Andrew G. Roberts

CONTACT INFORMATION

CCDS 1326
665 Commonwealth Ave
Boston, MA 02215 USA

arober@bu.edu
https://arob5.github.io/

EDUCATION

Boston University, Boston, MA USA
Ph.D., Computing and Data Sciences. 2021- present
Advisors: Jonathan Huggins, Michael Dietze
Coursework as non-degree student 2019 - 2020

Harvard Extension School, Cambridge, MA USA
Coursework as non-degree student 2018 - 2020

Tufts University, Medford, MA USA
B.S. Quantitative Economics 2014 - 2018

RESEARCH INTERESTS

I am broadly interested in uncertainty quantification, probabilistic modeling, and spatiotemporal forecasting, with the goal of developing new methodologies for environmental and ecological applications. I am currently working on applications to large-scale land surface models. I am passionate about bringing together researchers in the environmental, statistical, and computational sciences to address environmental challenges via an interdisciplinary approach.

PROFESSIONAL EXPERIENCE

Jet Propulsion Laboratory, Pasadena, CA USA
Intern, Uncertainty Quant. and Stat. Analysis June 2024 - August 2024

Federal Reserve Bank of Boston, Boston, MA USA
Senior Research Assistant July 2019 - June 2021
Research Assistant June 2018 - July 2019

World Bank, Cambridge, MA USA
Research Assistant March - July 2018

Wiley Education Services, Oak Brook, IL USA
Decision Sciences Intern June - Dec 2017

Patrivalor, Madrid, ES
Intern Feb - May 2017

BW Research Partnership, Boston, MA USA
Intern June 2016 - Feb 2017

HONORS AND AWARDS

Summa Cum Laude, Tufts University (2018)

PROFESSIONAL SERVICE	**Mechanism Design for Social Good (MD4SG)**	
	Co-organizer, Working Group on Environment	Spring 2021-Spring 2023
	Member, Working Group on Environment	Fall - Spring 2021
	BU Chapter of the ASA (BUSCASA)	Spring 2023 - Fall 2025
	Vice President	
FELLOWSHIPS	**Boston University URBAN Fellowship**	Spring 2024 - present
	Previously funded through NSF	
TEACHING	**Stochastic Methods for Algorithms**	Fall 2023, Fall 2025
	Teaching Fellow	
EXTRA-CURRICULAR	Boston University Climbing Club	Fall 2021- present
	Tufts Climate Action, Tufts University	2014 - 2015
	Tufts Energy Group, Tufts University	2015

PUBLICATIONS

1. N. Raoult, N. Douglas, N. MacBean, J. Kolassa, T. Quaife, **A.G. Roberts**, R.A. Fisher, I. Fer, C. Bacour, K. Dagon, L. Hawkins, N. Carvalhais, E. Cooper, M. Dietze, P. Gentine, T. Kaminski, D. Kennedy, H.M. Liddy, D. Moore, P. Peylin, E. Pinnington, B.M. Sanderson, M. Scholze, C. Seiler, T.L. Smallman, N. Vergopolan, T. Viskari, M. Williams, J. Zobitz (2024). Parameter Estimation in Land Surface Models: Challenges and Opportunities with Data Assimilation and Machine Learning. *Journal of Advances in Modeling Earth Systems, 17, e2024MS004733. https://doi.org/10.1029/2024MS004733*

PREPRINTS

1. **Andrew G. Roberts**, Michael Dietze, and Jonathan H. Huggins. Propagating Surrogate Uncertainty in Bayesian Inverse Problems, *arXiv preprint,* 2026. *https://arxiv.org/abs/2601.03532*

PEER REVIEW

1. Journal of Advances in Modeling Earth Systems (2025)
2. Conference on Neural Information Processing Systems (2024)

POSTERS/TALKS

1. *Addressing Challenges in Scalable Ecosystem Modeling*, Presenter: Andrew Roberts. URBAN Biogeoscience and Environmental Health Symposium; