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James Doss-Gollin

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

Skills

Computer

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

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

Communication advanced: Markdown/Pandoc, Rmarkdown, LaTeX, 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

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.

[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". 2019.

Peer-Reviewed Journal Articles

[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 Geophsyical 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 Geophsyical 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 Geophsyical 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 Geophsyical 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 Geophsyical 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 Geophsyical 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 Geophsyical 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 Geophsyical 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.

Last updated on April 14, 2019