✉ *james.doss-gollin@psu.edu*
jamesdossgollin.me
0000-0002-3428-2224
jdossgollin
jdossgollin

James Doss-Gollin

Professional Appointments

Rice University, Houston, TX

Starting 2021 **Assistant Professor**, Department of Civil and Environmental Engineering.

2020 **Adjunct Professor**, Department of Civil and Environmental Engineering.

The Pennsylvania State University, State College, PA

2020–Present **Postdoctoral Scholar**, *Keller Research Group*, Earth and Environmental Systems Institute.

Education

2020 **Ph.D.**, *Earth and Environmental Engineering*, Columbia University, New York, NY.
- Dissertation: "Sequential Adaptation through Prediction of Structured Climate Risk"
- Committee: Upmanu Lall (advisor), Pierre Gentine (chair), Ngai Yin Yip, Casey Brown, Andrew R. Robertson

2016 **M.S.**, *Earth and Environmental Engineering*, Columbia University, New York, NY.

2015 **B.S.**, *Mechanical Engineering*, Yale University, New Haven, CT.

Honors and Awards

2018 **Nickolas and Liliana Themelis Fellowship**, *Fu Foundation School of Engineering and Applied Science*, Columbia University.

2017 **Graduate Research Fellowship**, *Climate and Large-Scale Atmospheric Dynamics*, National Science Foundation.

2015 **Presidential Distinguished Fellowship**, *Fu Foundation School of Engineering and Applied Science*, Columbia University.

2015 **Distinction in Major**, *Department of Mechanical Engineering and Materials Science*, Yale University.

2015 **B.S. Cum Laude**, Yale University.

2015 **Legacy Award**, New Haven Promise.

2014 **Larry Coben '79 Fellowship**, Yale University.

2013 **Vance-Carter Travel Award**, Yale University.

2012 **Thomas C. Barry Travel Award**, Yale University.

Publications and Presentations

Journal Articles

[1] **Doss-Gollin, James**, Farnham, David J., Ho, Michelle, and Lall, Upmanu. 2020b. "Adaptation over Fatalism: Leveraging High-Impact Climate Disasters to Boost Societal Resilience". *Journal of Water Resources Planning and Management* 146.4. DOI: 10.1061/(ASCE)WR.1943-5452.0001190.

[2] **Doss-Gollin, James**, Farnham, David J., Steinschneider, Scott, and Lall, Upmanu. 2019b. "Robust Adaptation to Multiscale Climate Variability". *Earth's Future* 7.7. DOI: 10.1029/2019EF001154.

[3] Rözer, Viktor, Kreibich, Heidi, Schröter, Kai, Müller, Meike, Sairam, Nivedita, **Doss-Gollin, James**, Lall, Upmanu, and Merz, Bruno. 2019d. "Probabilistic Models Significantly Reduce Uncertainty in Hurricane Harvey Pluvial Flood Loss Estimates". *Earth's Future* 7.4. DOI: 10.1029/2018EF001074.

[4] **Doss-Gollin, James**, Muñoz, Ángel G, Mason, Simon J, and Pastén, Max. 2018b. "Heavy Rainfall in Paraguay during the 2015-2016 Austral Summer: Causes and Sub-Seasonal-to-Seasonal Predictive Skill". *Journal of Climate* 31.17. DOI: 10.1175/JCLI-D-17-0805.1.

[5] Farnham, David J, **Doss-Gollin, James**, and Lall, Upmanu. 2018c. "Regional Extreme Precipitation Events: Robust Inference from Credibly Simulated GCM Variables". *Water Resources Research* 54.6. DOI: 10.1002/2017wr021318.

[6] **Doss-Gollin, James**, de Souza Filho, Francisco de Assis, and da Silva, Francisco Osny Enéas. 2015a. "Analytic Modeling of Rainwater Harvesting in the Brazilian Semiarid Northeast". *Journal of the American Water Resources Association* 52.1. DOI: 10.1111/1752-1688.12376.

