

# Vivek Srikrishnan

## research interests

Climate risk management  
Coupled natural-human systems  
Complex system dynamics  
Decision-making under uncertainty  
Uncertainty characterization and quantification

## appointments

Assistant Professor, Department of Biological & Environmental Engineering, Cornell University, 2021–present  
Visiting Assistant Professor, Department of Biological & Environmental Engineering, Cornell University, 2020–2021  
Assistant Research Professor, Earth & Environmental Systems Institute, Pennsylvania State University, 2019–2021  
Postdoctoral Scholar, Earth & Environmental Systems Institute, Pennsylvania State University, 2018–2019

## education

Ph.D., Energy & Mineral Engineering, Pennsylvania State University, 2018  
M.S., Energy & Mineral Engineering, Pennsylvania State University, 2015  
B.S., Mathematics, University of Illinois at Urbana-Champaign, 2004  
B.A., Philosophy, University of Illinois at Urbana-Champaign, 2004

## publications

### Peer-Reviewed Journal Articles

- Bhaduri, P., Pollack, A. B., Yoon, J., Roy Chowdhury, P. K., Wan, H., Judi, D., Daniel, B., and **Srikrishnan, V.** 2025. “**Uncertainty in household behavior drives large variation in the size of the levee effect.**” *J. Flood Risk Manag.* **18** (4), e70131. DOI: [10.1111/jfr3.70131](https://doi.org/10.1111/jfr3.70131).
- Darnell, C., Rennels, L., Errickson, F., Wong, T., and **Srikrishnan, V.** 2025. “**The interplay of future emissions and geophysical uncertainties for projections of sea-level rise.**” *Nat. Clim. Chang.* (15), 1205–1211. DOI: [10.1038/s41558-025-02457-0](https://doi.org/10.1038/s41558-025-02457-0).
- Liu, M. V., **Srikrishnan, V.**, Doering, K., Kabir, E., Steinschneider, S., and Anderson, C. L. 2025. “**Energy system vulnerabilities in a zero-emission grid: The role of climate variability and technology uncertainty.**” *Energy* **335**, 137937. DOI: [10.1016/j.energy.2025.137937](https://doi.org/10.1016/j.energy.2025.137937).
- Ogunnaike, D., **Srikrishnan, V.**, and Goldfarb, J. L. 2025. “**Environmental trade-offs in hydrothermal carbonization process selection determined via attributional life cycle assessment and multicriteria decision making.**” *ACS Sustain. Chem. Eng.* DOI: [10.1021/acssuschemeng.5c03969](https://doi.org/10.1021/acssuschemeng.5c03969).
- Peng, W., Anenberg, S., Bistline, J., Budolfson, M., Constantino, S., Crawford, K., Davis, K., DeCarlo, P., Fawcett, A., Hashimoto, H., Helgeson, C., Huang, X., Iyer, G., Keller, K., Kennard, H., Kennedy, K., Laumbach, R., Limaye, V., Mayfield, E., McFarland, J., Meyer, M., Miller, P., Place, A., Roy, N., Schell, C., Scovronick, N., Smith, S., **Srikrishnan, V.**, Vorhees, D., and Xie, Y. 2025. “**Seizing the policy window for health- and equity-improving energy decisions.**” *One Earth* **8** (2), 101171.

