

## Education

- Present **Ph.D. Candidate**, *Department of Earth and Environmental Engineering*, Columbia University.
- NSF Graduate Research Fellow
  - Columbia University Presidential Fellow
  - Advisor: Upmanu Lall
- 2016 **M.S.**, *Department of Earth and Environmental Engineering*, Columbia University.
- 2015 **B.S.**, *Mechanical Engineering*, Yale University, New Haven, CT.
- Senior project: “Adapting UVC-LEDs for Portable Water Purification”
  - Graduated *Cum Laude*
  - Distinction in Mechanical Engineering and Materials Science
- 2011 **High School**, Wilbur Cross H.S., New Haven, CT.

## Experience

- 2015–Present **Graduate Research Fellow**, *Columbia Water Center*, Columbia University Department of Earth and Environmental Engineering, New York, NY.
- 2014–2015 **Undergraduate Research Assistant**, *Department of Chemical and Environmental Engineering*, Yale University, New Haven, CT.
- Evaluated technical and economic viability of UV-C LED technology for portable water treatment
- 2014 **Visiting Student Researcher**, *Water and Climate Risks Lab*, Hydraulic and Environmental Engineering Department, Universidade Federal do Ceará, Fortaleza, Brazil.
- Researched bottom-up drought vulnerability assessment of rural drinking water systems
- 2013 **Mechanical Design Intern**, *DEKA Research and Development*, Manchester, NH.
- Used CAD and 3D printing to evaluate design changes for Slingshot water purification system
- 2012 **Summer Intern**, *Ikatú Agua Project*, Fundación Paraguaya, Asunción, Paraguay.
- Assessed impact of credit for water system improvement in 19 rural communities

## Professional and Community Engagement

### Teaching

- 2018 **Teaching Assistant**, *Environmental Data Modeling & Analysis*, Columbia University.
- Wrote and graded problem sets for 40 masters-level students. Held regular office hours and gave two lectures: “Introduction to R and RStudio”, and “Introduction to Bayesian Methods”.
- 2017 **Guest Lecturer**, *Water Systems Analysis*, Columbia University.
- Gave lecture “Using climate information for Water Systems analysis”

### Mentoring

High School Caroline Schwab

### Professional Service

- 2017–2018 **Organizer**, *Earth and Environmental Engineering Student Research Symposium*, Columbia University, New York, NY.

## 2017-Present **Reviewer.**

*A verified record of reviews is available at <https://publons.com/a/1468228/>.*

- Oxford Journal of Development Studies
- Journal of Hydrology
- Journal of Applied Meteorology and Climatology

## Community Service and Outreach

### 2016–2017 **Volunteer**, *Youth Career Connect*, New York, NY.

Mentored New York high school juniors and seniors interested in STEM careers.

### 2015 **Summer Intern**, *Education Policy Initiative*, New Haven Housing Authority/Elm City Communities, New Haven, CT.

Developed summer curriculum and researched policy interventions to support literacy and youth engagement and reduce multi-generational poverty.

### 2012–2015 **Founder**, *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 > 50 volunteer mentors from Yale.

### 2011–2015 **President**, *Engineers Without Borders*, Yale Student Chapter.

As member (2011-2012, 2015), design lead (2013) and president (2014) led student team in design and construction of water supply system for rural community of 1500 in Northwestern Cameroon.

## Professional Memberships

2018–Present American Society of Civil Engineers

2015–Present American Geophysical Union

2016–Present American Meteorological Society

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## Skills

### Computer

Programming advanced: Python, R; proficient: bash, Matlab, C++

Stats / ML advanced: stan; proficient: PyMC3, Edward, tensorflow, keras

Communication advanced: Markdown/Pandoc, Rmarkdown, L<sup>A</sup>T<sub>E</sub>X, jupyter; proficient: jekyll, pelican

Reproducibility proficient: Docker, git, conda, make

### Language

English Native speaker

Spanish Full professional proficiency

Portuguese Professional working proficiency

French Elementary proficiency

Italian Elementary proficiency

Guaraní Basic

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## Honors & Awards

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

2017-2020 **Graduate Research Fellowship**, *Climate and Large-Scale Atmospheric Dynamics*, National Science Foundation.

Research: “Understanding & Predicting Climate Drivers of Extreme, Mid-latitude River Floods”

2015-2019 **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.
- 2014 **Larry Coben '79 Fellowship**, Yale University.
- 2013 **Vance-Carter Travel Award**, Yale University.
- 2012 **Thomas C. Barry Fellowship**, Yale University.

## Publications and Presentations

### Manuscripts In Review

- [1] **James Doss-Gollin**, David J Farnham, Michelle Ho, and Upmanu Lall. "Predictable and Preventable: Let Us Not Blame Climate Change for Our Own Failures". 2019.
- [2] **James Doss-Gollin**, David J Farnham, Scott Steinschneider, and Upmanu Lall. "Robust Adaptation to Multi-Scale Climate Variability". 2019.