Dissertation

[1] **Doss-Gollin, James**. 2020. "Sequential Adaptation through Prediction of Structured Climate Risk". PhD thesis. Columbia University. DOI: 10.7916/d8-p9ha-a055.

Manuscripts Accepted, Under Review, and In Preparation

[1] Amonkar, Yash Vijay, **Doss-Gollin, James**, and Lall, Upmanu. "Diagnosis, Simulation and Prediction of Inter-Annual and Longer Variations of Multi-Site, Annual Maximum Streamflow at a Regional Scale in the Ohio River Basin".

[2] **Doss-Gollin, James**, Lall, Upmanu, and Cohn, Timothy A. "Nonparametric Estimation of Autocorrelation Functions and Spectra of Irregularly Sampled Data".

[3] **Doss-Gollin, James**, Lall, Upmanu, and Lamontagne, Jonathan R. "Near-Term Predictability Can Lower Long-Term Adaptation Costs".

Conference Papers and Presentations

[1] Amonkar, Yash Vijay, **Doss-Gollin, James**, and Lall, Upmanu. 2019a. "Preserving Long-Term Variability in Simulation of Multisite Streamflow Extremes". *American Geophsyical Union Fall Meeting*. San Francisco, CA. DOI: 10.6084/m9.figshare.11444238.v1.

[2] **Doss-Gollin, James**, Lall, Upmanu, and Lamontagne, Jonathan. 2019c. "Towards Adaptive Resilience: Managing Uncertainties and Exploiting Predictability across Timescales". *American Geophsyical Union Fall Meeting*. San Francisco, CA. DOI: 10.6084/m9.figshare.11397936.v1.

[3] **Doss-Gollin, James**, Farnham, David J, Steinschneider, Scott, and Lall, Upmanu. 2018a. "Robust Adaptation to Cyclical Climate Risk". *American Geophsyical Union Fall Meeting*. Washington, DC. DOI: 10.13140/RG.2.2.28447.20649.

[4] **Doss-Gollin, James**, Farnham, David J, and Lall, Upmanu. 2017a. "Designing and Operating Infrastructure for Nonstationary Flood Risk Management". *American Geophsyical Union Fall Meeting*. New Orleans, LA. DOI: 10.13140/RG.2.2.16110.46403.

[5] **Doss-Gollin, James**, Muñoz, Ángel G, Mason, Simon J, and Pastén, Max. 2017b. "Causes and Model Skill of the Persistent Intense Rainfall and Flooding in Paraguay during the Austral Summer 2015-2016". *American Geophsyical Union Fall Meeting*. New Orleans, LA. DOI: 10.13140/RG.2.2.20146.30406.

[6] Faranda, Davide, Messori, Gabriele, **Doss-Gollin, James**, Farnham, David J, Lall, Upmanu, and Yiou, Pascal. 2017c. "Dynamics and Thermodynamics of Weather Extremes: A Dynamical Systems Approach". *American Geophsyical Union Fall Meeting*. New Orleans, LA.

[7] Rözer, Viktor, Kreibich, Heidi, Schröter, Kai, **Doss-Gollin, James**, Lall, Upmanu, and Merz, Bruno. 2017d. "BN-FLEMOps Pluvial - A Probabilistic Multi-Variable Loss Estimation Model for Pluvial Floods". *American Geophsyical Union Fall Meeting*. New Orleans, LA.

[8] **Doss-Gollin, James**, Farnham, David J, and Lall, Upmanu. 2016a. "Global-Local Interactions Modulate Tropical Moisture Exports to the Ohio River Basin". *American Geophsyical Union Fall Meeting*. San Francisco, CA. DOI: 10.13140/RG.2.2.36009.19044.

[9] Farnham, David J, **Doss-Gollin, James**, and Lall, Upmanu. 2016b. "Space-Time Characteristics and Statistical Predictability of Extreme Daily Precipitation Events in the Ohio River Basin". *American Geophsyical Union Fall Meeting*. San Francisco, CA.

[10] Spence, Caitlin M, Brown, Casey, and **Doss-Gollin, James**. 2016c. "Exploiting Synoptic-Scale Climate Processes to Develop Nonstationary, Probabilistic Flood Hazard Projections". *American Geophysical Union Fall Meeting*.