- Pollack, A., Doss-Gollin, J., **Srikrishnan, V.**, and Keller, K. **2025.** “**UNSAFE: An UNcertain Structure And Fragility Ensemble** framework for property-level flood risk estimation.” *J. Open Source Softw.* **10** (115), 7527. DOI: [10.21105/joss.07527](https://doi.org/10.21105/joss.07527).
- Wan, H., Chowdhury, P. K. R., Yoon, J., Bhaduri, P., **Srikrishnan, V.**, Judi, D., and Daniel, B. **2025.** “**Explaining drivers of housing prices with nonlinear hedonic regressions.**” *Madl. Learn. Appl.* **21** (100707), 100707. DOI: [10.1016/j.mlwa.2025.100707](https://doi.org/10.1016/j.mlwa.2025.100707).
- Wong, T., Dake, S., Feke, K., Darnell, C., and **Srikrishnan, V.** **2025.** “**Coastal Adaptation and Damage Costs at Different Global Warming Thresholds.**” *npj Nat. Hazards* **2**, 35. DOI: [10.1038/s44304-025-00089-0](https://doi.org/10.1038/s44304-025-00089-0).
- Helgeson, C., Keller, K., Nicholas, R. E., **Srikrishnan, V.**, Cooper, C., Smithwick, E. A. H., and Tuana, N. **2024.** “**Integrating values to improve the relevance of climate-risk research.**” *Earths Future* **12** (10), e2022EF003025. DOI: [10.1029/2022ef003025](https://doi.org/10.1029/2022ef003025).
- Hosseini-Shakib, I., Alipour, A., Seiyon Lee, B., **Srikrishnan, V.**, Nicholas, R. E., Keller, K., and Sharma, S. **2024.** “**What drives uncertainty surrounding riverine flood risks?**” *J. Hydrol. (Amst.)* **634** (131055), 131055. DOI: [10.1016/j.jhydrol.2024.131055](https://doi.org/10.1016/j.jhydrol.2024.131055).
- Kabir, E., **Srikrishnan, V.**, Liu, M. V., Steinschneider, S., and Anderson, C. L. **2024.** “**Quantifying the impact of multi-scale climate variability on electricity prices in a renewable-dominated power grid.**” *Renew. Energy* **223** (120013), 120013. DOI: [10.1016/j.renene.2024.120013](https://doi.org/10.1016/j.renene.2024.120013).
- Huang, X., **Srikrishnan, V.**, Lamontagne, J., Keller, K., and Peng, W. **2023.** “**Effects of global climate mitigation on regional air quality and health.**” *Nature Sustainability*. DOI: [10.1038/s41893-023-01133-5](https://doi.org/10.1038/s41893-023-01133-5).
- Lucash, M. S., Williams, N. G., **Srikrishnan, V.**, Keller, K., Scheller, R. M., Hegelson, C., Nicholas, R. E., and Smithwick, E. A. H. **2023.** “**Balancing multiple forest management objectives under climate change in central Wisconsin, U.S.A.**” *Trees, Forests and People* **14**, 100460. DOI: [10.1016/j.tfp.2023.100460](https://doi.org/10.1016/j.tfp.2023.100460).
- Wan, H., Yoon, J., **Srikrishnan, V.**, Daniel, B., and Judi, D. **2023.** “**Landscape Metrics Regularly Outperform Other Traditionally-Used Ancillary Datasets in Dasymetric Mapping of Population.**” *Computers, Environment and Urban Systems* **99**, 101899. DOI: [10.1016/j.compenvurbsys.2022.101899](https://doi.org/10.1016/j.compenvurbsys.2022.101899).
- Yoon, J., Wan, H., Daniel, B., **Srikrishnan, V.**, and Judi, D. **2023.** “**Structural model choices regularly overshadow parametric uncertainty in agent-based simulations of household flood risk outcomes.**” *Comput. Environ. Urban Syst.* **103**, 101979. DOI: [10.1016/j.compenvurbsys.2023.101979](https://doi.org/10.1016/j.compenvurbsys.2023.101979).
- Reed, P. M., Hadjimichael, A., Moss, R. H., Breisford, C., Burleyson, C. D., Cohen, S., Dyreson, A., Gold, D. F., Gupta, R. S., Keller, K., Konar, M., Monier, E., Morris, J., **Srikrishnan, V.**, Voisin, N., and Yoon, J. **2022.** “**Multisector Dynamics: Advancing the Science of Complex Adaptive Human-Earth Systems.**” *Earth's Future* **10** (3), e2021EF002621. DOI: [10.1029/2021EF002621](https://doi.org/10.1029/2021EF002621).
- Srikrishnan, V.**, Guan, Y., Tol, R. S. J., and Keller, K. **2022.** “**Probabilistic projections of baseline 21st century CO<sub>2</sub> emissions using a simple calibrated integrated assessment model.**” *Climatic Change* **170**, 37. DOI: [10.1007/s10584-021-03279-7](https://doi.org/10.1007/s10584-021-03279-7).
- Srikrishnan, V.**, Lafferty, D. C., Wong, T. E., Lamontagne, J. R., Quinn, J. D., Sharma, S., Molla, N. J., Herman, J. D., Sriver, R. L., Morris, J., and Lee, B. S. **2022.** “**Uncertainty Analysis in Multi-Sector Systems: Considerations for Risk Analysis, Projection, and Planning for Complex Systems.**” *Earth's Future* **10** (8), e2021EF002644. DOI: [10.1029/2021EF002644](https://doi.org/10.1029/2021EF002644).