### Peer-Reviewed Journal Articles

- [1] Viktor Rözer, Heidi Kreibich, Kai Schröter, Meike Müller, Nivedita Sairam, **James Doss-Gollin**, Upmanu Lall, and Bruno Merz. "Probabilistic Models Significantly Reduce Uncertainty in Hurricane Harvey Pluvial Flood Loss Estimates". In: *Earth's Future* (2019). DOI: 10.1029/2018EF001074.
- [2] **James Doss-Gollin**, Ángel G Muñoz, Simon J Mason, and Max Pastén. "Heavy Rainfall in Paraguay during the 2015-2016 Austral Summer: Causes and Sub-Seasonal-to-Seasonal Predictive Skill". In: *Journal of Climate* (June 2018). DOI: 10.1175/JCLI-D-17-0805.1.
- [3] David J Farnham, **James Doss-Gollin**, and Upmanu Lall. "Regional Extreme Precipitation Events: Robust Inference From Credibly Simulated GCM Variables". In: *Water Resources Research* (2018). DOI: 10.1002/2017wr021318.
- [4] **James Doss-Gollin**, Francisco de Assis de Souza Filho, and Francisco Osny Enéas da Silva. "Analytic Modeling of Rainwater Harvesting in the Brazilian Semiarid Northeast". In: *Journal of the American Water Resources Association* 52.1 (Dec. 2015), pp. 129–137. DOI: 10.1111/1752-1688.12376.

### Conference Papers and Presentations

- [1] **James Doss-Gollin**, David J Farnham, Scott Steinschneider, and Upmanu Lall. "Robust Adaptation to Multi-Scale Climate Variability". In: *American Geophysical Union Fall Meeting*. Washington, DC, Dec. 14, 2018. DOI: 10.13140/RG.2.2.28447.20649.
- [2] **James Doss-Gollin**, David J Farnham, and Upmanu Lall. "Designing and Operating Infrastructure for Nonstationary Flood Risk Management". In: *American Geophysical Union Fall Meeting*. New Orleans, LA, Dec. 2017. DOI: 10.13140/RG.2.2.16110.46403.
- [3] **James Doss-Gollin**, Ángel G Muñoz, Simon J Mason, and Max Pastén. "Causes and Model Skill of the Persistent Intense Rainfall and Flooding in Paraguay during the Austral Summer 2015-2016". In: *American Geophysical Union Fall Meeting*. New Orleans, LA, Dec. 2017. DOI: 10.13140/RG.2.2.20146.30406.
- [4] Davide Faranda, Gabriele Messori, **James Doss-Gollin**, David J Farnham, Upmanu Lall, and Pascal Yiou. "Dynamics and Thermodynamics of Weather Extremes: A Dynamical Systems Approach". In: *American Geophysical Union Fall Meeting*. New Orleans, LA, Dec. 2017.

- [5] Viktor Rözer, Heidi Kreibich, Kai Schröter, **James Doss-Gollin**, Upmanu Lall, and Bruno Merz. "BN-FLEMOps Pluvial - A Probabilistic Multi-Variable Loss Estimation Model for Pluvial Floods". In: *American Geophysical Union Fall Meeting*. New Orleans, LA, Dec. 2017.
- [6] **James Doss-Gollin**, David J Farnham, and Upmanu Lall. "Global-Local Interactions Modulate Tropical Moisture Exports to the Ohio River Basin". In: *American Geophysical Union Fall Meeting*. San Francisco, CA, 2016. DOI: 10.13140/RG.2.2.36009.19044.
- [7] David J Farnham, **James Doss-Gollin**, and Upmanu Lall. "Space-Time Characteristics and Statistical Predictability of Extreme Daily Precipitation Events in the Ohio River Basin". In: *American Geophysical Union Fall Meeting*. San Francisco, CA, Dec. 2016.
- [8] Caitlin M Spence, Casey Brown, and **James Doss-Gollin**. "Exploiting Synoptic-Scale Climate Processes to Develop Nonstationary, Probabilistic Flood Hazard Projections". In: *American Geophysical Union Fall Meeting*. San Francisco, CA. 2016.
- [9] David J Farnham, Upmanu Lall, H H Kwon, and **James Doss-Gollin**. "Moisture Transport and Extreme Precipitation in Mid-Latitudes". In: *American Geophysical Union Fall Meeting*. San Francisco, CA, Dec. 2015.
- [10] Luiz Martins Araújo Júnior, Francisco de Assis de Souza Filho, Cleiton da Silva Silveira, Tyhago Aragão Dias, and **James Doss-Gollin**. "Análise Dos Eventos de Seca No Nordeste Setentrional Brasileiro Com Base No Índice de Precipitação Normalizada". In: *XII Simpósio de Recursos Hídricos Do Nordeste*. Natal, Rio Grande do Norte, Brasil, 2014. DOI: 10.13140/RG.2.1.4610.7685.
- [11] **James Doss-Gollin**, Francisco de Assis de Souza Filho, and Francisco Osny Enéas da Silva. "Considerações Sobre a Sustentabilidade Hídrica de Cisternas Para Captação de Chuva No Semiárido Brasileiro". In: *XII Simpósio de Recursos Hídricos Do Nordeste*. Natal, Rio Grande do Norte, Brasil: Associação Brasileira de Recursos Hídricos (ABRH), 2014. DOI: 10.13140/RG.2.1.4086.4807.

#### Talks and Workshop Presentations

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