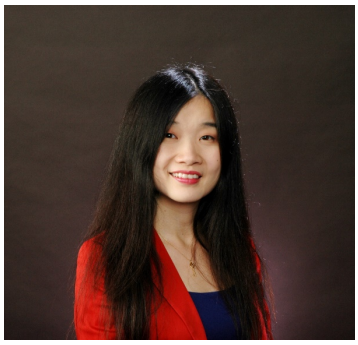
XIAONAN WANG 王笑楠



Date of birth: April 16, 1990 Place of birth: Shanxi, China
Address: Department of Chemical and Biomolecular Engineering,
National University of Singapore (NUS)
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Current Position and Work Experience

Assistant Professor (PhD supervisor, Program PI) **Singapore, SG**
in Chemical and Biomolecular Engineering, NUS, Singapore 07/2017 – Present

- Leading a Smart Systems Engineering research group of more than 20 team members as PI to build a systematic and inclusive planning platform for smart city and engineering development that combines model-based and data-driven approaches for overall economic, environmental and social benefits.
- Systems modelling, control and optimization, aiming to combining theories, models, and real-world practice in many fundamental domains (energy, process engineering, advanced materials, healthcare manufacturing and supply chain) through intelligent algorithms development and applications.
- Novel machine learning, AI and IoT technologies applied in Energy, Environment and Sustainability related research, as well as Advanced Materials and Biomedical fields.

Deputy Director of the Accelerated Materials Development for Manufacturing programme in Singapore

- Leading the machine learning and data analytics expertise and delivering a series of education workshops (http://www.acceleratedmaterials.org/) 09/2018 – Present

Program Leader of the Association of Pacific Rim Universities (APRU)'s Sustainable Waste Management Program 01/2020 – Present

Postdoctoral Research Associate: *Centre for Process Systems Engineering* **London, UK**
Department of Chemical Engineering at Imperial College London 08/2015- 06/2017

Lecturer, Master supervisor at *Energy Futures Lab*, Imperial College London 06/2016- 06/2017

- Simulation, Modeling and Optimization Platform for Smart City Development – resilience.io

Education

UNIVERSITY OF CALIFORNIA, DAVIS **CA, USA**
Ph.D. in Chemical Engineering, Minor in Control Science 07/2015
Dissertation: Modeling, Operation and Optimization of Energy Systems Integrating Demand Management
Master of Science in Chemical Engineering 06/2012
TSINGHUA UNIVERSITY **Beijing, China**
Bachelor of Science in Chemical and Industrial Biological Engineering 07/2011

Undergraduate Thesis: Applying System Dynamics to the Analysis of PVC Industry Development

Awards, Honors and Distinctions

Applied Energy - 2020 Highly Cited Paper Award	10/2020
Mathematics Best Paper Award (third award of 2018)	03/2020
Applied Energy Awards: Outstanding Paper for ICAE 2018	08/2019
Royal Society International Exchanges Award	03/2018
Institution of Chemical Engineers (IChemE) Global Awards 2017 **Young Researcher** finalist	09/2017
Nominated for the UC Davis College of Engineering Award for the **Best Doctoral Dissertation**	12/2016
Graduate Student Association Travel Award, University of California, Davis	06/2015
Two **Best Presentation in Session Awards** at 2014 American Control Conference (ACC), Power Systems/ Fault Detection and Control	06/2014
Graduate Studies Travel Award, University of California	05/2014
Conoco Phillips/Phillips 66 Fellowship in Energy Research and Development	05/2013
Mentee in UC Entrepreneurship Academy for commercializing science and engineering innovations	09/2012
Graduate Student Researcher Award for Engineering or Computer-related Applications	05/2012
Award for Outstanding Party member in Beijing	05/2011
Scholarship for Excellent Student Leader (President of ChemEng Class), Tsinghua University	10/2008

Associate editor of Results in Control and Optimization, **Associate editor** of Frontiers in Blockchain.
Senior Editor of Cogent Environmental Science (by Taylor & Francis Group).
Editorial board member of Applied Energy. **Assistant editor** of Advances in Applied Energy.
Editorial board member of ACS ES&T Engineering; Environmental Research Infrastructure and Sustainability.
Guest editor of Energies/Processes Journal. Regularly serves as a reviewer for more than 50 international journals and conferences, including several IEEE Transactions, Joule, Applied Energy, Environment Science & Technology, Water Research, and Computers & Chemical Engineering (outstanding reviewer of 2018) etc.

Senior Member of American Institute of Chemical Engineers (AIChE), Member of Institute of Electrical and Electronics Engineers (IEEE), American Chemical Society (ACS) and IChemE
Committee member of IEEE Cybernetics and Intelligent Systems (CIS) and Robotics, Automation and Mechatronics (RAM) Society; **Secretary** in the Systems, Man and Cybernetics Chapter of the IEEE Singapore Section; **Treasurer** of AIChE Singapore Local Section.
Program Chair/ Organizing Committee Chair/ Scientific Committee/ Area Chair/ Session Chair/organizer and panellist of international conferences (more than ten IEEE, AIChE and Applied Energy International Conferences).

Selected Journal Publications (More than 60 SCI papers, > 40 as first or corresponding author, 3 highly cited articles in Engineering, Google Scholar citation > 1050, more than 10 in press or under review)

[42] Jing, Lin, Qian Xie, Hongling Li, Kerui Li, Haitao Yang, Patricia Li Ping Ng, Shuo Li, Yang Li, Edwin Hang Tong Teo, **Xiaonan Wang*** and Po-Yen Chen*. "Multigenerational Crumpling of 2D Materials for Anticounterfeiting Patterns with Deep Learning Authentication." *Matter* 3 (2020): 2160-2180,.

[41] Xie, Qian, Manu Suvarna, Jiali Li, Xinzhe Zhu, Jiajia Cai*, and **Xiaonan Wang***. "Online prediction of mechanical properties of hot rolled steel plate using machine learning." Materials & Design (2020) 197: 109201.
[40] Wang, Shukun, Chao Liu*, Jie Li, Zhuang Sun, Xiaoxue Chen, and **Xiaonan Wang***. "Exergoeconomic analysis of a novel trigeneration system containing supercritical CO2 Brayton cycle, organic Rankine cycle and absorption refrigeration cycle for gas turbine waste heat recovery." *Energy Conversion and Management* 221 (2020): 113064.
[39] Liu, Zuming, Mei Qi Lim, Markus Kraft, and **Xiaonan Wang***. "Simultaneous design and operation optimization of renewable combined cooling heating and power systems." AIChE Journal (2020): e17039.
[38] Li, Yinan, Song Lan, Javier Pérez-Ramírez*, and **Xiaonan Wang***. "Achieving a low-carbon future through the energy–chemical nexus in China." *Sustainable Energy & Fuels* 4 (2020): 6141-6155
[37] Zhu, Xinzhe, Chi-Hung Ho, and **Xiaonan Wang***. "Application of life cycle assessment and machine learning for high-throughput screening of green chemical substitutes." *ACS Sustainable Chemistry & Engineering* 8, no. 30 (2020): 11141-11151.
[36] Han, Xi, Wenbo Ning, Xiaoqiang Ma, **Xiaonan Wang***, and Kang Zhou*. "Improving protein solubility and activity by introducing small peptide tags designed with machine learning models." *Metabolic engineering communications* 11 (2020): e00138.
[35] Liu, Zuming, Yingru Zhao, and **Xiaonan Wang***. "Long-term economic planning of combined cooling heating and power systems considering energy storage and demand response." *Applied Energy* 279 (2020): 115819.
[34] Jiali Li, Kaizhuo Lim, Haitao Yang, Zekun Ren, Shreyaa Raghavan, Po-Yen Chen, Tonio Buonassisi*, and **Xiaonan Wang***. "AI applications through the whole life cycle of material discovery." *Matter* 3 (2020): 1-40.
[33] Li, Jie, Lanjia Pan, Manu Suvarna, Yen Wah Tong, and **Xiaonan Wang***. "Fuel properties of hydrochar and pyrochar: Prediction and exploration with machine learning." *Applied Energy* 269 (2020): 115166.
[32] Manu Suvarna, Lennart Büth, Johannes Hejny, Mark Mennenga, Li Jie, Ng Yen Ting, Christoph Herrmann, and **Xiaonan Wang***. "Smart manufacturing for smart cities – Overview, insights and future directions." Advanced Intelligent Systems (2020).
[31] Zhang, Jingxin, Hailin Tian, **Xiaonan Wang*** and Yen Wah Tong*. "Effects of activated carbon on mesophilic and thermophilic anaerobic digestion of food waste: process performance and life cycle assessment" *Chemical Engineering Journal* 399 (2020): 125757.
[30] Yeo, Chester Su Hern, Qian Xie, **Xiaonan Wang*,** and Sui Zhang*. "Understanding and optimization of thin film nanocomposite membranes for reverse osmosis with machine learning." *Journal of Membrane Science* (2020): 118135.
[29] Wang, Wei, Yingru Zhao, Chuan Zhang and **Xiaonan Wang***. "A load-complementarity combined flexible clustering approach for large-scale urban energy-water nexus optimization." *Applied Energy* 270 (2020): 115163.
[28] Li, Lanyu, Xian Li, Clive Chong, Chi-Hwa Wang, and **Xiaonan Wang***. "A decision support framework for the design and operation of sustainable urban farming systems." *Journal of Cleaner Production* 268 (2020): 121928.
[27] Lim, Kai Zhuo, Kang Hui Lim, Xian Bin Wee, Yinan Li, and Xiaonan Wang*. "Optimal allocation of energy storage and solar photovoltaic systems with residential demand scheduling." *Applied Energy* 269 (2020): 115116.

[26] Oliver Inderwildi*, Chuan Zhang, **Xiaonan Wang**, and Markus Kraft. "The Impact of Intelligent Cyber-Physical Systems on the Decarbonization of Energy." *Energy & Environmental Science* 13, no. 3 (2020): 744-771.
[25] Bowen Feng, Koen H. Dam, Miao Guo, Nilay Shah, Stephen Passmore, and **Xiaonan Wang***. "Planning of food-energy-water-waste (FEW2) nexus for sustainable development." *BMC Chemical Engineering* 2.1 (2020): 1-19.
[24] Zhuang, Rui, **Xiaonan Wang***, Miao Guo, Yingru Zhao, Nael H. El-Farra, and Ahmet Palazoglu. "Waste-to-hydrogen: Recycling HCl to produce H2 and Cl2." *Applied Energy* 259 (2019): 114184.
[23] Han, Xi, Liheng Zhang, Kang Zhou*, and **Xiaonan Wang***. "ProGAN: Protein solubility generative adversarial nets for data augmentation in DNN framework." Computers & Chemical Engineering 131 (2019): 106533.
[22] Tian, Hailin, Jie Li, Miao Yan, Yen Wah Tong, Chi-Hwa Wang, and **Xiaonan Wang***. "Organic waste to biohydrogen: A critical review from technological development and environmental impact analysis perspective." Applied Energy 256 (2019): 113961.
[21] Zhu, Xinzhe, **Xiaonan Wang***, and Yong Sik Ok. "The application of machine learning methods for prediction of metal sorption onto biochars." *Journal of Hazardous Materials* 378 (2019): 120727.
[20] Li, Jiali, Tiankai Chen, Kaizhuo Lim, Lingtong Chen, Saif A. Khan, Jianping Xie, and **Xiaonan Wang***. "Deep Learning Accelerated Gold Nanocluster Synthesis." *Advanced Intelligent Systems* (2019).
[19] Li, Yinan, Wentao Yang, Ping He, Chang Chen, and **Xiaonan Wang***. "Design and management of a distributed hybrid energy system through smart contract and blockchain." *Applied Energy* 248 (2019): 390-405.
[18] Zhu, Xinzhe, Yinan Li, and **Xiaonan Wang***. "Machine learning prediction of biochar yield and carbon contents in biochar based on biomass characteristics and pyrolysis conditions." *Bioresource technology* 288 (2019): 121527.
[17] Han, Xi, **Xiaonan Wang***, and Kang Zhou*. "Develop machine learning-based regression predictive models for engineering protein solubility." *Bioinformatics* (2019).
[16] Li, Lanyu, Zhiyi Yao, Siming You, Chi-Hwa Wang, Clive Chong, and **Xiaonan Wang***. "Optimal design of negative emission hybrid renewable energy systems with biochar production." *Applied Energy* 243 (2019): 233-249.
[15] **Wang, Xiaonan***, Koen H. van Dam, Charalampos Triantafyllidis, Rembrandt HEM Koppelaar, and Nilay Shah. "Energy-water nexus design and operation towards the sustainable development goals." *Computers & Chemical Engineering* 124 (2019): 162-171.
[14] Yang, Huiying, Gökalp Gözaydın, Ricca Rahman Nasaruddin, Jie Ren Gerald Har, Xi Chen, **Xiaonan Wang***, and Ning Yan*. "Toward the Shell Biorefinery: Processing Crustacean Shell Waste Using Hot Water and Carbonic Acid." ACS Sustainable Chemistry & Engineering 7, no. 5 (2019): 5532-5542.
[13] Chen, Scarlett, Anikesh Kumar, Wee Chin Wong, Min-Sen Chiu, and **Xiaonan Wang***. "Hydrogen value chain and fuel cells within hybrid renewable energy systems: Advanced operation and control strategies." *Applied Energy*, 233 (2019): 321-337.
[12] Ho, Chi-Hung, Jieran Yi, and **Xiaonan Wang***. "Biocatalytic continuous manufacturing of diabetes drug: plantwide process modeling, optimization, environmental and economic analysis." *ACS Sustainable Chemistry & Engineering* 7, no. 1 (2018): 1038-1051.

[11] Sana Noor, Wentao Yang, Miao Guo, Koen H. van Dam, and **Xiaonan Wang*.** "Energy Demand Side Management within micro-grid networks enhanced by blockchain", *Applied Energy* 228 (2018): 1385-1398. **(ESI highly cited paper)**

[10] Wong, Wee, Ewan Chee, Jiali Li, and **Xiaonan Wang*.** "Recurrent Neural Network-Based Model Predictive Control for Continuous Pharmaceutical Manufacturing." *Mathematics* 6, no. 11 (2018): 242.

[9] **Xiaonan Wang*,** Lanyu Li, Ahmet Palazoglu, Nael H. El-Farra, and Nilay Shah. "Optimization and control of offshore wind systems with energy storage." *Energy Conversion and Management* 173 (2018): 426-437.

[8] **Xiaonan Wang*,** Miao Guo, Rembrandt H.E.M. Koppelaar, Koen H. van Dam, Charalampos Triantafyllidis, and Nilay Shah. "A nexus approach for sustainable urban Energy-Water-Waste systems planning and operation", *Environmental science & technology* 52, 5 (2018): 3257–3266.

[7] Niclas Bieber, Jen Ho Ker, **Xiaonan Wang*,** Koen H. van Dam, Charalampos Triantafyllidis, Rembrandt H.E.M. Koppelaar, and Nilay Shah. "Sustainable planning of the Energy-Water-Food nexus using decision making tools", *Energy Policy* 113 (2018): 584-607. **(ESI highly cited paper)**

[6] Charalampos Triantafyllidis*, Rembrandt H.E.M. Koppelaar, **Xiaonan Wang,** Koen H. van Dam, and Nilay Shah. "An integrated optimisation platform for sustainable resource and infrastructure planning", *Environmental Modelling & Software* 101 (2018): 146-168.

[5] Lanyu Li, Pei Liu, Zheng Li and **Xiaonan Wang*.** "A Multi-Objective Optimization Approach for Selection of Energy Storage Systems", *Computers & Chemical Engineering* 115 (2018): 213-225.

[4] **Xiaonan Wang**, Ahmet Palazoglu, and Nael H. El-Farra*. "Optimal scheduling of responsive industrial production with hybrid renewable energy systems". *Renewable Energy* 100 (2017): 53–64.

[3] **Xiaonan Wang**, Ahmet Palazoglu, and Nael H. El-Farra*. "Operational optimization and demand response of hybrid renewable energy systems." *Applied Energy* 143 (2015): 324-335. **(ESI highly cited paper)**

[2] **Xiaonan Wang**, Nael H. El-Farra, and Ahmet Palazoglu*. "Proactive reconfiguration of heat-exchanger super networks." *Industrial & Engineering Chemistry Research* 54, no. 37 (2015): 9178-9190.

[1] **Xiaonan Wang**, Holger Teichgraeber, Ahmet Palazoglu, and Nael H. El-Farra*. "An economic receding horizon optimization approach for energy management in the chlor-alkali process with hybrid renewable energy generation." *Journal of Process Control* 24, 8 (2014): 1318-1327.

Selected Peer-reviewed Conference Proceedings Full Paper

[10] Han Wang, Wei Lin, and **Xiaonan Wang*.** "Special Issue on Selected Papers from CIS-RAM2019—Cybernetics and Intelligent Systems (CIS) and Robotics, Automation and Mechatronics (RAM)". *Unmanned Systems* (2020): 1-2.

[9] Lanyu Li, Siming You, and **Xiaonan Wang*.** "Optimal design of standalone hybrid renewable energy systems with biochar production in remote rural areas: a case study." *Energy Procedia* 158 (2019): 688-693.

[8] Lanyu Li, and **Xiaonan Wang*.** "A Data-Driven Approach for Design and Optimization of Energy Storage Systems." In *Computer Aided Chemical Engineering*, vol. 44, pp. 1759-1764. Elsevier, 2018.

[7] Sana Noor, Miao Guo, Koen H. van Dam, Nilay Shah, and **Xiaonan Wang*.** "Energy Demand Side Management with supply constraints: Game theoretic Approach." *Energy Procedia* 145 (2018): 368-373.

[6] **Xiaonan Wang*,** Lanyu Li, Ahmet Palazoglu, Nael H El-Farra, and Nilay Shah. "Optimization and control of offshore wind farms with energy storage systems." *IFAC-PapersOnLine* 51 (2018): 862-867.

[5] **Xiaonan Wang***, Qingyuan Kong, Maria M. Papathanasiou, and Nilay Shah. "Precision healthcare supply chain design through multi-objective stochastic programming." *Computer Aided Chemical Engineering*, vol. 44, pp. 2137-2142. Elsevier, 2018.

[4] **Xiaonan Wang*,** Miao Guo, Rembrandt H.E.M. Koppelaar, Koen H. van Dam, Charalampos Triantafyllidis, and Nilay Shah. "Waste-Energy-Water systems in sustainable city development using the resilience.io platform." *Computer Aided Chemical Engineering*, vol. 40, pp. 2377-2382. Elsevier, 2017.

[3] **Xiaonan Wang*,** Koen H. van Dam, Charalampos Triantafyllidis, Rembrandt H.E.M. Koppelaar, and Nilay Shah. "Water and energy systems in sustainable city development: A case of Sub-Saharan Africa". *Procedia Engineering* 198 (2017): 948-957.

[2] **Xiaonan Wang**, Chudong Tong, Ahmet Palazoglu, and Nael H. El-Farra*. "Energy management for the chlor-alkali process with hybrid renewable energy generation using receding horizon optimization." *2014 IEEE 53rd Annual Conference on Decision and Control (CDC)*, pp. 4838-4843. IEEE, 2014.

[1] **Xiaonan Wang**, Ahmet Palazoglu, and Nael H. El-Farra*. "Operation of residential hybrid renewable energy systems: Integrating forecasting, optimization and demand response." *American Control Conference (ACC)*, pp. 5043-5048. IEEE, 2014.

Book Chapters

[3] *Intelligent Decarbonisation* (Chapter: Blockchain for decarbonization) Springer Nature, 2021.

[2] *Biochar from Biomass and Waste* (Chapter: The impact of biochar on the economic and environmental feasibility of gasification systems: Cost-benefit and life cycle assessment) Elsevier, 2019.

[1] *Sustainability Assessment: Focusing on different technologies recovering energy from waste* (Chapter: Sustainability Assessment: Focusing on different technologies recovering energy from waste) Elsevier, 2019.

Selected Presentations

Delivered more than 40 presentations/invited talks at international conferences and universities on 5 continents:

[13] "AI and Machine Learning through Life Cycle of Environmental Systems", 2nd Engineering Sustainable Development Conference. December, 2020, virtual. (Plenary Speaker)

[12] "Materials Design: Active Learning Guided Online Materials Synthesis", 2020 MRS Spring/Fall Meeting. November, 2020, virtual. (Invited Speaker)

[11] "AI aided advanced materials and intelligent manufacturing", PSE China. November, 2020, Chongqing, China. (Plenary Speaker)

[10] "Active Learning Guided Materials Synthesis and Full-Map Understanding", The 4th Forum of Materials Genome Engineering. October, 2020, Mianyang, China. (Invited Speaker)

[9] "Sustainable energy-water-food-waste nexus for a circular economy in smart city development" Asian Pacific Confederation of Chemical Engineering (APCChE) Congress, September 2019, Sapporo, Japan. (Keynote Speaker)

[8] "Machine Learning and Data-driven Optimization in Urban Energy and Environmental Systems" The 3rd International Conference on Bioresources, Energy, Environment, and Materials Technology 2019 (BEEM2019) June, 2019, Hong Kong, China. (Invited Speaker)

[7] "Smart City, Smart Energy, Smart Decision Making", PSE ASIA, the 8th International Symposium on Design, Operation, and Control of Chemical Processes, January 2019, Bangkok, Thailand. (Invited Keynote Speaker)

[6] “Surrogate-Based Optimization for Biocatalytic Manufacturing of Diabetes Drug” 2018 AIChE Annual Meeting, October 2018, Pittsburgh, PA, U.S. (Given more than 15AIChE talks since 2013)
[5] “Blockchain-based smart contract for energy demand management” (recommended to be published on a special issue of Applied Energy), The 10th ICAE, August 2018, Hong Kong, China. (Invited Theme Chair)
[4] "From clean energy research into innovation" Panel at Applied Energy Symposium and Forum: REM2017, October 2017, Tianjin, China. (Invited Chair)
[3] "Waste-Energy-Water systems in sustainable city development using the resilience.io platform", ESCAPE-27 and 10th World Congress of Chemical Engineering, October 2017, Barcelona, Spain.
[2] “Water and energy systems in sustainable city development- resilience.io,” conference talk at Urban Transitions Global Summit, September 2016, Shanghai, China.
[1] “Heat mitigation strategies to reduce urban heat island effects,” Researchers Link - Newton Fund - UFRGS & University of Nottingham, May 2016, Porto Alegre, Brazil.

Selected Funding Applications and Participation

[14] **Deputy Director**, Accelerated Materials Development for Manufacturing, Advanced Manufacturing and Engineering Programmatic Grant (total funded S$24,774,600 over 5 years) 2018-2023
[13] PI, Pharmaceutical Innovation Program in Singapore: Pfizer funded project, Data-driven knowledge discovery in pharmaceutical manufacturing through batch process optimization (total funded S$378,000 over 2 years) 2020-2022
[12] PI, A*STAR Industrial Alignment Fund, Cyber-Physical Production System (CPPS) - Towards contextual and intelligent response (total funded S$18,473,400 over 3 years) 2019-2021
[11] PI, National Research Foundation Seed Grant, An intelligent Platform for Efficient Energy Management in an Eco-Industrial Park (total funded S$ 249,960 over 18 months) 2019-2020
[10] PI, MOE Tier 1 Grant, Pathways to Resilient Food-Energy-Water-Waste (FEW2) Nexus in Singapore (total funded S$150,527 over 3 years) 2018-2021
[9] PI, AcRF Tier 1 Start-up Grant, Precision Healthcare Development, Manufacturing and Supply Chain Optimization (total funded S$ 167,998 over 4 years) 2017-2021
[8] Co-PI, Competitive Research Programme (Water), “Highly permeable, superior anti-fouling thin film nanocomposite hollow fibre membranes for energy-efficient desalination”. (total funded S$2,184,000 over 3 years) 2019-2022
[7] Co-PI, MOE Tier 2, “Intelligent Soft Robots with 2D Material Artificial Skin and AI Neural Networks”. (total funded S$770,000 over 3 years) 2019-2022
[6] Co-PI, Energy and Environmental Sustainability for Megacities (E2S2), CREATE Singapore 2018-2023
[5] Co-PI, Cambridge Centre for Carbon Reduction in Chemical Technology (C4T), CREATE Singapore
[4] Co-PI, NUS Flagship Green Energy Program, Singapore 2018-2023
[3] Lead researcher, Future Proofing African Cities for Sustainable Growth (total funded £4,915,000 for 4 agencies), by UK Government (DFID) 2014-2016
[2] Lead researcher, Integrated Monitoring and Fault-Tolerant Dispatch of Hybrid Energy Systems (total funded $281,917), by National Science Foundation (NSF), USA 2014-2017
[1] PI, Energy Research Grant (individual recipient $18,902), Phillips 66 2013

Research Experience

Postdoctoral Research Associate: *Centre for Process Systems Engineering* **London, UK**
Department of Chemical Engineering at Imperial College London 08/2015- 06/2017

- Built an open-source decision-making platform combining social-economic databases and forecasting, as well as agent-based modeling and resource technology network optimization to deal with challenges of water, sanitation, energy and transportation issues in sustainable and smart city development.

Research Assistant: *Department of Chemical Engineering and Materials Science at UC Davis* **CA, USA**
Design and Operational Optimization of Hybrid Renewable Energy Systems 12/2011- 05/2014
Co-generation and Grid-connected Industrial Plants Design and Operation 07/2013- 06/2015
Economic Impacts Analysis in conjunction with Life Cycle Assessment (LCA) 01/2014- 01/2016

Research Assistant: *Mary Kay O'Connor Process Safety Center, Texas A&M University* **TX, USA**
Integrating Safety Issues into Process Design 07/2010-08/2010

Research Assistant: *National Environment Protection Agency & Tsinghua University* **Beijing, China**
Process Safety and Risk Management for Industrial Parks 02/2010-06/2010

Teaching and Students Supervising Experience

More than 8 years of teaching experience giving lectures and tutorials with excellent student rating
Lecturer for undergraduate and postgraduate students and practitioners (Optimization for Engineering, Process Dynamics and Control, Chemical Engineering Lab, Research and Communication), NUS
Lecturer for MSc in Sustainable Energy Futures: Urban Energy Systems at Imperial College London (2017)
Lead Teaching Assistant and lecturer for Process Design and Analysis (2012-2015)
Lead Teaching Assistant and reader for Separations and Unit Operations (2013-2014)
Lead Teaching Assistant and lecturer for Computational Methods and Matlab Application (2015)
Instructor of Aspen Plus training courses at UC Davis and Texas A&M University (2010-2015)
Alumni and Students trained to date

- Visiting Professor: Qian Xie, Jiajia Cai. Postdoc Research Fellows: Wee Chin Wong, Xinzhe Zhu, Xiaoli Liu, Zuming Liu, Hailin Tian, Tan Huang, Pulkit Chhabra, Song Lan.
- Research Associate/Engineer: Manu Suvarna, Qianyu Chen, Zhiyao Luo.
- PhD students: Jiali Li, Lanyu Li, Yinan Li, Jie Li, Yee Shee Tan, Yixin Zhu, and Xi Han (co-supervised with Dr Zhou Kang), Apoorva Katragadda (co-supervised with Prof IA Karimi) at NUS.
- MEng/MSc: (since 2017) Chi-Hung Ho, Wei Wang, Ewan Chee, Yun Bin Cho, MunSik Park, Rui Zhuang at NUS; (2016-2017) Sana Noor, Stephanie Travers, at Imperial College London.
- Final Year Project (FYP) Undergraduates (several of them won university-wide research awards: (2017-2020) Jun Yin, U S Vaitesswar, Bowen Feng, Daniel Tian, Tianxun Zhou, Qingyu Chong, Tianyu Ren, Shamala Nair Narayan at National University of Singapore; (2016-2017) Jen Ker, Niclas G Bieber, Yu TJ Cho at Imperial College London; (2014-2015) Holger Teichgraeber, Carson Yu, Sumit Sethi at University of California, Davis.

Industry Experience

Scientific Advisor to Ziggurat – a BaaS company (Blockchain as a Service) 03/2018 – Present **SG/CH**
Scientific consulting to Hunter Water for waste and resource management 05/2018 – Present **Australia**
Scientific Service for Ghana Government for sustainable development 01/2017 – 01/2018 **Ghana/UN**
Researcher: *California Independent System Operator (ISO)* 06/2014 –08/2014 **CA, USA**