- Wong, T. E., Rennels, L., Errickson, F., **Srikrishnan, V.**, Bakker, A., Keller, K., and Anthoff, D. **2022**. “MimiBRICK.jl: A Julia package for the BRICK model for sea-level change in the Mimi integrated modeling framework.” *Journal of Open Source Software* **7** (76), 2556. DOI: [10.21105/joss.04556](https://doi.org/10.21105/joss.04556).
- Errickson, F. C., Keller, K., Collins, W. D., **Srikrishnan, V.**, and Anthoff, D. **2021**. “Equity is more important for the social cost of methane than climate uncertainty.” *Nature* **592** (7855), 564–570. DOI: [10.1038/s41586-021-03386-6](https://doi.org/10.1038/s41586-021-03386-6).
- Helgeson, C., **Srikrishnan, V.**, Keller, K., and Tuana, N. **2021**. “Why Simpler Computer Simulation Models Can Be Epistemically Better for Informing Decisions.” *Philos. Sci.* **88** (2), 213–233. DOI: [10.1086/711501](https://doi.org/10.1086/711501).
- Keller, K., Helgeson, C., and **Srikrishnan, V.** **2021**. “Climate Risk Management.” *Annu. Rev. Earth Planet. Sci.* **49** (1), 95–116. DOI: [10.1146/annurev-earth-080320-055847](https://doi.org/10.1146/annurev-earth-080320-055847).
- Srikrishnan, V.** and Keller, K. **2021**. “Small increases in agent-based model complexity can result in large increases in required calibration data.” *Environmental Modelling & Software* **138**, 104978. DOI: [10.1016/j.envsoft.2021.104978](https://doi.org/10.1016/j.envsoft.2021.104978).
- Wan, H., Yoon, J., **Srikrishnan, V.**, Daniel, B., and Judi, D. **2021**. “Population Downscaling Using High-Resolution, Temporally-Rich U.S. Property Data.” *Cartography and Geographic Information Science*, 1–14. DOI: [10.1080/15230406.2021.1991479](https://doi.org/10.1080/15230406.2021.1991479).
- Zarekarizi, M., **Srikrishnan, V.**, and Keller, K. **2020**. “Neglecting uncertainties biases house-elevation decisions to manage riverine flood risks.” *Nature Communications*. DOI: [10.1038/s41467-020-19188-9](https://doi.org/10.1038/s41467-020-19188-9).
- Ruckert, K. L., **Srikrishnan, V.**, and Keller, K. **2019**. “Characterizing the deep uncertainties surrounding coastal flood hazard projections: A case study for Norfolk, VA.” *Sci. Rep.* **9** (1), 11373. DOI: [10.1038/s41598-019-47587-6](https://doi.org/10.1038/s41598-019-47587-6).
- Srikrishnan, V.**, Alley, R., and Keller, K. **2019**. “Investing in science to improve climate risk management.” *Eos* **100**. DOI: [10.1029/2019eo131077](https://doi.org/10.1029/2019eo131077).
- Morris, J., **Srikrishnan, V.**, Webster, M., and Reilly, J. **2018**. “Hedging strategies: Electricity investment decisions under policy uncertainty.” *The Energy Journal* **39** (1). DOI: [10.5547/01956574.39.1.jmor](https://doi.org/10.5547/01956574.39.1.jmor).
- Wong, T. E., Klufas, A., **Srikrishnan, V.**, and Keller, K. **2018**. “Neglecting model structural uncertainty underestimates upper tails of flood hazard.” *Environmental Research Letters* **13** (7), 074019. DOI: [10.1088/1748-9326/aacb3d](https://doi.org/10.1088/1748-9326/aacb3d).
- Oddo, P. C., Lee, B. S., Garner, G. G., **Srikrishnan, V.**, Reed, P. M., Forest, C. E., and Keller, K. **2017**. “Deep uncertainties in sea-level rise and storm surge projections: Implications for coastal flood risk management.” *Risk Analysis*. DOI: [10.1111/risa.12888](https://doi.org/10.1111/risa.12888).
- Srikrishnan, V.**, Young, G. S., and Brownson, J. R. S. **2017**. “Skill and skill prediction of cloud-track advection-only forecasting under a cumulus-dominated regime.” *Journal of Applied Meteorology and Climatology* **56** (3), JAMC-D-16-0224.1. DOI: [10.1175/JAMC-D-16-0224.1](https://doi.org/10.1175/JAMC-D-16-0224.1).
- Wong, T. E., **Srikrishnan, V.**, Hadka, D., and Keller, K. **2017**. “A multi-objective decision-making approach to the journal submission problem.” *PLoS One* **12** (6), e0178874. DOI: [10.1371/journal.pone.0178874](https://doi.org/10.1371/journal.pone.0178874).
- Srikrishnan, V.**, Young, G. S., Witmer, L. T., and Brownson, J. R. S. **2015**. “Using multi-pyranometer arrays and neural networks to estimate direct normal irradiance.” *Solar Energy* **119**, 531–542. DOI: [10.1016/j.solener.2015.06.004](https://doi.org/10.1016/j.solener.2015.06.004).

### *Articles Under Review or Forthcoming*

- Pollack, A., Auermiller, L., Burleyson, C., Campbell, J., Condon, M., Cooper, C., Coronese, M., Dangendorf, S., Doss-Gollin, J., Hedge, P., Helgeson, C., Kopp, R. E., Kwakkel, J., Leaf, A., Lesk, C., Mankin, J., Nicholas, R. E., Rice, J. S., Roth, S., **Srikrishnan, V.**, Scheeler, M., Tuana, N., Vernon, C. R., Zhao, M., and Keller, K. **2025**. “Investing in open and FAIR practices for more usable and equitable climate-risk research.” In revision.
- Pollack, A. B., Benedict, J. J., Deb, M., Doss-Gollin, J., Judi, D., Lehman, W., Lutz, N., Reesman, C., Sarazen, E., Son, Y., Sun, N., **Srikrishnan, V.**, and Keller, K. **2025**. “Unrefined national building inventories can mislead risk assessments and decisions.” Submitted.
- Roth, S., Ye, H., Nicholas, R. E., **Srikrishnan, V.**, and Keller, K. **2025**. “Emulation Methods and Adaptive Sampling Increase the Efficiency of Sensitivity Analysis for Computationally Expensive Models.” In revision. arXiv: [2302.12738 \[stat\]](https://arxiv.org/abs/2302.12738).
- Tang, K., Liu, V. M., Anderson, L. C., and **Srikrishnan, V.** **2025**. “Identification of pressure points in modern power systems using transfer entropy.” Submitted.
- Roy Chowdury, P. K., Wan, H., **Srikrishnan, V.**, Yoon, J., Daniel, B., Bhaduri, P., and Judi, D. **2024**. “Data-Driven Urban Growth Modeling: Common Practices, Potential Pitfalls, and New Directions.” In revision.
- Maragoni, G., Mauri, M., **Srikrishnan, V.**, Keller, K., and Tavoni, M. **2023**. “Robust Solar Radiation Management Strategies for Well-below 2°C Strategies.” In revision.

### *Reports*

- Kopp, R. E., Bassis, J., Boesch, D., Garner, A., Sadai, S., **Srikrishnan, V.**, Stearns, L. A., and Hill, T. M. **2025**. “Comment on the DOE CWG report, Section 7: Changes in Sea Level,” pp. 243–263. DOI: [10.22541/essoar.175745244.41950365/v2](https://doi.org/10.22541/essoar.175745244.41950365/v2).
- Reed, P. M., Hadjimichael, A., Moss, R. H., Monier, E., Alba, S., Breisford, C., Burleyson, C., Cohen, S., Dyreson, A., Gold, D., Gupta, R., Keller, K., Konar, M., Macknick, J., Morris, J., **Srikrishnan, V.**, Voisin, N., and Yoon, J. **2022**. “MultiSector Dynamics: Scientific Challenges and a Research Vision for 2030.” A Community of Practice Supported by the United States Department of Energy’s Office of Science. DOI: [10.5281/zenodo.5825890](https://doi.org/10.5281/zenodo.5825890).

### *Books*

- Reed, P. M., Hadjimichael, A., Malek, K., Karimi, T., Vernon, C. R., **Srikrishnan, V.**, Gupta, R. S., Gold, D. F., Lee, B., Keller, K., Thurber, T. B., and Rice, J. S. **2022**. “Addressing Uncertainty in Multisector Dynamics Research.” Zenodo. DOI: [10.5281/zenodo.6110623](https://doi.org/10.5281/zenodo.6110623).

### *Conference Proceedings*

- Koch, J., Chowdhury, P. K. R., Wan, H., Bhaduri, P., Yoon, J., **Srikrishnan, V.**, and Daniel, W. B. **2025**. “Graph neural differential equations for coarse-grained socioeconomic dynamics.” In: *Proceedings of the 2024 International Conference of The Computational Social Science Society of the Americas*. CSSSA 2024 (Santa Fe, New Mexico, USA). Ed. by Z. Yang and E. von Briesen. Springer Proceedings in Complexity. Springer Nature Switzerland, pp. 237–256. DOI: [10.1007/978-3-031-89692-7\\_15](https://doi.org/10.1007/978-3-031-89692-7_15).

**Srikrishnan, V.**, Brownson, J. R. S., and Young, G. S. **2014**. "The All-Seeing Eye: Using Multi-Pyranometer Arrays and Neural Networks to Estimate Direct Normal Irradiance." In: *43rd ASES National Solar Conference 2014, SOLAR 2014, Including the 39th National Passive Solar Conference and the 2nd Meeting of Young and Emerging Professionals in Renewable Energy*. American Solar Energy Society, pp.511–518.

*Conference Presentations*

**Srikrishnan, V.**, Liu, M. V., Tang, K. B., Lafferty, D. C., and Anderson, C. L. **2024**. "Impacts of Climatic and Socioeconomic Uncertainties on Net-Zero Power Systems Reliability: A Case Study from New York State." INFORMS Annual Meeting 2024. Seattle, WA, USA.

**Srikrishnan, V.**, Darnell, C., Rennels, L., Errickson, F., and Wong, T. **2023**. "What Drives High-End Sea Level Rise?" AGU Fall Meeting 2023. San Francisco, CA, USA.

Lucash, M. S., Huang, J., **Srikrishnan, V.**, Keller, K., Klippel, A., Scheller, R. M., Nicholas, R., and Smithwick, E. **2019**. "Using robust decision-making and virtual reality to analyze management tradeoffs under climate change." *International Association of Landscape Ecologists World Congress*. Milan, Italy.

**Srikrishnan, V.** **2015**. "Validity of Taylor's hypothesis across time scales: Implications for solar forecasting." 44nd American Solar Energy Society Meeting. State College, PA, USA.

**Srikrishnan, V.** **2014**. "The All-Seeing Eye: Using multi-pyranometer arrays and neural networks to estimate direct normal irradiance." 43rd American Solar Energy Society Meeting. San Francisco, CA, USA.

*Conference Posters*

Ogunnaike, D., **Srikrishnan, V.**, and Goldfarb, J. **2025**. "Hydrothermal Carbonization's Versatility Impacts Biorefinery Decision-Making." Cornell University KK Wang Renewable Energy Day Symposium 2025. Ithaca, NY, USA.

Vernon, C. R., Reed, P. M., Monier, E., Hadjimichael, A., Gupta, R. S., Alba, S., Hamilton, A. L., Gold, D., Moss, R. H., Brelsford, C., Burleyson, C. D., Dyreson, A., Jackson, N., Jones, A. D., Keller, K., McCollum, D. L., Morris, J. F., Peng, W., Saari, R., **Srikrishnan, V.**, Szinai, J., Voisin, N., Wild, T. B., and Yoon, J. **2023**. "Advancing Complex Human-Earth Systems Science through Natural Language Processing, Graph Machine Learning, and Artificial Intelligence." American Geophysical Union Fall Meeting 2023. San Francisco, CA, USA.

Bhaduri, P., Yoon, J., Wan, H., Daniel, W. B., Judi, D., and **Srikrishnan, V.** **2022**. "Risk Information Contamination from Levees as an Explanation of the Levee Effect." American Geophysical Union Fall Meeting 2022. Chicago, IL, USA.

Huang, X., **Srikrishnan, V.**, Lamontagne, J., Keller, K., and Peng, W. **2022**. "Pricing carbon emissions reduces health inequities from air pollution exposure." American Geophysical Union Fall Meeting 2022. Chicago, IL, USA.

Wong, T. E., Rennels, L., Errickson, F. C., **Srikrishnan, V.**, Anthoff, D., and Keller, K. **2022**. "Sensitivity of Coastal Adaptation Costs and Decisions to Sea Level and Socioeconomic Uncertainties." American Geophysical Union Fall Meeting 2022. Chicago, IL, USA.

**Srikrishnan, V.**, Guan, Y., Tol, R. S. J., and Keller, K. **2019**. "Fossil fuel resources, decarbonization, and economic growth are key drivers of feasibility to achieve Paris climate targets." American Geophysical Union Fall Meeting 2019. San Francisco, CA, USA.

- Srikrishnan, V.**, Guan, Y., Tol, R. S. J., and Keller, K. **2019**. "Fossil fuel resources, decarbonization, and economic growth are key drivers of feasibility to achieve Paris climate targets." Society for Decision-Making Under Deep Uncertainty 2019 Workshop. Delft, Netherlands.
- Wong, T. E., **Srikrishnan, V.**, Vega-Westhoff, B., Errickson, F., and Ledna, C. **2019**. "Probabilistic projections for timing of global sea-level thresholds." American Geophysical Union Fall Meeting 2019. San Francisco, CA, USA.
- Srikrishnan, V.** and Keller, K. **2018**. "Can we calibrate and identify agent-based models of flood risk adaptation?" American Geophysical Union Fall Meeting 2018. Washington, DC, USA.
- Steinke, I., **Srikrishnan, V.**, and Keller, K. **2018**. "Implications of radiation management for coastal flooding risks — A case study of New Orleans." European Geophysical Union General Assembly 2018. Vienna, Austria.
- Spence, C., Salazar, J., Quinn, J., **Srikrishnan, V.**, Koszuta, M., Reed, P. M., and Keller, K. **2017**. "Quantifying the deep uncertainties surrounding climate impacts on water systems." Society for Decision-Making Under Deep Uncertainty 2017 Workshop. Oxford, UK.
- Srikrishnan, V.**, Wong, T. E., Garner, G. G., and Keller, K. **2017**. "Combining remote and local observations in a direct policy search for coastal flood defense under deep uncertainty." Society for Decision-Making Under Deep Uncertainty 2017 Workshop. Oxford, UK.
- Srikrishnan, V.** and Keller, K. **2016**. "Identifying signposts for adaptive flood risk management strategies." Society for Decision-Making Under Deep Uncertainty 2016 Workshop. Washington, DC, USA.
- Srikrishnan, V.**, Young, G. S., and Brownson, J. R. S. **2015**. "The error from Taylor's hypothesis for solar forecasting." Penn State Initiative for Sustainable Electric Power Systems Workshop on Power Systems and Markets. State College, PA, USA.

#### invited talks

- "Contending with Uncertainty in Coupled Natural-Human Systems", Workshop on Human Behavior in Global Change Models, Aspen Global Change Institute. Aspen (CO), USA. Nov. 2025 s.
- "Climate Risk and Climate Uncertainty", Climate Change Symposium, Atria University/Cornell University. online. Mar. 2025.
- "Interplay of Emissions and Geophysical Uncertainties for Future Sea-Level Rise", Civil and Environmental Engineering Seminar, Rice University. Houston (TX), USA. Oct. 2024.
- "Impacts of Emissions Uncertainties on Antarctic Instabilities and Sea-Level Rise", Civil and Environmental Engineering Seminar, Syracuse University. Syracuse (NY), USA. Mar. 2024.
- "Impacts of Emissions Uncertainties on Antarctic Instabilities and Sea-Level Rise", Environmental Science Seminar, Baylor University. Waco (TX), USA. Feb. 2024.
- "Navigating (Deep) Uncertainties in Climate Risk Management", RIT Mathematical Modeling Seminar, Rochester Institute of Technology. Rochester (NY), USA. Oct. 2023.
- "How Uncertainties Can Impact Climate Risk Management", Earth and Atmospheric Sciences Seminar, Cornell University. Ithaca (NY), USA. Feb. 2023.
- "An Introduction to Climate Risk Management", Climate Change Seminar, Cornell University. Ithaca (NY), USA. Jan. 2023.

- "Identifying Challenges and Opportunities for Uncertainty Analysis in MultiSector Dynamics Research", Community Webinar, MultiSector Dynamics Community of Practice. remote. Oct. 2022 (with Jonathan Lamontagne).
- "Considerations for Uncertainty in MultiSector Systems", Cornell Energy Systems Institute Seminar, Cornell University. Ithaca (NY), USA. Oct. 2022.
- "Climate Risk, Uncertainty, and Coupled Energy Systems", New Energy Series, Irving Institute, Dartmouth College. Remote. Jan. 2022.
- "Uncertainty and Climate Risk Management", Center for Applied Mathematics Colloquium, Cornell University. Ithaca (NY), USA. Nov. 2021.
- "A Systems Approach to Climate Risk Management", Ezra's Round Table, Cornell University. Ithaca (NY), USA. Sep. 2021.
- "How Likely Are the Most Extreme CO<sub>2</sub> Emissions Scenarios?", MIT Joint Program on the Science and Policy of Global Change Seminar, Massachusetts Institute of Technology. Remote. Aug. 2020.
- "How Likely Are the Most Extreme CO<sub>2</sub> Emissions Scenarios?", Energy and Environmental Economics and Policy Seminar, Pennsylvania State University. University Park (PA), USA. Feb. 2020.
- "Climate Risk Management: A Decision-Centered Approach", Tufts Civil and Environmental Engineering Seminar, Tufts University. Medford (MA), USA. Nov. 2019.
- "Adaptive Multi-Objective Robust Decision-Making", Carnegie Mellon-Penn State Workshop on Multi-Objective Robust Decision-Making, Pennsylvania State University. University Park (PA), USA. Aug. 2019.
- "From Earth-System Science to Coastal Hazards and Back", Environmental and Sustainability Seminar, Carnegie Mellon University. Pittsburgh (PA), USA. May 2019 (with Klaus Keller).
- "Agent-Based Models: The New 'Plastic' or the Emperor's Clothes?", Program on Coupled Natural-Human Systems Research Seminar, Pennsylvania State University. University Park (PA), USA. Mar. 2019 (with Klaus Keller).
- "From Earth-System Science to Coastal Hazards and Back", Pacific Northwest National Laboratory. Richland (WA), USA. Mar. 2019 (with Klaus Keller).
- "From Earth-System Science to Coastal Hazards and Back", Joint Global Change Research Institute. College Park (MD), USA. Feb. 2019 (with Klaus Keller).
- "Can We Avoid a (Rational) Route to Collapse?", Workshop on Managing Natural Resource Risk in the Modern and Prehistoric World, Santa Fe Institute. Santa Fe (NM), USA. Oct. 2018 (with Klaus Keller).
- "Hedging Strategies for Electricity Investment Decisions Under Policy Uncertainty", Energy and Mineral Engineering Graduate Seminar, Pennsylvania State University. University Park (PA), USA. Mar. 2016.

