Yash Vijay Amonkar

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https://github.com/yashamonkar

Research Interests

Renewable Energy Integration
Energy Droughts
Climate Variability and Anthropogenic Climate Change
Grid Resilience
Sub-Seasonal Forecasting

Ph.D.

Doctoral Candidate, Climate Risk Assessment for Energy Infrastructure Systems — 2018–2023
Supervised by Upmanu Lall

- Analysis of spatio-temporal climate risk to energy infrastructure at a regional level.
- Developed high dimensional space-time simulators to model renewable generation.

Education

Ph.D. Environmental Engineering, Columbia University in the City of New York — (exp.) 2023
M.S. Environmental Engineering, Columbia University in the City of New York — 2017
B.S. Chemical Engineering (B.Chem), Institute of Chemical Technology, Mumbai — 2016

Services

Sr. Research Assistant Full-Time, The Earth Institute — Mar-Jul 2018

- Worked at the Columbia Water Center

Graduate Student Assistant Part-Time, The Earth Institute — Dec 2016-Dec 2017

- Norges Bank Investment Management funded project on Sustainable Mining

Awards

Cheung-Kong Innovation Doctoral Fellowship, Fu Foundation School of Engineering and Applied Science, Columbia University — 2020-2022

- Covered Ph.D. stipend and tuition. Approved for a second year of funding.

Certificates

Fundamentals of Engineering (FE) — Feb 2018

- Environmental Engineering, California Board

Teaching

Teaching Assistant, Columbia University

[1] Environmental Data Analysis — Spring 2019
[2] Environmental Data Analysis — Fall 2021

Publications

- Amonkar, Y., Farnham, D. J., Lall, U. (2022). A k-nearest neighbor space-time simulator with applications to large-scale wind and solar power modeling. Patterns, 3(3), 100454. doi: https://doi.org/10.1016/j.patter.2022.100454
- Salem, J., Amonkar, Y., Maennling, N., Lall, U., Bonnafous, L., Thakkar, K. (2018). An analysis of Peru: Is water driving mining conflicts?. Resources Policy, 101270. doi: https://doi.org/10.1016/j.resourpol.2018.09.010

Under Review and Preparation

- Amonkar, Y., Farnham, D. J., Doss-Gollin, J., Modi, V., Lall, U. (2022). Trends in Extreme Heating and Cooling Demand across the Contiguous United States, with implications for Grid Planning and Management. **(Under preparation)**
- Amonkar, Y., Doss-Gollin, J., Lall, U. (2022). Compound climate risk: Diagnosing and simulating clustered regional flooding at inter-annual and longer time scales. **(Under preparation)**

Conference Proceedings

- Amonkar, Y. V., Farnham, D. J., Lall, U. (2020, December). Joint Spatio-Temporal Simulation of Gridded Wind-Solar Fields. In AGU Fall Meeting Abstracts (Vol. 2020, pp. GC074-0010).
- Lall, U., Amonkar, Y. V., Farnham, D. J., Modi, V., Doss-Gollin, J. (2021, December). The Risks of Energy Shortfalls considering Temperature Extremes, Wind and Solar Energy for the Texas Energy Grid Using a Novel Space-Time Simulation Model. In AGU Fall Meeting 2021. AGU.
- Amonkar, Y. V., Farnham, D. J., Lall, U. (2020, December). Joint Spatio-Temporal Simulation of Gridded Wind-Solar Fields. In AGU Fall Meeting Abstracts (Vol. 2020, pp. GC074-0010).
- Amonkar, Y. V., Doss-Gollin, J., Lall, U. (2019, December). Preserving long-term variability in simulation of multisite streamflow extremes. In AGU Fall Meeting Abstracts (Vol. 2019, pp. H13T-2050).

Workshops Presentations

- Amonkar, Y. V. (2019, Oct). Preserving long-term variability in multi-site simulation of streamflow extremes. EAEE Graduate Student Symposium.
- Amonkar, Y., Doss-Gollin, J. Lall, U. (2019, Sept). Multi-site and multi-flow conditional simulation and prediction of streamflow extremes. NE Grad Student Water Conference.
- Amonkar, Y. V., Lall, U. (2019, May). Spatiotemporal Clustered Risk of Flooding in the Ohio River Basin and American Midwest. Correlated Extremes Workshop.

Media Coverage

- Model predicts seasonal variability of solar and wind power, **National Science Foundation**, 2022-05-26.
- Model predicts seasonal variability of solar and wind power, **Mirage**, 2022-05-27.
- You've Heard of Water Droughts. Could 'Energy' Droughts Be Next?, *Kim Martineau* ,**Columbia News**, 2022-04-12.
- New Study Highlights the Possibility of Renewable Energy Drought, *Alex Smith*, **AZO Cleantech**, 2022-04-13.

Leadership and Service

- **Member**, Engineering Graduate Student Council, Columbia University 2018-2019.
- **Member**, Engineering Graduate Student Council, Columbia University 2016-2017.

Competences

Languages English (*full professional proficiency*), German (*elementary proficiency*), Marathi (*native*), Hindi (*native*), Konkani (*native*)

Techniques R, Python, git, ArcGIS, LaTeX