[11] Farnham, David J, Lall, Upmanu, Kwon, Hyun-Han, and **Doss-Gollin, James**. 2015b. "Moisture Transport and Extreme Precipitation in Mid-Latitudes". *American Geophsyical Union Fall Meeting*. San Francisco, CA.

[12] Araújo Júnior, Luiz Martins, de Souza Filho, Francisco de Assis, da Silva Silveira, Cleiton, Aragão Dias, Tyhago, and **Doss-Gollin, James**. 2014a. "Análise dos eventos de seca no Nordeste Setentrional Brasileiro vom case no índice de precipitação normalizada". *XII Simpósio de Recursos Hídricos Do Nordeste*. Natal, Rio Grande do Norte, Brasil: Associação Brasileira de Recursos Hídricos (ABRH). DOI: 10.13140/RG.2.1.4610.7685.

[13] **Doss-Gollin, James**, de Souza Filho, Francisco de Assis, and da Silva, Francisco Osny Enéas. 2014b. "Considerações sobre a sustentabilidade hídrica de cisternas para captação de chuva no Semiárido Brasileiro". *XII Simpósio de Recursos Hídricos Do Nordeste*. Natal, Rio Grande do Norte, Brasil: Associação Brasileira de Recursos Hídricos (ABRH). DOI: 10.13140/RG.2.1.4086.4807.

Talks and Presentations

Invited Talks

2020-01-29 **Prediction and Implications of Structured Climate Risk for Sequential Adaptation under Deep Uncertainty**, *Center for Climate Risk Management CLIMA Seminar*, The Pennsylvania State University, State College, PA, talk.

2020-01-27 **Prediction and Implications of Structured Climate Risk for Sequential Adaptation under Deep Uncertainty**, *Department of Civil and Environmental Engineering*, Rice University, Houston, TX, talk.

2020-01-07 **Prediction and Implications of Structured Climate Risk for Sequential Adaptation under Deep Uncertainty**, *Complex Systems Simulation and Optimization Group*, National Renewable Energy Laboratory, Golden, CO, talk.

2016-09-02 **Drivers of Extreme Rainfall: Atmospheric Circulation Patterns and Regional Intense Rainfall in the Ohio River Basin**, *European Flood Awareness System Group*, European Centre for Medium Range Weather Forecasting, Reading, England, talk.

2016-08-26 **Understanding the Physical Drivers of Extreme Rainfall for Flood Prediction**, *Oxford Water Network*, Oxford University, Oxford, England, talk.

Workshop Presentations

2019-10-18 **Adaptive Resilience through Real Options and Deep Reinforcement Learning**, *Doctoral Consortium on Computational Sustainability*, Carnegie Mellon University, Pittsburgh, PA, talk.

2019-04-13 **Evaluating Staged Investments in Critical Infrastructure for Climate Adaptation**, *Interdisciplinary Ph.D. Workshop in Sustainable Development*, Columbia University, New York, NY, talk.

2018-11-08 **Robust Adaptation to Multi-Scale Climate Variability**, *The Nexus of Climate Data, Insurance, and Adaptive Capacity*, Asheville, NC, poster.

2017-09-10 **Extreme Rainfall in Paraguay During the 2015-16 Austral Summer**, *North East Graduate Student Water Symposium*, University of Massachusetts Amherst, Amherst, MA, talk.

2017-05-31 **Regional Intense Precipitation: Inferences From GCM Atmospheric Circulation Fields**, *Modeling Research in the Cloud*, NCAR, Boulder, Colorado, poster.

2017-04-21 **Statistical-Dynamical Analysis of Climate Projections for Flood Infrastructure Design**, *Interdisciplinary Ph.D. Workshop in Sustainable Development 2017*, Columbia University, New York, NY, talk.