#### **grants and contracts**

- Co-PI, "Valuing Hydropower Contributions Across Multiple Timescales". PI: Patrick Reed. NREL, \$16,556 (total: \$90,000). 2024–2024.
- Co-PI, "Climate-Resilient Energy Systems: Integrating Power System Analysis with Community-Based Insights". PI: C. Lindsay Anderson. Cornell Atkinson, \$20,336 (total: \$116,582). 2024–2025.
- Co-PI, "Addressing Deep Uncertainty in Hydropower Futures". PI: Patrick Reed. NREL, \$15,053 (total: \$75,000). 2022–2023.
- Investigator, Site Lead, "Understanding Multistressor and Multiscale Drivers of Feedbacks, Cascading Failures, and Risk Management Pathways within Complex MSD Systems". PI: Karen Fisher-Vanden. DOE (BER), \$533,922. 2021–2026.

Co-PI, "Health Effects of Decarbonization (HEALED)". PI: Wei Peng. NSF, \$50,001 (total: \$399,472). 2021–2024.

Investigator, Site Lead, Task Lead, "Integrated Coastal Modeling (ICoM)". PI: Ian Kraucunas. DOE (BER), \$598,217. 2021–2025.

Investigator, "Integrated Multi-Scale Multi-Sector Modeling (IM3)". PI: Jennie Rice. DOE (BER), \$25,000. 2019–2020.

#### **networks and projects**

Project on Coupled Human and Earth Systems (PCHES-ADAPT). Senior Personnel. PI: Karen Fisher-Vanden, Robert Nicholas, and John Weyant. Department of Energy, Biological and Environmental Research. 2021–current.

Integrated Coastal Modeling (ICoM). Task Lead. PI: Ian Kraucunas. Department of Energy, Biological and Environmental Research. 2019–current.

Visualizing Forest Futures (ViFF). Participant. PI: Erica Smithwick. National Science Foundation. 2019–2021.

Project on Coupled Human and Earth Systems (PCHES-FRAME). Participant. PI: Karen Fisher-Vanden and John Weyant. Department of Energy, Biological and Environmental Research. 2018–2021.

Network for Sustainable Climate Risk Management (SCRiM). Participant. PI: Klaus Keller. National Science Foundation. 2016–2019.

#### **teaching**

##### *Cornell University*

BEE 4850/5850 — Environmental Data Analysis and Simulation. Primary Instructor. Spring 2024, 2025.

BEE 4750/5750 — Environmental Systems Analysis. Primary Instructor. Fall 2022, 2023, 2024.

BEE 2000 — Perspectives on the Climate Change Challenge. Collaborative Instructor. Spring 2024.

BEE 6940 — Climate Risk Analysis. Primary Instructor. Spring 2023.

BEE 6940/AAP Design Studio — Climate Uncertainties. Collaborative Instructor. Fall 2023.

##### *Pennsylvania State University*

EME 301 — Thermodynamics in Energy and Mineral Engineering. Teaching Assistant. Fall and Spring 2014, 2015, 2016.

Math 140 — Calculus with Analytic Geometry I. Primary Instructor. Spring 2011.

Math 411 — Ordinary Differential Equations. Primary Instructor. Summer 2008, 2010.

Math 232 — Integral Vector Calculus. Primary Instructor. Spring 2010.

Math 41 — Trigonometry and Analytic Geometry. Primary Instructor. Fall 2005, 2010.

Math 251 — Ordinary and Partial Differential Equations. Primary Instructor. Fall and Spring 2007, 2008, 2009.

Math 141 — Calculus with Analytic Geometry II. Primary Instructor. Fall 2009.

Math 497 — Symplectic Geometry. Teaching Assistant. Fall 2008.

Math 250 — Ordinary Differential Equations. Primary Instructor. Fall 2006.

Math 231 — Calculus of Several Variables. Primary Instructor. Fall and Spring 2004, 2006.

#### **workshops organized**

Climate Risk Management Summer Fest. Hanover (NH), USA. Aug. 2024.

Carnegie Mellon-Penn State Workshop on Multi-Objective Robust Decision-Making. University Park (PA), USA. Aug. 2019.

**advising** *Postdoctoral*  
David Lafferty. Climate Data Analysis. 2024–2025. Current: Scientist, Verisk Extreme Event Solutions.  
Elnaz Kabir. Decarbonized Energy System Operations. Co-advised with C. Lindsay Anderson & Scott Steinschneider. 2021–2023. Current: Assistant Professor, Engineering Technology & Industrial Distribution, Texas A&M.

