Monica G. Bobra

Principal Data Scientist

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Summary

I have fifteen years of experience leading diverse teams across academia, industry, and government to solve a wide variety of problems in economic, social, and environmental sustainability using advanced and ethical modeling techniques. My work helped communities make better decisions, reduce risk, and save resources.

Education

University of New Hampshire, Durham NH
M.S. Physics
JANUARY 2010

Boston University, Boston MA
B.A. Astronomy
B.S. Communication
MAY 2004

Executive Qualifications

Navigating challenging political environments

Building strategic partnerships across academia, industry, and government

Bridging traditionally siloed disciplines

Building engaged and empowered teams

Strong technical background in analysis, forecasting, modeling, and risk management

Clear and simple storytelling

Awards

Robert H. Goddard Exceptional Achievement for Science Award (2024)

NASA Group Achievement Award — SunPy Development Team (2024)

American Astronomical Society Solar Physics Division Popular Media Award (2021)

NASA Group Achievement Award — Solar Dynamics Observatory Team (2017)

Robert H. Goddard Exceptional Achievement for Science Award (2016)

NASA Space Grant Fellowship (2008 - 2009)

NASA Group Achievement Award — Hinode Team (2007)

Experience

State of California, Office of Data and Innovation / Principal Data Scientist
MAY 2023 - PRESENT, SACRAMENTO & SAN FRANCISCO BAY AREA, CA

Serving as the data science methodology expert for the State of California, as appointed by Governor Newsom, to build and scale data science capacity across the State of California

Leading strategic partnerships to improve safety and sustainability using advanced modeling techniques; for example, led a team at the State Water Resources Control Board to model the impact of drought on thousands of community water systems and identify those at risk

Pioneered initiative to translate academic research into operations across the State; for example, working with the Stanford Doerr School of Sustainability and the California Department of Water Resources to help communities reduce flood risk by monitoring subsidence with novel, high-precision instruments

Stanford University / Research Scientist
APRIL 2010 - JULY 2021, STANFORD CA

Led multi-stakeholder teams to predict the impact of space weather on public infrastructure, such as power grids and GPS satellites, by using petabyte-scale satellite data together with novel machine learning algorithms as acting PI of NSF and NASA grants ($1.8M total award)

Led federal science policy in data-driven space weather risk management by serving on the National Academy of Sciences Heliophysics Mid-Decadal Committee (2020)

Led the development of open source software in heliophysics as a SunPy Board member and Journal of Open Source Software editor

Served as a founding member of the Center for Open and REproducible Science at Stanford Data Science, which develops innovative methods to enable open science practices across Stanford University

Served as a member of the science team for a $1B NASA Heliophysics flagship mission, the Solar Dynamics Observatory, designed to safeguard the nation against the adverse effects of space weather

Harvard-Smithsonian Center for Astrophysics / Astrophysicist
OCTOBER 2005 - AUGUST 2007, CAMBRIDGE MA

Developed and published a numerical model of the solar magnetic field that accurately replicates observational data

Served as a member of the science team for two NASA Heliophysics missions, Hinode and the Transition Region and Coronal Explorer