2016-12-07 **Physical Mechanisms and Subseasonal-To-Seasonal Predictability of Persistent Intense Rainfall and Paraguay River Flooding During the Austral Summer 2015/2016**, *Workshop on Subseasonal to Seasonal Predictability of Extreme Weather and Climate*, Columbia University, New York, NY, poster.

Public Communication

2019-10-29 **The False Comfort of Higher Seawalls**, *Paola Rosa-Aquino*, The New Republic.

2019-09-21 **Panelist**, *Liquid Futures: Envisioning a World with Water for All*, Lenfest Center for the Arts, Columbia University, New York, NY.

2018-08-06 **New Study Shows Promise for Long-Term Weather Forecasts in South America**, *Elisabeth Gawthrop*, State of the Planet.

Professional Service

Peer Reviewer

A verified record of reviews is available on Publons

- Hydrology and Earth System Sciences
- Journal of Applied Meteorology and Climatology
- Journal of Hydrology
- Journal of Water Resources Management and Planning
- Oxford Journal of Development Studies
- Water Resources Research
- Water Security

Professional Memberships

- American Geophysical Union (AGU)
- American Meteorological Society (AMS)
- American Society of Civil Engineers (ASCE)
- Society for Decision Making under Deep Uncertainty (DMDU)

Workshops and Sessions Organized

2019-12-23 **Primary Convenor**, *H51A Emerging Needs and Approaches for Climate Services: Understanding and Developing Innovative Approaches to User-Oriented Climate Services*, American Geophysical Union Fall Meeting, San Francisco, CA.

2018-10-12 **Student Organizer**, *Earth and Environmental Engineering Student Research Symposium*, Columbia University, New York, NY.

2017-10-27 **Student Organizer**, *Earth and Environmental Engineering Student Research Symposium*, Columbia University, New York, NY.

Teaching

Columbia University

2018 **Teaching Assistant**, *Environmental Data Modeling and Analysis*, Dr. Upmanu Lall.

2017 **Guest Lecturer**, *Water Systems Analysis*, Dr. Laureline Josset.

Non-Academic

2019–2020 **Python and Data Science Instructor**, *Oliver Wyman Group*.
Led multiple weeklong courses to teach fundamentals of Python and data science to over 150 consultants at multinational company.

Further Experience

2019–2020 **Visiting Graduate Researcher**, *Lamontagne Research Group*, Department of Civil and Environmental Engineering, Tufts University, Medford, MA .

2015–2020 **Graduate Research Fellow**, *Columbia Water Center*, Department of Earth and Environmental Engineering, Columbia University, New York, NY.

2015 **Summer Intern**, *Education Policy Initiative*, Elm City Communities / New Haven Housing Authority, New Haven, CT.
Developed summer curriculum and researched policy interventions to support literacy and youth engagement.

2012–2015 **President**, *Engineers Without Borders*, Yale Student Chapter, New Haven, CT.
As president (2014), design lead (2013), and member (2012, 2015), coordinated design of water supply system in village of 1500 in northwestern Cameroon.

2012–2015 **Founder and President**, *New Haven REACH*, New Haven, CT.
Founded and led a program to support New Haven high school seniors applying to college. Recruited, trained, and coordinated over 50 volunteer mentors from Yale.

2014 **Visiting Undergraduate Researcher**, *Water and Climate Risk Lab*, Department of Hydraulic and Environmental Engineering, Universidade Federal do Ceará, Fortaleza, Brazil.

2014–2015 **Undergraduate Research Assistant**, *Lab of Jaehong Kim*, Department of Chemical and Environmental Engineering, Yale University, New Haven, CT.

2013 **Mechanical Design Intern**, *Slingshot Team*, DEKA Research & Development, Manchester, NH.

2012 **Undergraduate Research Assistant**, *Lab of Jan Schroers*, Department of Mechanical Engineering and Materials Science, Yale University, New Haven, CT.

2012 **Summer Intern**, *Ikatú Agua Project*, Fundación Paraguaya, Asunción, Paraguay.

Languages

English	Native Speaker
Spanish	Full professional proficiency
Portuguese	Professional working proficiency
Italian	Elementary proficiency
Gurani	Elementary proficiency