*Graduate*  
Yifan Luo. Ph.D., Civil & Environmental Engineering. Advisor, Committee Chair. 2023–present.  
Katerina Tang. Ph.D., Applied Mathematics. Advisor. 2022–present.  
Parin Bhaduri. Ph.D., Biological & Environmental Engineering. Advisor, Committee Chair. 2021–present.  
Demola Ogunnaike. M.S./Ph.D., Systems Engineering. Committee Chair. 2024–present.  
Yuhe Pan. M.S., Systems Engineering. Committee Chair. 2024–present.  
Gabriela Ackermann Logan. M.S., Biological & Environmental Engineering. Advisor, Committee Chair. 2023–present. Thesis: "Economic and environmental impacts of co-located and grid-connected hydrogen production."  
Chloe Darnell. M.S., Biological & Environmental Engineering. Advisor, Committee Chair. 2021–2023. Thesis: "Uncertainty in emissions pathways and earth system dynamics: implications for global mean sea level rise."  
Carl Frederick Aquino. M.S., Geosciences. Co-Advisor. 2020–2022. Thesis: "Greenland ice sheet drives sea-level rise differences between model and expert projections."  
Liying Ma. M.Eng., Biological & Environmental Engineering. Advisor. 2025–present.  
Nicole Rosario Nieves. M.Eng., Biological & Environmental Engineering. Advisor. 2023–2023. Thesis: "Generation of an agent-based policy tree for decision making on home elevation in coastal floodable areas."

*Undergraduate*  
Reynolds Li. Information Science. Research Advisor. 2025–present.  
Cella Schnabel. Civil & Environmental Engineering. Research Advisor. 2023–present.  
Cannon Cline. Earth & Atmospheric Science. Research Advisor. 2023–present.  
Matthew Lipton. Independent Engineering. Research Co-Advisor (with C. Lindsay Anderson), Academic Co-Advisor. 2023–present.

**committee member**  
Trevor Amestoy, Ph.D., Civil & Environmental Engineering. current.  
Lillian Lau, Ph.D., Civil & Environmental Engineering. current.  
Kaleb Smith, Ph.D., Civil & Environmental Engineering. current.  
Jingya Han, Ph.D., Atmospheric Science. current.  
Taylor Fernandes Nunez, Ph.D., Applied Mathematics. current.  
Madeline Allen, Ph.D., Civil & Environmental Engineering. current.  
Sandeep Pouyel, Ph.D., Civil & Environmental Engineering. current.

**awards** Graduate Research Fellowship Honorable Mention, National Science Foundation. 2015  
Harold F. Martin Graduate Assistant Outstanding Teaching Award, Pennsylvania State University Graduate School. 2011

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|--------------------------------|---|
|                                | Charles H. Hoover Memorial Award, Pennsylvania State University Department of Mathematics. 2010   |
|                                | Departmental Teaching Award, Pennsylvania State University Department of Mathematics. 2008  |
|                                | ZZRQ Award, Pennsylvania State University Department of Mathematics. 2006   |
| <b>outreach</b>                | Taught session on multi-objective robust decision-making, SCRM/Dartmouth Summer School. 2018, 2019, 2023.   |
| <b>service</b>                 | <p>Co-Organizer and Session Chair, Energy Modeling Forum Snowmass Workshop. 2023–2024.</p> <p>Faculty Fellow, Cornell Atkinson Center for a Sustainable Future. .</p> <p>Co-Organizer, BEE Department Seminar. 2021–present.</p> <p>Associate Deputy Editor, <i>Climatic Change</i>. 2021–present.</p> <p>Early Career Researcher Board Member, <i>Oxford Open Energy</i>. 2022–present.</p> <p>Co-Chair, MultiSector Dynamics Working Group on Uncertainty Quantification and Scenario Development. 2019–present.</p> <p>Member, MultiSector Dynamics Community of Practice Scientific Steering Group. 2019–present.</p> <p>Co-Convener and Co-Chair, AGU Sessions on MultiSector Dynamics and Uncertainty. 2020–2024.</p> <p>Co-Convener, European Social Simulation Association Meeting Session on Uncertainty in Agent-Based simulation. 2024.</p> <p>Co-Guest Editor, <i>Water</i>. Special Issue on 'Climate Model Projections: Sea-Level Rise and Impacts on Coastal Defense Decision-Making'. .</p> <p>Panel Reviewer, National Science Foundation, Department of Energy. .</p> <p>Ad Hoc Reviewer, Sloan Foundation, National Science Foundation, Austrian Science Fund.</p> <p>Member, Environmental Engineering Program Curriculum Committee. 2022–present.</p> <p>Member, Biological &amp; Environmental Engineering Faculty Search Committees. 2022, 2024.</p> |
| <b>professional experience</b> | <p>Research Assistant, Brownson Solar Research Group, Pennsylvania State University. 2011–2014</p> <p>Technical Editor, <i>Journal of Modern Dynamics</i>. 2008–2010</p>  |