Julio E. Herrera Estrada

herreraestrada@stanford.edu | herreraestrada.com

SUMMARY OF QUALIFICATIONS

- Specialist in land-surface hydrology, hydrological and weather hazards (e.g. droughts, floods, heat waves, wildfires), and climate change impacts on hydrological and weather hazards.
- Seven years of experience applying probability and statistics methods to hydrological risk projects.
- Nine years of programming experience, four years using parallel programming, and two years using high-performance computing.
- With past experience working in teams and leadership positions, managing teams of four to eight people.
- With past experience in interdisciplinary collaborations and science communication.

EDUCATION

Ph.D. in Civil and Environmental Engineering, **Princeton University**, Princeton, NJ 11/2017
Graduate Certificate in Science, Technology, and Environmental Policy

B.S. in Applied Mathematics, **Columbia University**, New York, NY 05/2012

WORK EXPERIENCE

Department of Earth System Science, Stanford University Stanford, CA
Postdoctoral Scholar 10/2017 – Present

- Quantify the electricity sector's vulnerabilities to hydrological hazards in the US and globally.
- Perform statistical analyses of data from satellites and reanalyses using high-performance computing.
- Direct progress of three original research projects and contribute to five others through collaborations.

Disaster Risk Management and Urban Development Unit, The World Bank Group Washington, DC
Consultant 05/2018 – 10/2018

- Provided technical advice on how to develop probabilistic drought risk assessments for food security.
- Wrote three reports to support investment projects of hydrometeorological services in West Africa.

Department of Civil and Environmental Engineering, Princeton University Princeton, NJ
Graduate Research Assistant 09/2012 – 09/2017

- Studied causes and impacts of hydrological and weather hazards using mathematical modeling and statistical analyses with data from reanalyses products, land-surface models, and climate models.
- Led four original research projects and contributed to two others as part of collaborative teams.
- Took initiative to pursue new ideas and to identify funding and professional development opportunities.

Water Program, International Institute for Applied Systems Analysis (IIASA) Laxenburg, Austria
Young Scientists Summer Program 06/2015 – 08/2015

- Created data-driven framework to track droughts as they evolve in space and time around the world.
- Sought collaboration to study regional cooperation for drought risk management in North America.

Department of Applied Physics and Applied Mathematics, Columbia University New York, NY
Undergraduate Research Assistant 09/2011 – 04/2012

- Analyzed and compared large precipitation datasets used to study climate change in the Sahel.
- Coordinated dual supervision and submitted weekly progress reports.

Department of Civil and Environmental Engineering, Princeton University Princeton, NJ
Undergraduate Research Assistant 06/2011 – 08/2011

- Assessed the risks of Zambia's agricultural sector using a probabilistic rainfall model and a crop model.
- Coordinated with three supervisors to develop consistent research goals throughout the summer.

LEADERSHIP EXPERIENCE

Highwire Earth: Insights on Sustainable Development, Princeton University Princeton, NJ
Co-Founder and Editor-in-Chief 02/2015 – 05/2017

- Set the vision and growth strategy for the creation of a new interdisciplinary online publication.
- Delegated work amongst team of four, recruited contributors, and oversaw outreach.

Department of Civil and Environmental Engineering, Princeton University Princeton, NJ
President of the Graduate Student Representatives 09/2014 – 09/2015

- Engaged with student body to identify priority areas and to develop and implement new initiatives.
- Led bi-weekly meetings to assess progress and delegated work amongst team of four students.

Task Force on the Future of the Graduate School, Princeton University Princeton, NJ
Invited Member 09/2014 – 06/2015

- Contributed to a strategic plan process as part of a team of twenty administrators, faculty, and students.
- Organized student focus groups to assess strengths and weaknesses of The Graduate School.

Latino Graduate Student Association, Princeton University Princeton, NJ
President 09/2013 – 09/2014

- Led monthly meetings with team of eight students to evaluate priorities and agree on responsibilities.
- Chaired planning committee to organize a national academic graduate student conference.

Engineers Without Borders Student Chapter, Columbia University New York, NY
Member of Uganda Program & Northeast Regional Workshop's Planning Committee 09/2010 – 04/2012

- Designed a rainwater harvesting system for a school in Uganda as part of a team of ten students.
- Co-led a committee of seven students to plan a regional workshop.

Leadership Development Programs:

- Rising Environmental Leaders Program (2018), **Stanford Woods Institute,** Stanford, CA.
- Summer Policy Colloquium (2016), **American Meteorological Society,** Washington, DC.

SKILLS

Computing & Programming: Python (NumPy, SciPy, StatsModels, Scikit-learn, Matplotlib, MPI for Python), MATLAB, R, Mathematica, Slurm Workload Manager, Linux.

Probability & Statistics: Regression analysis, time series analysis, geospatial statistics, stochastic simulations, statistical optimization, Bayesian statistics, machine learning.

Mathematical Modeling: Dynamical systems, numerical methods for differential equations.

Languages: Spanish (native), English (bilingual), French (limited working proficiency).

FELLOWSHIPS, AWARDS, AND HONORS

Stanford Data Science Scholars Fellowship (US$31,500/year), **Stanford University** 10/2018 – Present
NASA Earth and Space Science Fellowship (US$30,000/year), **NASA** 09/2014 – 08/2017
Wu Graduate Fellowship in Engineering (US$4,000/year), **Princeton University** 09/2012 – 08/2016
Graduate Student Leadership Award, **Princeton University** 04/2016
C. Prescott Davis Scholar, **Columbia University** 09/2008 – 05/2012
Dean's List (five semesters), **Columbia University** 09/2008 – 05/2012
PCCM/PRISM Research Experience for Undergraduates, **Princeton University** 06/2011 – 08/2011
Scholars Program Summer Enhancement Fellowship (US$3,000/year), **Columbia University** 2010 – 2011
Summer Undergraduate Research Fellowship, Biological Sciences (US$4,000), **Columbia University** 2010
Mentor Appreciation Award, Columbia Mentoring Initiative, **Columbia University** 04/2010