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Biographical Information

Associate Professor

Water Resources Engineering

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EDUCATION

The University of Illinois, Urbana-Champaign (UIUC), Urbana, IL, USA

- **Ph.D. in Civil & Environmental Engineering** (CEE), *May 2010*

National Taiwan University (NTU), Taipei, Taiwan

- **M.S. in Bioenvironmental Systems Engineering** (BSE), *June 2004*
- **B.S. in Geography** (graduated with College of Science Dean's Award), *June 2002*

Minor: **Earth Systems Science Program**

EMPLOYMENT

- **Associate Professor**, *June 2023 - present*
Civil and Environmental Engineering, Lehigh University
- **Assistant Professor**, *August 2017 – May 2023*
Civil and Environmental Engineering, Lehigh University
- **Visiting Assistant Professor**, *July 2017 – August 2017*
Civil and Environmental Engineering, National Chung Hsing University, Taiwan
- **Research Assistant Professor**, *July 2013 – August 2017*
Civil and Environmental Engineering, University of Massachusetts (UMass), Amherst
- **Research Scientist**, *July 2011 – June 2013*
Civil and Environmental Engineering, University of Massachusetts, Amherst
- **Postdoctoral Research Associate**, *February 2010 – June 2011*
Illinois State Water Survey, PRI, UIUC
- **Research Assistant**, *August 2005 – May 2010*
Hydrosystem Lab., Department of CEE, UIUC
- **Research Staff**, *August 2004 – July 2005*
Sustainable Development Lab/Hydrotech Research Institute, NTU
- **Graduate Student Assistant**, *July 2002 – June 2004*
Sustainable Development Lab., Department of BSE, NTU

RESEARCH INTERESTS

- **Stormwater Smart City** – IoT-based stormwater green infrastructure, flooding event adaptation
- **Coupled Natural-Human System** – agent-based modeling, decentralized optimization
- **Water-Energy-Food Nexus** – hydropower-irrigation tradeoff, integrated system modeling
- **Climate Risk Assessment** – climate change, uncertainty analysis
- **Ecological Hydrology** – quantitative hydroecological indicators, reservoir reoperation
- **Geographic Information Science** – WebGIS-based decision support system

Publications and Scholarly Work

Peer-reviewed Journals (P: postdoctoral researcher, D: doctoral student, M: master's student, U: undergraduate student, DA: faculty member's doctoral adviser, PA: faculty member's postdoctoral adviser)

1. Zhang, J.^D, **Yang, Y. C. E.**, Abeshu, G. W., Li, H., Hung, F. W.^P, Lin, C. Y.^D and Leung, L. R. 2024. Exploring the food-energy-water nexus in coupled natural-human systems under climate change with a fully integrated agent-based modeling framework, *Journal of Hydrology*, 634, 131048. <https://doi.org/10.1016/j.jhydrol.2024.131048>
2. Hung, F. W.^P, Ghaffari, A.^D, **Yang, Y. C. E.** and Dillingham, G. 2024. An investment behavioral modeling framework for advancing power system transformation toward renewable energy integration, *Energy and Climate Change*, 5, 100127. <https://doi.org/10.1016/j.egycc.2024.100127>
3. Sun Q.^D, Kushner, H.^U and **Yang, Y. C. E.**, 2024. Identifying barriers to decentralized stormwater infrastructure implementation at different levels of urban flood governance – A case study in Eastern Pennsylvania, US, *Environmental Science and Policy*, 154, 103686. <https://doi.org/10.1016/j.envsci.2024.103686>
4. Lin, C. Y.^D, **Yang, Y. C. E.** and Moazeni, F. 2024. Flood Risks of Cyber-physical Attacks in a Smart Storm Water System, *Water Resources Research*, 60, e2023WR034827. <https://doi.org/10.1029/2023WR034827>
5. Abuismail, S.^D, Sun, Q.^D and **Yang, Y. C. E.**, 2024. Exploring the influential factors of residents' attitudes toward implementing green infrastructures for stormwater management in the US. *Sustainable Cities and Society*, 100, 105067. <https://doi.org/10.1016/j.scs.2023.105067>.
6. Lin, C. Y.^D, **Yang, Y. C. E.** and Kumar Chaudhary, A. 2023. Pay-for-practice or Pay-for-performance? A Coupled Agent-based Evaluation Framework for Assessing Sediment Management Incentive Policies, *Journal of Hydrology*, 624: 129959.
7. Lin, C. Y.^D, **Yang, Y. C. E.** and Wi, S. 2022. HydroCNHS: A Python Package of Hydrological Model for Coupled Natural-Human Systems, *Journal of Water Resources Planning and Management – ASCE*, 148(12), 10.1061/(ASCE)WR.1943-5452.0001630.
8. Yoon, J., Romero-Lankao, P., **Yang, Y. C. E.**, Klassert, C., Urban, N., Kaiser, K., Keller, K. Yarlagadda, B., Voisin, N., Reed, P. M. and Moss, R., 2022. A Typology for Characterizing Human Action in MultiSector Dynamics Models, *Earth's Future*. 10, e2021EF002641. <https://doi.org/10.1029/2021EF002641>.
9. Lin, C. Y.^D, **Yang, Y. C. E.**, Malekc, K. and Adamd, J. C. 2022. An investigation of coupled natural human systems using a two-way coupled agent-based modeling framework, *Environmental Modelling & Software*. 155: 105451.
10. Hung, F. W.^P, Son K. and **Yang, Y. C. E.** 2022. Investigating uncertainties in human adaptation and their impacts on water scarcity in the Colorado River Basin, United States, *Journal of Hydrology*. 612: 128015.
11. Lin, C. Y.^D and **Yang, Y. C. E.** 2022. The effects of model complexity on model output uncertainty in co-evolved coupled natural-human systems, *Earth's Future*. 10, e2021EF002403. <https://doi.org/10.1029/2021EF002403>.
12. Gai, D. H. B., Shittu, E., **Yang, Y. C. E.** and Li, H. 2022. A Comprehensive Review of the Nexus of Food, Energy, and Water Systems: What the Models Tell Us? *Journal of Water Resources Planning and Management – ASCE*, 10.1061/(ASCE)WR.1943-5452.0001564.
13. Berglund, E. Z., Buchberger, S., Cunha, M., Faust, K. M., Giacomoni, M., Haxton, T., Goharian, E.,

