work, H.; **Yenkie, K.M.** Optimizing the diagnostics and treatment for irritable bowel syndrome (IBS). *AIChE's Mid-Atlantic Student Regional Conference, 2019*, Penn State University, PA.
7. Russ, M.; Stengel, J.; Pierce, V.; Christon, A.; Slater, C. S.; Savelski, M. J.; **Yenkie, K. M.** A case study for DME (Dimethoxy ethane) recovery. *AIChE's Mid-Atlantic Student Regional Conference, 2019*, Penn State University, PA.
8. McCahill, A.; Moskalow, G.; Zia, R.; Burnham, S.; Lubelski, Z, **Yenkie, K.M**. Effective Design of Wastewater Treatment Systems Under Regional Limitations and Influences. *Sustainable Packaging Symposium, 2018*, Rutgers University, NJ.
9. Dunn, I. C.; **Yenkie, K.M.** Optimization in Cancer Therapeutics: Model Integration for Tumor Dynamics and Myelosuppression to Predict Chemotherapy Dosing Profiles, *AIChE Annual Meeting, 2018*, 182o, Pittsburgh, PA.
10. Burnham, S.; Dailey, J. M.; **Yenkie, K.M**. Design and Optimization for Generation of Efficient Wastewater Treatment Networks. *AIChE Annual Student Conference 2018,* Pittsburgh, PA.
11. Burnham, S.; Dailey, J. M.; **Yenkie, K.M**. Design of Efficient Wastewater Treatment Networks in the Pharmaceutical Industry. *ISPE New Jersey Chapter's Student Poster Competition*, 2018, Bristol-Myers Squibb, New Brunswick, NJ.
12. Dunn, I. C.; Schwenger, M. S.; Vandergrift, S. M.; **Yenkie, K.M**. Modeling and optimization in Cancer Therapeutics. *AIChE Delaware Valley Section's Student Poster Symposium*, 2017, FMC Towers, Philadelphia, PA.

13. Dailey, J. M.; Giddings, C. S.; **Yenkie, K.M**. Design and optimization for generation of efficient wastewater treatment networks. *AIChE Delaware Valley Section's Student Poster Symposium*, 2017, FMC Towers, Philadelphia, PA.
14. **Yenkie, K.M.**; Diwekar, U.; Bhalerao, V. IVF modeling, optimal control, and customized drug treatment: Results of the first Clinical trial. *AIChE Annual Meeting, 2017*, 585ae, Minneapolis, MN.
15. Wu, W.; **Yenkie, K.M.**; Maravelias, C. T. A superstructure-based assessment framework for downstream bio-separations. *AIChE Annual Meeting, 2017*, 246i, Minneapolis, MN.
16. Ng, R. T. L.; Won, W.; **Yenkie, K.M.**; Maravelias, C. T. Process systems engineering for biofuels and bio-based chemicals. *U. S. DOE Genomic Sciences Annual Meeting, 2017*. Washington DC.
17. **Yenkie, K.M.**; Wu, W.; Maravelias, C. T. Assessment of bioseparation technology options for bio-based chemicals generated from microbial cultures. *AIChE Annual Meeting, 2016*, 228dg, San Francisco, CA.
18. **Yenkie, K.M.**; Diwekar, U. Uncertainty in clinical data and stochastic model for in-vitro fertilization. *Health Systems Optimization Workshop at Northwestern University*, 12-13 September, 2014.
19. **Yenkie, K. M.**; Diwekar, U. Mathematical perspective to enhance success rate of in-vitro fertilization by modeling and optimal control. UIC Research Forum, 8 April, 2014.
20. **Yenkie, K. M.**; Diwekar, U.; Bhalerao, V. Modeling the superovulation stage in in-vitro fertilization (IVF). Midwest Biomedical Engineering Career Conference (MBECC) 2013, UIC, Chicago, IL.
21. **Yenkie, K. M.**; Diwekar, U.; Bhalerao, V. Modeling the superovulation stage in in-vitro fertilization (IVF). UIC College of Medicine 2012 Research Forum.
22. **Yenkie, K. M.**; Diwekar, U. Uncertainties and stochastic optimal control in batch crystallization for different types of objective functions. AIChE Annual Meeting, 2012, 599f, Pittsburgh, PA.