- Kleiner, Y., Lee, J., Ostfeld, A., Pasha, F., Peasantez, J. E., Saldarriaga, J., Shafiee, E., Spearing, L., van Zyl, J. E. and **Yang, Y. C. E.** 2022. Effects of the COVID-19 Pandemic on Water Utility Operations and Vulnerability, *Journal of Water Resources Planning and Management – ASCE*, 148(6), 10.1061/(ASCE)WR.1943-5452.0001560.
14. Hung, F. W.^P and **Yang, Y. C. E.** 2021. Assessing Adaptive Irrigation Impacts on Water Scarcity in Nonstationary Environments - A Multi-agent Reinforcement Learning Approach, *Water Resources Research*, 57, e2020WR029262. <https://doi.org/10.1029/2020WR029262>
 15. Zhang J.^D, **Yang, Y. C. E.**, Li, H. Y. and Shittu, E. 2021. Examining the Food-Energy-Water-Environment Nexus in Transboundary River Basins through a Human Dimension Lens: Columbia River Basin, *Journal of Water Resources Planning and Management – ASCE*, 147(10), 10.1061/(ASCE)WR.1943-5452.0001461
 16. Ding, K. J., Gilligan J. M., **Yang, Y. C. E.**, Wolski, P. and Hornberger, G. M. 2021. Assessing food–energy–water resources management strategies at city scale: An agent-based modeling approach for Cape Town, South Africa. *Resources, Conservation, and Recycling*, 170: 105573.
 17. Berglund, E. Z., Thelemaque, N., Spearing, L., Faust, K., Kaminsky, J., Sela, L., Goharian, E., Abokifa, A., Lee, J., Keck, J., Giacomoni, M., van Zyl, J. E., Harkness, B., **Yang, Y. C. E.**, Cunha, M., Ostfeld, A. and Kadinski, L. 2021. Water and Wastewater Systems and Utilities: Challenges and Opportunities during the COVID-19 Pandemic, *Journal of Water Resources Planning and Management-ASCE*, 147(5), 10.1061/(ASCE)WR.1943-5452.0001373.
 18. **Yang, Y. C. E.**, Son K.^P, Hung, F. W.^P and Tidwell, V. C. 2020. Impact of climate change on adaptive management decisions in the face of water scarcity, *Journal of Hydrology*, 588, 125015.
 19. Khan, H. F., **Yang, Y. C. E.** and Wi, S. 2020. Case Study on Hydropolitics in Afghanistan and Pakistan: Energy and Water Impacts of Kunar River Development, *Journal of Water Resources Planning and Management – ASCE*, 146(9), 10.1061/(ASCE)WR.1943-5452.0001262.
 20. Wu, J, Yen, H., Arnold, J. G., **Yang, Y. C. E.**, Cai, X., White, M. J., Chinnasamy, S., Miao, C. and Srinivasan, R. 2020. Development of Reservoir Operation Functions in SWAT+ for National Water Quality Assessments, *Journal of Hydrology*, 583, 124556.
 21. Yang, J.^D, **Yang, Y. C. E.**, Chang, J., Zhang J.^D and Yao. J. 2019. Impact of Dam Development and Climate Change on Hydroecological Conditions and Natural Hazard Risk in the Mekong River Basin, *Journal of Hydrology*, 579: 124-177.
 22. Hyun, J. Y.^P, Huang, S. Y.^P, **Yang, Y. C. E.**, Tidwell, V. and Macknick J. 2019. Using a coupled agent-based modeling approach to analyze the role of risk perception in water management decisions., *Hydrology and Earth System Science*, 23: 2261-2278.
 23. Lei X., Zhao, J., **Yang, Y. C. E.** and Wang, Z. 2019. Comparing the Economic and Environmental Effects of Different Water Management Schemes Using a Coupled Agent-Hydrologic Model, *Journal of Water Resources Planning and Management-ASCE*, 145(6):05019010.
 24. Yang, J.^D, **Yang, Y. C. E.**, Khan, H. F., Xie, H., Ringer, C., Ogilvie, A., Seidou, O. Djibo, A. G., van Weert, F. and Tharme, R. 2018. Quantifying the Sustainability of Water Availability for the Water-Food-Energy-Ecosystem Nexus in the Niger River Basin, *Earth's Future*, 6: 1292-1310.
 25. Schlef, K. E., Kabore, L., Harambiri, H., **Yang, Y. C. E.** and Brown, C. M. 2018. Relating perceptions of flood risk and coping ability to mitigation behavior in West Africa: Case study of Burkina Faso. *Environmental Science and Policy*, 89:254-265.
 26. **Yang, Y. C. E.**, Passarelli, S., Lovell, R. and Ringler, C. 2018. Gendered perspectives of ecosystem

services: a systematic review. *Ecosystem Services*, 31A: 58-67.

27. Xu, T., Zhang, H. Zhao, J., Liu, Y., Tang, P., **Yang, Y. C. E.** and Wang, Z. 2018. A two-phase model for trade matching and price setting in water markets. *Water Resources Research*, 54, 2999-3017.
28. Ray, P. A., Bonzanigo, L., Wi, S., **Yang, Y. C. E.**, Karki, P. and Brown C. M. 2018. Multidimensional resilience assessment of hydropower investments to climate, geophysical and economic uncertainty. *Global Environmental Change*, 48: 168-181.
29. **Yang, Y. C. E.** and Wi, S. 2018. Informing regional water-energy-food nexus with system analysis and visualizations – A case study in the Great Ruaha River of Tanzania, *Agricultural Water Management*, 196: 75-86.
30. Khan, H. F.^D, **Yang, Y. C. E.**, Xie, H. and Ringer, C., 2017. A Coupled Modeling Framework for Sustainable Watershed Management in Transboundary River Basins, *Hydrology and Earth System Science*, 21: 6275-6288.
31. Cheng, C., Tsai, J.-Y., **Yang, Y. C. E.**, Esselman, R., Kalcic, M., Xu, X. and Mohai, P. 2017. Risk Communication and Climate Justice Planning: A case for Michigan’s Huron River watershed. *Urban Planning*, 2(3): 34-50.
32. Xu, X, Wang, Y. C., Kalcic, M., Muenich, R. L., **Yang, Y. C. E.** and Scavia, D. 2017. Evaluating the impact of climate change on fluvial flood risk in a mixed-used watershed. *Environmental Modelling and Software*, 122, 104031.
33. Cheng, C., **Yang, Y. C. E.**, Ryan, R., Brabec, E. and Yu, Q. 2017. Assessing climate change-induced flooding mitigation for adaptation in Boston’s Charles River Watershed (USA). *Landscape and Urban Planning*, 167: 25-36.
34. Khan, H. F.^D, **Yang, Y. C. E.**, Ringler, C., Wi, S., Cheema, M. J. M. and Basharat, M. 2017. Guiding Groundwater Policy in the Indus Basin of Pakistan Using a Physically-Based Groundwater Model. *Journal of Water Resources Planning and Management – ASCE*, 143(3):05016014.
35. **Yang, Y. C. E.**, Ringler C., Brown C. and Mondal, M. A. H. 2016. Modeling the agricultural water-energy-food nexus in the Indus River of Pakistan. *Journal of Water Resources Planning and Management – ASCE*, 142(12): 04016062.
36. **Yang, Y. C. E.**, Wi, S., Ray, P. A., Brown, C. M. and Khalil, A. F. 2016. The Future Nexus of the Brahmaputra Basin: Climate, Water, Food and Energy trajectories. *Global Environmental Change*, 37: 16-30.
37. Ray, P. A., **Yang, Y. C. E.**, Wi, S., Brown, C. M., Khalil, A. F. and Chatikavanij, V. 2015. Room for improvement: Hydroclimatic challenges to poverty-reducing development of the Brahmaputra River. *Environmental Science and Policy*, 54: 64-80.
38. Wi, S, **Yang, Y. C. E.**, Steinschneider, S., Khalil, A. F. and Brown, C. M. 2015. Calibration approaches for distributed hydrologic models using high performance computing: Implication for streamflow projections under climate change. *Hydrology and Earth System Sciences*, 19: 857–876.
39. **Yang, Y. C. E.**, Ray P. A., Brown, C. M., Khalil, A. F. and Yu, W. H. 2015. Estimation of flood damage functions for river basin planning – A case study in Bangladesh. *Natural Hazards*, 75: 2773-2791.
40. **Yang, Y. C. E.**, Brown, C. M., Yu, W. H., Wescoat, J. L. Jr. and Ringler C., 2014. Water Governance and Adaptation to Climate Change in the Indus River Basin. *Journal of Hydrology*, 519: 2527-2537.
41. Mulligan, K., Brown, C. M., **Yang, Y. C. E.** and Ahlfeld, D. 2014. Assessing Groundwater Policy with Coupled Economic-Groundwater Hydrologic Modeling. *Water Resources Research*, 50(3), 2257-2275, doi:10.1002/2013WR013666.

42. Steinschneider, S., **Yang, Y. C. E.** and Brown, C. M. 2014. Combining regression and spatial proximity for catchment model regionalization: a comparative study. *Hydrological Sciences Journal*, DOI:10.1080/02626667.2014.899701.
43. Steinschneider, S., **Yang, Y. C. E.** and Brown, C. M. ^{PA} 2013. Panel Regression Techniques for Identifying Anthropogenic Impacts on Hydrologic Response. *Water Resources Research*, 49(12), 7874–7886, doi:10.1002/2013WR013818.
44. **Yang, Y. C. E.**, Brown, C. M. ^{PA}, Yu, W. H. and Savitsky, A. 2013. An Introduction to IBMR – A Hydro-Economic Model for the Climate Change Impact Assessment in the Indus River in Pakistan. *Water International*, 38(5): 632-650.
45. Wan, J., **Yang, Y. C. E.**, Lin, Y. F. F. ^{PA} and Wang, J. 2013. Groundwater Resource Planning to Preserve Streamflow – Where Environmental Amenity Meets Economic Welfare Loss. *Journal of Water Resources Planning and Management-ASCE*, 139(4):440-448.
46. Wan, J., **Yang, Y. C. E.**, and Lin, Y. F. F. ^{PA} 2013. The Effect of Groundwater Allocation on Economic Welfare Loss – A Rationing Policy Study at a County Scale under Water Scarcity Scenarios. *Ground Water*, 51(4):603-612.
47. **Yang, Y. C. E.**, Zhao, J. and Cai, X. ^{DA} 2012. A Decentralized Method for Water Allocation Management in the Yellow River Basin. *Journal of Water Resources Planning and Management-ASCE*, 138(4): 313-325.
48. **Yang, Y. C. E.** and Lin Y. F. F. ^{PA} 2011. A New GIScience Application for Visualized Natural Resources Management and Decision Support. *Transactions in GIS*, 15(s1): 109-124.
49. Cai, X. ^{DA}, **Yang, Y. C. E.**, Ringler, C., Zhao, J. and You, L. 2011. Agricultural Water Productivity Assessment for the Yellow River Basin. *Agricultural Water Management*, 98: 1297-1306.
50. **Yang, Y. C. E.** and Cai, X. ^{DA} 2011. Reservoir Reoperation for Fish Ecosystem Restoration Using Daily Inflows – A Case Study of Lake Shelbyville. *Journal of Water Resources Planning and Management-ASCE*, 136(6): 470-480.
51. Ringler, C., Cai, X. ^{DA}, Wang, J., Ahmed, A., Xue, Y., Xu, Z., **Yang, E.**, Zhao, J., Zhu, T., Cheng, L., Fu, Y., Fu, X., Gu X. and You, L. 2010. Yellow River Basin: living with scarcity. *Water International*, 35(5): 681 - 701.
52. **Yang, Y. C. E.**, Cai, X. ^{DA} and Stipanović, D. M. 2009. A Decentralized Optimization Algorithm for Multi-Agent System Based Watershed Management. *Water Resources Research*, 45, W08430, doi: 10.1029/2008WR007634.
53. Tung, C. P., Lee, T. Y., **Yang, Y. C. E.** and Chen, Y. J. 2009. Application of Genetic Programming to Project Climate Change Impacts on the Population of Formosan landlocked salmon. *Environmental Modelling & Software*, 24: 1062-1072.
54. **Yang, Y. C. E.**, Cai, X. ^{DA} and Herricks, E. E. 2008. Identification of Hydrologic Indicators Related to Fish Diversity and Abundance – A Data Mining Approach for Fish Community Analysis. *Water Resources Research*, 44, W04412, doi: 10.1029/2006WR005764.
55. Tung, C. P., **Yang, Y. C. E.**, Lee, T. Y. and Li, M. H. 2007. Modification of a Stream Temperature Model with Beer's Law and Application to GaoShan Creek in Taiwan. *Ecological Modelling*, 200: 217-224.
56. Tung, C. P., Lee, T. Y. and **Yang, Y. C.** 2006. Modeling Climate Change Impacts on Stream Temperature of Formosan Landlocked Salmon Habitat. *Hydrological Processes*, 20: 1629-1649.
57. Tung, C. P. and **Yang, Y. C.** 2006. The Climate Change Impact Assessment of Formosan Landlocked

Salmon Suitable Habitat. *Journal of Chinese Agricultural Engineering*, 52(1): 1-12. (in Chinese with English abstract)

58. **Yang, Y. C.**, Hsu, M. L. and Lay, J. G. 2005. The Effect of DEM Resolution and Flow Direction Algorithms on Contributing Area Calculation. *Journal of Geographical Science*, 39: 71-90. (in Chinese with English abstract)
59. Huang, J. C. Hsu, M. L. and **Yang, Y. C.** 2002. Spatial Characteristics of Contributing Area Calculated by Multiple Flow Direction and Single Flow Direction Methods. *Journal of Chinese Soil and Water Conservation*, 33(1): 57-72. (in Chinese with English abstract)

under review

60. Lu, J., Li, X., Li, H., Chegini, T., Gamarra, C. **Yang, Y. C. E.**, Cook, M. and Dillingham, G. 2023. A Synthetic Texas Power System with Time-Series High-Resolution Weather-Dependent Spatio-Temporally Correlated Grid Profiles, *IEEE Transactions on Power Systems*
61. Ghaffari, A.^D, Hung, F. W.^P, **Yang, Y. C. E.**, Lu, J. and Li, X. 2023. The development of a coupled agent-based capacity expansion planning tool with a power dispatch model, *Energy and Climate Change*
62. Chegini, T., Li, H. Y., **Yang, Y. C. E.**, Bloschel, G. and Leung, L. R. 2024 A watershed-scale modeling framework for surface-subsurface urban hydrologic processes, *Water Resources Research*
63. Ghaffari, A.^D, Abuismail, S.^D, **Yang, Y. C. E.** and Rahneemoonfar, M. 2024. A Long Short-Term Memory-Based Drought Prediction Tools for Long-Term, Large-Scale and Spatially Informed Analyses. *Journal of Hydrology*
64. **Yang Y. C. E.**, Zeng, R. and Park D., 2025. Large language models as a general agent-based modeling framework for human-water system interaction simulation. *Water Resources Research*.

Conferences

65. Sun, Q.^D and **Yang, Y. C. E.** 2024. Can Incentive Programs for Green Infrastructures be a Win-Win for City and Property Owners? *World Environmental & Water Resources Congress*, Milwaukee, WI, USA. May 2024.
66. Abuismail, S.^D and **Yang, Y. C. E.** 2024. Transferability of Data-Driven Models to Enhance the Water Level Prediction in Basins with Scarce Data. *World Environmental & Water Resources Congress*, Milwaukee, WI, USA. May 2024.
67. Ghaffari, A., ^D **Yang, Y. C. E.**, Rahneemoonfar, M. 2023. Development of a completely remote-sensing-based drought prediction tool, *Eos Trans. AGU*, 104(52), Fall Meet. Suppl., Abstract H41L-1926.
68. Taysi, H., ^D **Yang, Y. C. E.**, Rahneemoonfar, M, Gangrade, S. and Kao, S, C. 2023. Implementation of Urban Drainage Networks into a Machine Learning-based 2D Hydrodynamic Surrogate Model, *Eos Trans. AGU*, 104(52), Fall Meet. Suppl., Abstract H32H-08.
69. Lin, C. Y.^D and **Yang, Y. C. E.** 2022. Analyzing the Role of Socioeconomic Factors in Water Quality Management through Agent-Based Modeling - Susquehanna River Basin, US, *Eos Trans. AGU*, 103(52), Fall Meet. Suppl., Abstract H32L-05.
70. Sun, Q.^D and **Yang, Y. C. E.** 2022. Using a Coupled Agent-based Modeling for Stormwater Management, *Eos Trans. AGU*, 103(52), Fall Meet. Suppl., Abstract H42L-1451.
71. Abuismail, S.^D and **Yang, Y. C. E.** 2022. Investigate the Public's Attitude Toward Green Infrastructure Implementation, *Eos Trans. AGU*, 103(52), Fall Meet. Suppl., Abstract H42L-1441.
72. Lin, C. Y.^D and **Yang, Y. C. E.** 2022. Risk assessment of compound disturbances in coupled natural human systems. *World Environmental & Water Resources Congress*, Atlanta, GA, USA. June 2022.
73. Zhang, J.^D and **Yang, Y. C. E.** 2022. Exploring Coupled Natural-Human System Under Different Climate Conditions. *World Environmental & Water Resources Congress*, Atlanta, GA, USA. June

2022.