Conference and Symposiums Attended

1. Enterprise + Infrastructure Resilience Workshop, Virtual, September 28-29, 2020.
2. 9th EESD (Engineering Education for Sustainable Development) Conference, Glassboro, NJ. June 3-6, 2018
3. 1st Annual Faculty Research Day at Rowan University, Glassboro, NJ. March 28, 2018.
4. UIC Women's Health Research Day, UIC Chicago, IL. April 28, 2014.
5. AIChE's 4th Annual Midwest Regional Conference, UIC, Chicago, IL. November 10-11, 2011.

Research Grants

10/2020 **US EPA Pollution Prevention (P2) Grant** for Optimization of Pipeline Flushing and Lube Oil Blending Operations (PI, 10/2020 – 09/2022, $299,974)

06/2020 **Industry Sponsored Project from Atlantic County Utilities Authority (ACUA), Atlantic City, NJ** for Wastewater Grit Removal and Asset Management (Co-PI, 06/2020-06/2022, $ 64,511)

09/2019 **Industry Sponsored Engineering Clinic Project from ExxonMobil** Paulsboro Lubricants Oil Blending Plant, New Jersey (PI, 09/2019-08/2021, $64,500)

07/2019 **KEEN (Kern Entrepreneurship Education Network) & Rowan ExEED (Experiential Engineering) Curricular Reimagination Grant** for Integrating Design Thinking in pedagogy (PI, 07/2019-06/2020, $2500)

02/2019 **Inspira Health Hack Grant** for research proposal on IBS (Irritable Bowel Syndrome) management tool in collaboration with Cooper Medical School (Co-PI, 02/2019-01/2020, $20,000)

10/2018 **US EPA Pollution Prevention (P2) Grant** for Designing a Solvent recovery roadmap and Computation tool for Industries (PI, 10/2018 – 09/2021, $289,000)

07/2018 **Rowan Seed Funding Award** for the project titled, 'Understanding Chemotherapeutic Cardiotoxicity in Cancer Patients' (PI, 07/2018 – 06/2019, $10,000)

Professional Workshops/Courses Attended

04/2020 **NSF CAREER Workshop at Rowan University (Virtual)** hosted by Dr. Tabbetha Dobbins

08/2019 **Process Analytics and Machine Learning Workshop** offered during the 2019 FOPAM (Foundations of Process Analytics and Machine Learning) Meeting organized by Drs. S. Joe Qin (USC), Leo H. Chiang (DOW), and Richard D. Braatz (MIT).

06-08/2019 **Faculty Online Teaching Course** offered by the Rowan University Faculty Center for Excellence in Teaching & Learning and Rowan Online

06/2019 **PATH (**Process Engineering Academic Teaching Highway**) Workshop** offered during the 29th ESCAPE (European Symposium on Computer Aided Process Engineering) Meeting organized by Process Systems Enterprise (PSE) to include modeling in teaching chemical engineering courses.

05/2019 **EPA-P2 Grantee Meeting and Workshop** offered to current P2 grantees by the Pollution Prevention Program Coordinators, EPA Region 8 Office, Denver, CO.

04/2019 **NSF CAREER Proposal Writing Workshop** offered by NSF and Kansas State University in Arlington, VA. April 1-2, 2019

11/2018 **Sustainable Development Goals (SDGs) Workshop** offered during the 2018 AIChE Annual Meeting organized by Dr. Heriberto Cabezas (US EPA) supported by the United Engineering Foundation (UEF) grant to discuss the technical and engineering challenges of addressing the United Nations 17 SDGs.

2018-19 **Innovation & Entrepreneurship Faculty Certificate Program 2018-19** offered by Rowan Faculty Center for Excellence in Teaching & Learning and the Experiential Engineering Department, Rowan University.

08/2018 **Chemours Faculty Workshop on Process Safety** offered by Center for Chemical Process Safety (CCPS) of the American Institute of Chemical Engineers (AIChE) at Fayetteville, NC.

08/2018 **National Effective Teaching Institute's NETI-1 Faculty Workshop** offered by the American Society for Engineering Education (ASEE) at Philadelphia, PA.

05/2018 **NIH Seminar and Workshops** on Grant Writing in Washington, D.C., May 1-4, 2018.

Professional Society Memberships

2018 - Present American Chemical Society (ACS)

2019 - Present American Society for Engineering Education (ASEE)

2011 - Present American Institute of Chemical Engineers (AIChE)

2011 - Present AIChE's Computing and Systems Technology (CAST) Division

2018 – Present AIChE's Environmental Division

2012 - Present Institute for Operations Research and Management Sciences (INFORMS)

2017 - Present AIChE's Delaware Valley Section (DVS)

2015 – 2017 University of Wisconsin – Postdoctoral Association (UWPA)

2011 - 2015 AIChE's Chicago Local Section

2012 - 2013 Alpha Eta Mu Beta (AEMB) - National Biomedical Engineering Honor Society

Curriculum Vitae

Software Skills

Programming Languages: Matlab, GAMS, Fortran 77, C, Visual Basic 6.0

Software and Packages: SuperPro Designer, OriginLab, HPC – High-performance and parallel computing, Cytoscape, Open-Flux, XL Data Analytics, GetData, Simulink, P-graph Studio, SNS-LIN, SimaPro, R Studio

Bioinformatics tools:

Databases – KEGG, METACYC, miRBase, GenBank, EcoCyc, Swiss-Prot, etc.

Sequence alignment tools – BLAST, FASTA, DIALIGN

Heuristic optimization tools: Genetic algorithm and Simulated annealing

Applications: Microsoft Office, Microsoft Visual Studio, LaTex

Experimental Skills

-IR(Infrared) Spectroscopy	-FBRM(Focused Beam Reflectance Measurement)
-Reaction Calorimeter	-PVM(Particle Vision Microscopy) Imaging

Languages

English, Hindi, Marathi and German

08/2005 - 05/2008 **Higher Diploma in German Language, Department of Foreign Languages, RTM Nagpur University**
3rd position in the three-year course (certificate course, junior and higher diploma)

Professional Services

2020 Session chair & co-chair for the 2020 AIChE Annual Meeting (Virtual)

- *Fundamentals of Food, Energy, and Water Systems (Environmental Division) – Chair*
- *Estimation and Control under Uncertainty (CAST 10B) - Chair*
- *Big-Data for Process Applications (CAST 10E) - Co-chair*
- *Design and Operations under Uncertainty (CAST 10C) - Co-chair*
- *Advanced Treatment for Water: Reuse and Recycling (Environmental Division) - Co-chair*

07/2020 – present Advisory Board Member of Mu-Gamma Consultants, non-profit research organization-Gurugram India

2020 Session co-chair for the 2020 AIChE Spring Meeting & GCPS (Virtual)

- *Environmental Issues and Controls in Select Industrial Sectors*
- *Advanced Technologies for Reduction of Atmospheric Emissions in the Petrochemical and Refining Industries*

06/2020 Symposium organizer & session co-chair for the 2020 ACS Green Chemistry & Engineering Conference

- *Towards Systematic Design of Sustainable Separation Processes (Virtual Conference)*

07/2020 - present Proposal Reviewer for ACS PRF (Petroleum Research Fund) Grant

04/2020 - present Proposal Reviewer for the National Research, Development and Innovation Office, Hungary

01/2020 – present AIChE Environmental Division's Executive Committee Member (elected Division Director, 2020-22)

01/2020 – 03/2020 Member of the Henry M. Rowan College of Engineering DEI (Diversity, Equity, and Inclusion) Committee for preparing the collegewide DEI Strategic Plan (2020-2023)

08/2019 – 03/2020 Member of the Chemical Engineering Department Head Search Committee, Rowan University

2019 Session chair & co-chair for 2019 AIChE Annual Meeting, Orlando, FL

- *Data-Driven Techniques for Dynamic Modeling, Estimation, and Control (CAST 10B) - Chair*
- *Applied Math for Energy and Environmental Applications (CAST 10D) – Co-chair*
- *Fundamentals of Food, Energy, and Water Systems (Environmental Division) - Chair*

07/2019	Session chair at the 9th International Conference on Foundations of Computer-Aided Process Design (FOCAPD), Copper Mountain, CO - *Sustainable Design and Energy Systems*
09/2017- present	Member of Academic Awards Subcommittee of AIChE-DVS (Delaware Valley Section)
06/2018- 08/2019	Member of AIChE YPC's (Young Professionals Committee) Publications Subcommittee
08/2018 – 03/2019	Member of the Faculty Search Committee, Department of Chemical Engineering, Rowan University
2018	Session co-chair for 2018 AIChE Annual Meeting, Pittsburgh, PA - *Sustainable Energy Generation and Utilization in System Design (CAST 10A)* - *Process Modeling and Identification (CAST 10B)*
2016 - 2019	Judge for Undergraduate Poster Sessions at 2019 (Orlando, FL), 2018 (Pittsburgh, PA), 2017 (Minneapolis, MN) & 2016 (San Francisco, CA) AIChE Annual Student Conferences
10/2019 - present	Reviewer for ACS Sustainable Chemistry and Engineering
10/2019 - present	Reviewer for Computers and Chemical Engineering, Elsevier
10/2019 - present	Reviewer for Journal of Process Control, Elsevier
07/2019 - present	Reviewer for Chemosphere, Elsevier
06/2019 - present	Reviewer for Current Opinion in Chemical Engineering, Elsevier
06/2019 - present	Reviewer for MDPI Mathematics Journal
05/2019 – present	Reviewer for IFAC (International Federation of Automatic Control) Conferences
06/2018 - present	Reviewer for Chemical Engineering Research & Design, Elsevier
06/2017 - present	Reviewer for Clean Technologies and Environmental Policy, Springer
10/2016 - present	Reviewer for Journal of Applied Mathematics, Hindawi Publishing Corporation
2015	Session co-chair for 2015 AIChE Annual Meeting, Salt Lake City, UT - *Design and Operations under Uncertainty-II (CAST 10A)*
2013 - 2014	Reviewer for the Bioengineering Student Journal at the University of Illinois at Chicago
2009 - 2010	Competitions Manager in Azeotropy, Annual Chemical engineering symposium at IIT Bombay
2007 - 2008	Reviewer for the Technical Souvenir at L.I.T., Nagpur

Extra-curricular Activities and Interests

2017 - present	Member of the American Federation of Teachers (AFT) at Rowan University
2017 - present	Member of the Association of Asian Professionals at Rowan University (AAPRU)
2015 - 2017	Volunteer for Tzu Chi USA, Madison Chapter
2015 - 2017	Volunteer for Association for Indians in America (AIA), Madison chapter
2016 - 2017	Member of 'Saaz' the Indian Musical Club at UW-Madison
2015 - 2017	Part of the Singing team for Musical events at UW-Madison (IGSA Diwali Night, Geet Purvai)
2012 - 2014	Member of the Bioengineering Organizational Alliance at UIC
2012 - 2014	Volunteer for AIChE Chicago Local section
2011 – 2014	Member of Indian Graduate Students Association (IGSA) at UIC
07/2012	Volunteer for Juvenile Arthritis Foundation Conference in St. Louis, MO
10/2008	Winner of the Inter-hostel Carom General Championship at IIT Bombay
2008 - 2010	Member of Stage Decoration and Planning Committee for Performing Arts Festival (PAF), IIT Bombay
01/2008	Represented LIT, Nagpur in Young Innovators choice competition (YICC), UICT, Mumbai
03/2008	Joint secretary in 'Umang' the annual social gathering of L.I.T., Nagpur
2004 - 2008	Member of the National Service Scheme (NSS) in L.I.T., Nagpur
2005 - 2008	Member of Team 'Pratibimb' the literary society of L.I.T., Nagpur