74. Lin, C. Y.^D and Yang, Y. C. E. 2021. Uncertainty decomposition of coupled natural human systems with differing model parameter complexity, *Eos Trans. AGU*, 102(52), Fall Meet. Suppl., Abstract H25U-1267.
75. Hung, F. W.^P, Son, K. and Yang, Y. C. E. 2021. Exploring human impacts on water scarcity uncertainty in a non-stationary environment: A Colorado River Basin case study, *Eos Trans. AGU*, 102(52), Fall Meet. Suppl., Abstract H41H-04.
76. Zhang, J.^D, Yang, Y. C. E., Li, H. and Abeshu G. 2020. A Coupled Modeling Framework Consisting of the Agent-Based Modeling and the Distributed Hydrologic Model. *World Environmental & Water Resources Congress*, Henderson, NV, USA. May 2020.
77. Hung, F. W.^P, Yang, Y. C. E. and Tidwell, V. C. 2020. Agent-based Modeling Framework for Managing Energy-water systems: a Case Study in Colorado River Basin. *World Environmental & Water Resources Congress*, Henderson, NV, USA. May 2020.
78. Ke, D., Gilligan, J. M., Yang, Y. C. E. and Hornberger, G. M. 2019. Exploring FEW security at city scale: An Agent-Based Modeling approach for the City of Cape Town, *Eos Trans. AGU*, 100(52), Fall Meet. Suppl., Abstract H51H-1575.
79. Ciraci, E., Velicogna, I., Geruo, A., Lammers, R. B., Grogan, D. S., Prousevitch, A. A. and Yang, Y. C. E. 2019. Water Budget of the Indus River Basin between 2002 and 2015, *Eos Trans. AGU*, 100(52), Fall Meet. Suppl., Abstract C51B-1284.
80. Son K.^P, Yang, Y. C. E. and Tidwell, V. 2019. Quantifying the adaptive water management decision in the San Juan River Basin under climate change, *Eos Trans. AGU*, 100(52), Fall Meet. Suppl., Abstract H13T-2064.
81. Zhang, J.^D and Yang, Y. C. E. 2019. Stakeholder Engagement for the Food-Energy-Water System of Systems in the Columbia River Basin. *World Environmental & Water Resources Congress*, Pittsburg, PA, USA. May 2019.
82. Yang, Y. C. E., Voisin, N., Tidwell, V., Huang, S. Y.^P and Yoon, J. 2018 Assessing Energy-Water Dynamics with Scalable Agent-Based Modeling Approaches, *Eos Trans. AGU*, 99(52), Fall Meet. Suppl., Abstract GC33G-1434.
83. Tidwell, V., Yang, Y. C. E., Hyun, J. Y.^P, Lowry, T. S., Macknick J. and Behery S. 2018 How Model Coupling Influences the Perceived Vulnerabilities of Connected Energy-Water Systems. *Eos Trans. AGU*, 99(52), Fall Meet. Suppl., Abstract GC33G-1435.
84. Huang, S. Y.^P, Yang, Y. C. E., Tidwell, V., Voisin, N. and Yoon, J. 2018. Incorporating stakeholder's interaction and negotiation processes into water management decisions using a coupled agent-based modeling approach. *Eos Trans. AGU*, 99(52), Fall Meet. Suppl., Abstract H51X-1672.
85. Ma, T.^M, Yang, Y. C. E. Cheng, C W. and Tsai, J. Y. 2018 Evaluate the influence of green infrastructure with Agent-based model in the Upper Huron River Watershed, *Eos Trans. AGU*, 99(52), Fall Meet. Suppl., Abstract H51U-1609.
86. Lei X., Zhao, J., Yang, Y. C. E. and Wang, Z. 2018 Comparing the economic and environmental effects of different water management schemes using a coupled agent-hydrologic model, *Eos Trans. AGU*, 99(52), Fall Meet. Suppl., Abstract H21Q-1015.
87. Tidwell, V. C., Lowry, T. S., Behery, S., Macknick J. and Yang, Y. C. E. 2017. The Role of Model Fidelity in Understanding the Food-Energy-Water Nexus at the Asset Level, *Eos Trans. AGU*, 98(52), Fall Meet. Suppl., Abstract GC31D-1030.

88. Hyun, J. Y.^P, **Yang, Y. C. E.**, Tidwell, V. and Macknick J. 2017. Quantifying human behavior uncertainties in a coupled agent-based model for water resources management, *Eos Trans. AGU*, 98(52), Fall Meet. Suppl., Abstract H33H-1807.
89. **Yang, Y. C. E.**, and Wi, S. 2017. Conflicting hydropower development and aquatic ecosystem conservation in Bhutan, *Eos Trans. AGU*, 98(52), Fall Meet. Suppl., Abstract H23J-1807.
90. **Yang, Y. C. E.** 2017. Evaluating Water-Food-Energy-Environment Nexus with Agent-Based Modeling Framework, *ABM17, San Diego, CA USA, April 2017*.
91. **Yang, Y. C. E.**, and Wi, S. 2016. Informing Regional Water-Energy-Food Nexus with System Analysis and Interactive Visualizations, *Eos Trans. AGU*, 97(52), Fall Meet. Suppl., Abstract GC51C-0751.
92. Khan, H. F., **Yang, Y. C. E.** and Ringer, C. 2016. Crowdsourcing water use preferences to incorporate ecosystem services in a distributed hydrosystem modeling framework, *World Environmental & Water Resources Congress*, West Palm Beach, FL, USA, May 2016.
93. **Yang, Y. C. E.**, Wi, S., and Brown C. M. 2015. The Development of a Glacio-hydrologic Model in the River Basin Context: Applicability for Climate Change Risk Assessment, *Eos Trans. AGU*, 96(52), Fall Meet. Suppl., Abstract C51C-0751.
94. Khan, H. F., **Yang, Y. C. E.**, Wi, S., Ringler, C., Cheema, MJM and Bashart, M. 2015. Guiding groundwater policy in the Indus Basin using a physically-based groundwater model, *Eos Trans. AGU*, 96(52), Fall Meet. Suppl., Abstract GC33C-1299.
95. Isenstein, E. M., Wi, S., **Yang, Y. C. E.** and Brown, C. 2015. Calibration of a Distributed Hydrologic Model Using Streamflow and Remote Sensing Snow Data, *World Environmental & Water Resources Congress*, Austin, TX, USA, May 2015.
96. Wi, S., Khalil, A. F. and **Yang, Y. C. E.** 2014. Assessing the climate impact on snow-glacier melting dominated basins in the Greater Himalaya region using a distributed glacio-hydrologic model, *Eos Trans. AGU*, 95(52), Fall Meet. Suppl., Abstract GC13E-0694.
97. **Yang, Y. C. E.**, Ray, P. A., Wi, S. and Brown, C. M. 2014. Climate change risk on water resources management of Himalaya basins, *World Environmental & Water Resources Congress*, Portland, OR, USA, June 2014.
98. **Yang, Y. C. E.**, Brown, C. M., Mulligan, K. and Steinschneider, S. 2013. Quantifying the domestic water demand projection related with climate projection, *World Environmental & Water Resources Congress*, Cincinnati, OH, USA, May 2013.
99. Cheng, C., **Yang, Y. C. E.** and Brabec, E. 2012. Applying Green Infrastructure to Long-Term Flooding Risk Assessment under Climate Change: A case in the Charles River Watershed, MA, USA. *The Association of Collegiate Schools of Planning 2012 53rd Annual Conference*, Cincinnati, OH, USA, November, 2012.
100. **Yang, Y. C. E.**, Brown, C. M. and Yu, W. H. 2012. Climate Risks on Water and Agriculture in the Indus Basin of Pakistan. *Eos Trans. AGU*, 93(52), Fall Meet. Suppl., Abstract H31I-1250.
101. **Yang, Y. C. E.**, Yu, W. H., Brown, C. M. and Savitsky, A. 2011. Sustainable Water Management in the Major Basins of South Asia. *Eos Trans. AGU*, 92(52), Fall Meet. Suppl., Abstract H14E-07.
102. Ahlfeld, D., Mulligan, K., Brown, C. M. and **Yang, Y. C. E.** 2011. Management Strategies for Transition to Sustainable Agricultural Irrigation. *Eos Trans. AGU*, 92(52), Fall Meet. Suppl., Abstract H11F-1126.
103. **Yang, Y. C. E.** and Lin, Y. F. F. 2010. Managing Water Resources Using WebGIS: Development and Application of an ArcGIS Explorer Toolkit for McHenry County. *Illinois Groundwater Association*

2010 Fall Meeting, Hoffman Estates, IL, USA, September 2010.

104. **Yang, Y. C. E.** and Lin, Y. F. F. 2010. Applied Budyko curve analysis for county level water resources management. *Eos Trans. AGU*, 91(52), Fall Meet. Suppl., Abstract H511-06.
105. **Yang, Y. C. E.**, Zhao, J. S. and Cai, X. 2010. A Multi-Agent System Modeling Framework for Water Allocation Management in the Yellow River Basin. *World Environmental & Water Resources Congress*, Providence, RI, USA, May 2010.
106. **Yang, Y. C. E.** 2009. Incorporating ecosystem restoration target into daily reservoir water release operation. *33rd IAHR Congress: Water Engineering for a Sustainable Environment*, Vancouver, BC, Canada, August 2009.
107. **Yang, Y. C. E.**, Cai, X. and Stipanović, D. M. 2009. A Multi-Agent System Based Watershed Management with Decentralized Optimization Algorithm. *World Environmental & Water Resources Congress*, Kansas City, KS, USA, May 2009.
108. Batra, N., **Yang, Y. C. E.**, Choi, H. I., Kumar, P, Cai, X. and De Fraiture, C. 2008. Understanding hydrological cycle dynamics due to changing land use and land cover: Congo Basin case study. *IEEE International Geoscience & Remote Sensing Symposium*, Boston, MA, USA, July 2008.
109. Batra, N., **Yang, Y. E.**, Choi, H. I., Islam, M. A., De Fraiture, C., Cai, X. and Kumar, P. 2007. Assessing the Impact of Land Use and Land Cover Change on Global Water Resources. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract GC51B-06.
110. **Yang, Y. C. E.** and Cai, X. 2007. Modeling the spatial distribution of fish communities at the watershed scale. *World Environmental & Water Resources Congress*, Tampa, FL, USA, May 2007.
111. Batra, N, **Yang, E.**, Choi, H. I., Kumar, P. and Cai, X 2006. Development of the Global Hydrologic Model with Advanced Characterization of Subsurface Transport Processes for Water Availability Assessment. *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H43A-0475.
112. **Yang, Y. C. E.** and Cai, X. 2006. Assessing the Human Water Use Impact in the River Basin Context. *World Environmental & Water Resources Congress*, Omaha, NE, USA, May 2006.
113. Tsai, W. S., Dai, C. F., **Yang, Y. C.** and Tung, C. P. 2006. Using Genetic Programming to Modeling Spatial Distribution of Corals and the Impacts of Climatic Changes: A Case Study from Taiwan. *International Coral Reef Symposium*, Okinawa, Japan, July 2004.
114. Tung, C. P., **Yang, Y. C.** and Lee, T. Y. 2004. Simple Genetic Programming Software and Application to Identify Environmental Response Function for Taiwan Salmon. *International Conference of Hydroinformatics*, Singapore, Singapore, June 2004.
115. Tung, C. P. and **Yang, Y. C.** 2002. Simulating Storm-Overland Flow path by a Dynamic Distributed Model. *Conference of Agriculture Engineering*, YuLin, Taiwan, December 2002. (in Chinese)

Book, Report & Thesis

116. **Yang, Y. C. E.** and Brown, C. M. 2014. *Hydro-economic system analyses for climatic risk and water infrastructure development in the Ayeyarwady Basin*, World Bank, Washington D.C. USA.
117. **Yang, Y. C. E.**, Wi, S. Brown, C. M. and Khalil, A. F. 2014. *Strategic Assessment of Hydropower Development Alternatives in the Kunar River Basin of Afghanistan and Pakistan: Water Balance and Climate Change Analyses*, World Bank, Washington D.C. USA.
118. **Yang, Y. C. E.** et al, 2013. *Development of a GAMS Model for Exploration of Various Water Resources Development Scenarios in the Amu Darya Basin*, World Bank, Washington D.C. USA.
119. Yu, W. **Yang, Y. C. E.**, Savitsky, A., Alford, D., Brown, C. Wescoat, J., Debowicz, D. and Robinson, S. 2013. *The Indus Basin of Pakistan: The Impacts of Climate Risks on Water and Agriculture*.

Washington, DC: World Bank. doi: 10.1596/978-0-8213-9874-6. License: Creative Commons Attribution CC BY 3.0

120. **Yang, Y. C. E.** 2010. *Modeling Watershed Management with an Ecological Objective - A Multi-Agent System Based Approach*, Ph. D. Dissertation, Department of Civil and Environmental Engineering, UIUC, Urbana, IL, USA.
121. **Yang, Y. C.** 2004. *Modeling the Impacts of Climate Change on Water Temperature and Potential Population of Formosan Landlocked Salmon's Reintroduction Habitat*, The Graduated Thesis of Graduate Institute of Bioenvironmental Systems Engineering, NTU, Taiwan.

Honors and Awards

- **Early CAREER Award**, National Science Foundation, August 2020
- **P. C. Rossin Professorship**, Lehigh, August 2018
- **ASCE ExCEED Faculty Fellowship**, ASCE, July 2018
- **Editors' Citation for Excellence in Refereeing for *Water Resources Research***, AGU, April 2017
- **The Massachusetts Society of Professors Research Support fund**, UMass, October 2015
- **Flex Grants Award for Teaching/Faculty Development**, UMass, April 2014
- **Scholarship from ESRI-GIS Development Center (EDC)**, UIUC, April 2010
- **Conference Fellowship of Taipei Economic and Cultural Office (TECO)**, TECO, July 2009, December 2007, December 2006
- **Certificate in Foundations of Teaching**, UIUC, April 2009
- **Chester P. Siess Graduate Student Award**, CEE, UIUC, April 2006
- **College of Science Dean's Award**, NTU, June 2002
- **Presidential Award**, NTU, April 2000

Research Funding and Training Grants

Competitively Awarded Research Grants - External

- **Lead PI**, 2024-2027, "*A human-centered modeling approach to simulate best management practices and behaviors under uncertainty to meet water quality guidelines*," Lehigh University, The Pennsylvania State University (**Co-PI** Dr. Anil Kumar Chaudhary) Agency: U. S. National Science Foundation, **\$399,900 (\$209,900 to Lehigh)**
- **Lead PI**, 2024-2027, "*HDBE: NSF-JST: An Inclusive Human-Centered Risk Management Modeling Framework for Flood Resilience*," Lehigh University (**Co-PI** Dr. David Casagrande), Florida Atlantic University (**Co-PI** Dr. Alka Sapat), Kyoto University (**PI** Dr. Tomohiro Tanaka), the University of Tokyo (**Co-PI** Dr. Kensuke Otsuyama), Kumamoto University (**Co-PI** Dr. Kei Ishida) Agency: U. S. National Science Foundation, **\$499,271 (\$352,781 to Lehigh)/Agency: Japan Science and Technology Agency, ¥74,880,000 (about \$500,000)**
- **Co-PI**, 2024-2025, "*IUCRC Planning Grant Lehigh University: Center for Climate, Equity and Resilience in Cat modeling (CERCat)*," Lehigh University (**PI** Dr. Paolo Bocchini), Agency: U. S. National Science Foundation, **\$20,000**
- **Institutional PI**, 2021-2023, "*An Agent-based modeling approach for long-term electricity system investments under uncertainty*," Lehigh University, Agency: Houston Advanced Research Center, Alfred P. Sloan Foundation, **\$599,946 (\$134,727 to Lehigh)**

- **PI**, 2020-2025, “*CAREER: Understanding sustainable stormwater management via an Internet of Things-based green infrastructure network and a coupled Agent-Based Modeling approach*,” Lehigh University, Agency: U. S. National Science Foundation, **\$509,178**
- **Lead PI**, 2018-2023, “*INFEWS: US-China – Quantify complex adaptive FEW systems with coupled agent-based modeling framework*,” Lehigh University, George Washington University (**Co-PI** Dr. Ekundayo Shittu), the University of Houston (**Co-PI** Dr. Hongyi Li), Montana State University (**Co-PI** Dr. Richard Ready) Agency: U. S. National Science Foundation, **\$499,891 (\$156,234 to Lehigh)**
- **Lead PI**, 2014-2017, “*Evaluation of Complex Water System (COWS) around the World – data collection, model development and scenario analysis*,” University of Massachusetts – Amherst (**Co-PI** Dr. Casey Brown), Agency: The World Bank, **\$418,067**
- **Co-project leader**, 2014-2017, “*A generic ABM framework for complex ecosystem service analyses in WLE focal regions*,” University of Massachusetts – Amherst, Agency: CGIAR-WLE, **\$738,596**
- **Co-PI**, 2012-2013, “*Bringing people, data, and models together – addressing impacts of climate change on stream temperature*,” University of Massachusetts – Amherst, Agency: Northeast Climate Science Center, U.S. Department of Interior, **\$149,859**

Competitively Awarded Research Grants - Internal

- **PI**, 2022-2023, “*A stormwater smart city: Quantify the function of stormwater green infrastructures with real-time sensors*,” Lehigh University, Agency: Pennsylvania Infrastructure Technology Alliance, **\$34,988**
- **PI**, 2018-2019, “*Streamline residents’ attitude toward sustainable food, energy and water policies in a modeling approach with an E-Survey*” Lehigh University, Agency: Faculty Research Grant, Lehigh University, **\$3,096**

Non-Competitively Awarded Research Grants - External

- **PI**, 2019-2020, “*Implementing an agent-based model for Energy Catastrophe Models*” Lehigh University, Agency: Houston Advanced Research Center, **\$11,865**
- **Institutional PI**, 2016-2020, “*Integrating the agent-based modeling approach into the multi-sector, multi-scale energy-water-land nexus modeling framework*” University of Massachusetts – Amherst, Lehigh University, Agency: Pacific Northwest National Lab, U.S. Department of Energy, **\$565,556 (\$412,127 to Lehigh)**
- **Co-PI**, 2015-2017, “*Including climate uncertainty in water resources planning and project design – Decision tree initiative demonstration*” University of Massachusetts – Amherst, Agency: The World Bank, **\$609,386**
- **Consultant**, 2016, “*Learning Program on Food Security in the Eurasian Region Technical Panel Review*,” Agency: The World Bank, **\$11,476**
- **Consultant**, 2015-2016, “*Environmental and Social Impact Assessment of Diemer-Basha Dam Project*,” Agency: Research Triangle Institute (RTI), **\$26,500**
- **PI**, 2014-2015, “*Modeling the Climate risk and Infrastructure development assessment for the Ayeyarwady Basin*,” University of Massachusetts – Amherst, Funded by The World Bank, **\$30,000**
- **Consultant**, 2014-2015, “*Basin-wide groundwater and salinity analysis for hydro-economic modeling in the Indus Basin of Pakistan*,” Agency: IFPRI, **\$35,000**
- **PI**, 2013-2015, “*Hydro-Economic Modeling for Brahmaputra and Kabul River*,” University of Massachusetts – Amherst, Agency: The World Bank, **\$208,667**

- **Co-PI**, 2013-2014, “*Developing tools for climate risk assessment and adaptation in water resources systems*,” University of Massachusetts – Amherst, Agency: U.S. Geological Survey, **\$100,000**
- **Co-PI**, 2012-2013, “*Using an upgraded Indus River Basin Model Revised (IBMR) for energy-water-food nexus assessment in the Indus River Basin under climate change impact*,” University of Massachusetts – Amherst, Agency: International Food Policy Research Institute, **\$70,000**
- **Co-PI**, 2012-2013, “*Development of a GAMS Model for Exploration of Various Water Resources Development Scenarios in the Amu Darya Basin*,” University of Massachusetts – Amherst, Agency: The World Bank, **\$89,959**

Editorial Activities

- **Associate Editor**, Journal of Water Resources Planning and Management – ASCE, 2015-present

Scholarly Presentations

- **Invited Panelist, March 2024**
PA Brownfields Conference, State College, PA
Presented a research topic about human-water interaction
- **Invited Speaker, June 2023**
Kyoto University, Kyoto, Japan
Presented a research topic about uncertainty quantification for complex adaptive water systems
- **Invited Speaker, February 2023**
University of Massachusetts, Amherst, MA
Presented a research topic about uncertainty quantification for complex adaptive water systems
- **Invited Speaker, January 2023**
Pennsylvania Water Science Center, USGS (online)
Presented a research topic about applying agent-based for sediment management in the Chesapeake Bay watersheds
- **Invited Panelist, June 2022**
Houston Advanced Research Center (online)
Joined a panel discussion of climate risk in the power sector which focus on the resilience of Texas’ power system
- **Invited Speaker, April 2021**
Institute for Functional Materials and Devices, Lehigh University (online)
Presented a research topic about water system uncertainty quantification with agent-based modeling approach
- **Invited Speaker, February 2021**
Georgia Institute of Technology, Human-Water Systems Monthly Webinar Series (online)
Presented a research topic about water system uncertainty quantification with agent-based modeling approach
- **Invited Speaker, February 2020**
Vanderbilt University, Nashville, TN
Presented a research topic about food-energy-water nexus with agent-based modeling approach
- **Invited Speaker, October 2019**
International Symposium of Hydrological Sciences and High-efficiency Water Resources Utilization under the Changing Environment (ISHW), Wuhan China
Presented a research topic about human dimension of food-energy-water nexus in transboundary river basins
- **Invited Speaker, September 2019**
University of Houston, Houston, TX
Presented a research topic about food-energy-water nexus with agent-based modeling approach
- **Invited Speaker, October 2018**
CUAHSI's 2018 Fall Cyberseminar Series

- Presented a research topic about modeling coupled natural-human system with agent-based modeling approach
- **Invited Speaker, June 2018**
National Taiwan University, Taipei, Taiwan
Presented a research topic about modeling water-energy-food nexus with agent-based modeling approach
 - **Invited Speaker, October 2016**
Moscow State University, Moscow, Russia
Presented a research topic about modeling water-energy-food nexus in transboundary river basins in Himalaya
 - **Invited Speaker, July 2016**
Institute of Water Resources and Hydropower Research, Ministry of Water Resources, Beijing China
Department of Hydraulic Engineering, Tsinghua University, Beijing China
Presented a research topic about modeling water-energy-food nexus in transboundary river basins in Asia.
 - **Invited Speaker, October 2015**
International workshop of Hydro-Biogeochemical Process, Wuhan China
Presented a research topic about water resources management decision making under uncertainties.
 - **Invited Speaker, April 2015**
University of Connecticut, Storrs, CT, USA
Presented a research topic about water-energy-food nexus in the Himalayan region.
 - **Invited Speaker, February 2015**
Fulbright Water-Energy-Food Nexus Regional Workshop, Kathmandu, Nepal
Present research projects about water-energy-food nexus in the Indus and Brahmaputra Basins
 - **Keynote speaker, September 2014**
International Workshop of Water Resources Environmental Education, Tainan, Taiwan
Presented a research topic about water resources management under climate change uncertainty.
 - **Presenter, September 2014**
Global Land Project – Asia 2014, Taipei, Taiwan
Presented a research topic about climate change impact assessment for the Great Himalaya region.
 - **Presenter, June 2014**
World Environmental & Water Resources Congress, Portland, OR USA
Presented a research topic about water resources management in the Great Himalaya region.
 - **Invited Speaker, December 2013**
Water Resources Planning Institute, Taichung, Taiwan
Presented a research topic about Hydroecology and reservoir reoperation.
 - **Invited Speaker, December 2013**
Endemic Species Research Institute, Nantou, Taiwan
Presented a research topic about Hydroecology and reservoir reoperation.
 - **Invited Speaker, December 2013**
National Cheng Kung University, Tainan, Taiwan
Presented a research topic about water-energy-food nexus in the great Himalaya basins.
 - **Invited Speaker, August 2013**
International Food Policy Research Institute, Washington D. C., USA
Presented a research topic about water-energy-food nexus in the Indus River of Pakistan.
 - **Presenter, May 2013**
World Environmental & Water Resources Congress, Cincinnati, OH, USA
Presented a research topic about the domestic water demand forecast under climate uncertainty.
 - **Invited Speaker, March 2013**
Pacific Northwest National Laboratory, College Park, MD, USA
Presented a research topic about climate change impact assessment on coupled natural-human systems.
 - **Presenter, September 2010**

Illinois Groundwater Association 2010 Fall Meeting, Hoffman Estates, IL, USA

Presented a research topic about the WebGIS analysis toolkit for natural resources management.

- **Presenter, May 2010**

World Environmental & Water Resources Congress, Providence, RI, USA

Presented a research topic about the agent-based modeling application in Yellow River Basin.

- **Invited Speaker, March 2010**

Civil Engineering seminar, NTU, Taipei, Taiwan

Presented a research topic about multi-objectives reservoir operation.

Teaching

Courses Taught

- **Undergraduate Courses**

CEE 122 - Fluid Mechanisms (F'17, 18, & 19)

CEE 222 - Water Resources Engineering I (Sp'21, 22 & 23)

CEE 320 - Engineering Hydrology (Sp'20, F'20, 21, 22, 23 & 24)

CEE 326 - GIS for Civil and Environmental Engineering (Sp'18, 19, 20 & 24, F'20, 21 & 24)

CEE 332 - Application of Catastrophe Modeling and Resilience (Sp' 24, F'22)

EDC – GIS 101: Making your first map (2010, 2011 @UIUC)

EDC – GIS 301: GIS programming in ArcGIS Explorer (2011 @UIUC)

- **Graduate Courses**

CEE 426 - GIS for Civil and Environmental Engineering (Sp'18, 19, 20 & 24, F'20, 21 & 24)

CEE 428 - Engineering Hydrology (Sp'20)

CAT 402 - Application of Catastrophe Modeling and Resilience (Sp' 24, F'22)

CEE 662 - Water Resource Systems Analysis (2013 @UMass)

Research Advising and Mentoring

Advising – Postdoc, Ph.D., MS, Undergraduate Research Supervision

- **Postdoctoral scientists (Total number: 5)**

Fengwei Hung, Ph.D. 2018 from Johns Hopkins University, 2019-2022

- ✓ **Journal paper:** 2024. Exploring the food-energy-water nexus in coupled natural-human systems under climate change with a fully integrated agent-based modeling framework, *Journal of Hydrology*
- ✓ **Journal paper:** 2024. An investment behavioral modeling framework for advancing power system transformation toward renewable energy integration, *Energy and Climate Change*
- ✓ **Journal paper:** 2022. Investigating uncertainties in human adaptation and their impacts on water scarcity in the Colorado River Basin, United States, *Journal of Hydrology*
- ✓ **Journal paper:** 2021. Assessing Adaptive Irrigation Impacts on Water Scarcity in Nonstationary Environments - A Multi-agent Reinforcement Learning Approach, *Water Resources Research*
- ✓ **Journal paper:** 2020. The impact of climate change on adaptive management decisions in the face of water scarcity, *Journal of Hydrology*
- ✓ **Conference abstract:** 2021. Exploring human impacts on water scarcity uncertainty in a non-stationary environment: A Colorado River Basin case study, *Eos Trans. AGU, 102(52), Fall Meet. Suppl.*
- ✓ **Conference abstract:** 2020. Agent-based Modeling Framework for Managing Energy-water systems: A Case Study in Colorado River Basin. *World Environmental & Water Resources Congress, Henderson, NV, USA.*

Kyongho Son, Ph.D. 2015 from the University of California, Santa Barbara, 2019

- ✓ **Journal paper:** 2020. The impact of climate change on adaptive management decisions in the face of water scarcity, *Journal of Hydrology*

- ✓ **Conference abstract:** 2019. Quantifying the adaptive water management decision in the San Juan River Basin under climate change. *Eos Trans. AGU, 100(52)*, Fall Meet. Suppl.

Shih-Yu Huang, Ph.D. 2017 from Georgia Institute of Technology, 2018

- ✓ **Journal paper:** 2019. Using a coupled agent-based modeling approach to analyze the role of risk perception in water management decisions, *Hydrology and Earth System Science*.
- ✓ **Conference abstract:** 2018. Incorporating stakeholder's interaction and negotiation processes into water management decisions using a coupled agent-based modeling approach. *Eos Trans. AGU, 99(52)*, Fall Meet. Suppl.

Jin-Young Hyun, Ph.D. 2016 from the University of Louisville, 2016-2018

- ✓ **Journal paper:** 2019. Using a coupled agent-based modeling approach to analyze the role of risk perception in water management decisions, *Hydrology and Earth System Science*.
- ✓ **Conference abstract:** 2017. Quantifying human behavior uncertainties in a coupled agent-based model for water resources management. *Eos Trans. AGU, 98(52)*, Fall Meet. Suppl.

Dana Parr, Ph.D. 2015 from the University of Connecticut, 2015-2016 (@UMass)

● **Ph.D. students (Total number: 9)**

Madan Thapa Chhetri, Ph.D. 2028 (expected), Lehigh University, NSF Grant: BCS-2342309

Wenyu Chiou, Ph.D. 2028 (expected), Lehigh University, NSF Grant: SES-2342842

Husamettin Taysi, Ph.D. 2026 (expected), Lehigh University, Lehigh CatModeling Center, NSF Grant: CBET-1941727

- ✓ **Conference abstract:** 2023. Implementation of Urban Drainage Networks into a Machine Learning-based 2D Hydrodynamic Surrogate Model, *Eos Trans. AGU, 104(52)*, Fall Meet. Suppl.

Shrouq Abuismail, Ph.D. 2025 (expected), Lehigh University, PITA Grant, NSF Grant: CBET-1941727

- ✓ **Journal paper:** 2024. Exploring the influential factors of residents' attitudes toward implementing green infrastructures for stormwater management in the US. *Sustainable Cities and Society*
- ✓ **Conference abstract:** 2024. Transferability of Data-Driven Models to Enhance the Water Level Prediction in Basins with Scarce Data. *World Environmental & Water Resources Congress, Milwaukee, WI, USA*.
- ✓ **Conference abstract:** 2022. Investigate the Public's Attitude Toward Green Infrastructure Implementation, *Eos Trans. AGU, 103(52)*, Fall Meet. Suppl.

Ali Ghaffari, Ph.D. 2025(expected), Lehigh University, Sloan Grant, NSF Grant: CBET-1941727

- ✓ **Journal paper:** 2024. An investment behavioral modeling framework for advancing power system transformation toward renewable energy integration, *Energy and Climate Change*
- ✓ **Conference abstract:** 2023. Development of a completely remote-sensing-based drought prediction tool, *Eos Trans. AGU, 104(52)*, Fall Meet. Suppl.

Qiaochu Sun, Ph.D. 2025 (expected), Lehigh University, Lehigh Start-up, NSF Grant: CBET-1941727

- ✓ **Journal paper:** 2024. Identifying barriers to decentralized stormwater infrastructure implementation at different levels of urban flood governance – A case study in Eastern Pennsylvania, US. *Environmental Science and Policy*
- ✓ **Journal paper:** 2024. Exploring the influential factors of residents' attitudes toward implementing green infrastructures for stormwater management in the US. *Sustainable Cities and Society*
- ✓ **Conference abstract:** 2024. Can Incentive Programs for Green Infrastructures be a Win-Win for City and Property Owners? *World Environmental & Water Resources Congress, Milwaukee, WI, USA*.
- ✓ **Conference abstract:** 2022. Using a Coupled Agent-based Modeling for Stormwater Management, *Eos Trans. AGU, 103(52)*, Fall Meet. Suppl.

Jiaorui Zhang, Ph.D. 2024, Lehigh University, Lehigh Start-up, NSF Grant: EAR-1804560

- ✓ **Journal paper:** 2024. Exploring the food-energy-water nexus in coupled natural-human systems under climate change with a fully integrated agent-based modeling framework, *Journal of Hydrology*
- ✓ **Journal paper:** 2021. Examining the Food-Energy-Water-Environment Nexus in Transboundary River Basins through a Human Dimension Lens: Columbia River Basin, *Journal of Water Resources Planning and Management-ASCE*

- ✓ **Journal paper:** 2019. Impact of Dam Development and Climate Change on Hydroecological Conditions and Natural Hazard Risk in the Mekong River Basin, *Journal of Hydrology*
- ✓ **Conference abstract:** 2022. Exploring Coupled Natural-Human System Under Different Climate Conditions. *World Environmental & Water Resources Congress, Atlanta, GA, USA.*
- ✓ **Conference abstract:** 2020. A Coupled Modeling Framework Consisting of the Agent-Based Modeling and the Distributed Hydrologic Model. *World Environmental & Water Resources Congress, Henderson, NV, USA.*
- ✓ **Conference abstract:** 2019. Stakeholder Engagement for the Food-Energy-Water System of Systems in the Columbia River Basin. *World Environmental & Water Resources Congress, Pittsburg, PA, USA.*

Chung-Yi Lin, Ph.D. 2023, Lehigh University, Lehigh Start-up, NSF Grant: CBET-1941727

- ✓ **Journal paper:** 2024. Exploring the food-energy-water nexus in coupled natural-human systems under climate change with a fully integrated agent-based modeling framework, *Journal of Hydrology*
- ✓ **Journal paper:** 2024. Flood Risks of Cyber-physical Attacks in a Smart Storm Water System, *Water Resources Research*
- ✓ **Journal paper:** 2023. Pay-for-practice or Pay-for-performance? A Coupled Agent-based Evaluation Framework for Assessing Sediment Management Incentive Policies, *Journal of Hydrology*
- ✓ **Journal paper:** 2022. HydroCNHS: A Python Package of Hydrological Model for Coupled Natural-Human Systems, *Journal of Water Resources Planning and Management – ASCE*
- ✓ **Journal paper:** 2022. An investigation of coupled natural human systems using a two-way coupled agent-based modeling framework, *Environmental Modelling & Software*
- ✓ **Journal paper:** 2022. The effects of model complexity on model output uncertainty in co-evolved coupled natural-human systems, *Earth's Future*
- ✓ **Conference abstract:** 2022. Uncertainty decomposition of coupled natural human systems with differing model parameter complexity, *Eos Trans. AGU, 103(52)*, Fall Meet. Suppl.
- ✓ **Conference abstract:** 2022. Risk assessment of compound disturbances in coupled natural human systems. *World Environmental & Water Resources Congress, Atlanta, GA, USA.*
- ✓ **Conference abstract:** 2021. Uncertainty decomposition of coupled natural human systems with differing model parameter complexity, *Eos Trans. AGU, 102(52)*, Fall Meet. Suppl.

Jie Yang, Ph.D. 2020, Xi'an University of Technology (visiting Ph.D. student 2017-2019, Lehigh University), Chinese-NSF funded

- ✓ **Journal paper:** 2019. Impact of Dam Development and Climate Change on Hydroecological Conditions and Natural Hazard Risk in the Mekong River Basin, *Journal of Hydrology*
- ✓ **Journal paper:** 2018. Quantifying the Sustainability of Water Availability for the Water-Food-Energy-Ecosystem Nexus in the Niger River Basin, *Earth's Future*

● **MS/MEng students (Total number: 2)**

Tyler Keller, M.Eng. 2022, Lehigh University, self-funded

Tingting Ma, M.Eng. 2019, Lehigh University, self-funded

- ✓ **Conference abstract:** 2018. Evaluate the influence of green infrastructure with Agent-based model in the Upper Huron River Watershed. *Eos Trans. AGU, 99(52)*, Fall Meet. Suppl.

● **Undergraduate students**

Hannah Kusher, BS. 2020, Lehigh University

- ✓ **Journal paper:** 2024. Identifying barriers to decentralized stormwater infrastructure implementation at different levels of urban flood governance – A case study in Eastern Pennsylvania, US. *Environmental Science and Policy*

Eliza Brush, BS. 2019, Lehigh University

Tongtong Jiao, BS. 2019, Lehigh University

Daniella Dunphy, BS. 2018, Lehigh University

Michael Hanley, BS. 2017, University of Massachusetts, Amherst

● **Undergraduate students' faculty advisor**

15 B.S. Environmental Engineering Students, Class of 2025

10 B.S. Environmental Engineering Students, Class of 2021

● **Ph.D. Dissertation Committee**

Sena Mursel, Ph.D. 2025 (expected), Lehigh University

Xinyue Wang, Ph.D. 2025 (expected), Lehigh University

Xiyuan Zhu, Ph.D. 2025 (expected), Lehigh University

Cheng Chen, Ph.D. 2024 (expected), Lehigh University

Xu Han, Ph.D. 2022, Lehigh University

Hridaya Bastola, Ph.D. 2022, Lehigh University

Minghui Cheng, Ph.D. 2021, Lehigh University

Soheil Sadeghi Eshkevari, Ph.D. 2020, Lehigh University

Mustafa Al-Attar, Ph.D. 2020, Lehigh University

Hassaan Khan, M.S. 2016, Ph.D. 2018, University of Massachusetts, Amherst

Chingwen Cheng, Ph.D. 2013, University of Massachusetts, Amherst

Service and Leadership Roles

Professional Service

- **Member**, ASCE, EWRI, Environmental and Water Resources System (EWRS) Committee, 2007-present
- **Secretary**, EWRI, EWRS Food-Energy-Water Task Committee, 2018-present
- **Chair**, AGU, Water and Society Technical Committee, 2017-2019
- **Deputy Chair**, AGU, Water and Society Technical Committee, 2016-2017
- **Member**, AGU, Water and Society Technical Committee, 2014-present

Lehigh University Committees

- **Faculty Advisor**, TOMODACHI-STEM Women's Leadership and Research Program, 2022-present
- **Member**, Coastal Infrastructure and Energy Search Committee, Institute for Cyber Physical Infrastructure and Energy, 2022-2023
- **Member**, Department Chair Search Committee, MSE Department, 2021-2022
- **Member**, Diverse, equitable and inclusive (DEI) Search Committee, CEE Department, 2021
- **Member**, Graduate Curriculum Committee, CEE Department 2023-present
- **Member**, Undergraduate Curriculum Committee, CEE Department 2019-2023
- **Member**, Website Committee, CEE Department, 2017-present

Ad Hoc Reviewer – Journals (selected)

- Advance in Water Resources
- Agricultural Water Management
- British Journal of Environmental and Climate Change
- Climatic Change
- Ecological Modelling
- Environmental Earth Sciences
- Environmental Modelling and Software
- Environmental Monitoring and Assessment
- Environmental Science and Policy
- Environmental Science and Technology

- Groundwater
- Hydrology and Earth System Sciences
- Hydrological Sciences Journal
- Hydrological Processes
- International Journal of Disaster Risk Reduction
- IEEE Transactions on Power Systems
- Journal of Hydroinformatics
- Journal of Hydrologic Engineering – ASCE
- Journal of Hydrology
- Journal of Irrigation and Drainage Engineering
- Journal of Water Resources Planning and Management – ASCE
- Nature Sustainability
- Neural Computing and Applications
- Renewable and Sustainable Energy Reviews
- Resources, Conservation and Recycling
- Science of the Total Environment
- Water International
- Water Resources Research
- Wiley Interdisciplinary Reviews: Climate Change
- Wiley Interdisciplinary Reviews: Water

Ad Hoc or Panel Reviewer - Proposals

- Austrian Science Fund, Young Independent Researcher Groups Programme
- North Carolina Water Resources Research Institute Competitive Research Grants Program
- NSF, Accelerating Research through International Network-to-Network Collaborations
- NSF, Environmental Sustainability
- NSF, Human-Environment and Geographical Sciences
- NSF, Innovations at the Nexus of Food, Energy and Water Systems
- USGS, Water Resources Research National Competitive Grants Program 104G
- USGS, Ohio Water Resources Center In-State Competitive Research Grants Program
- USGS, Illinois Water Resources Center Annual Research Grants Program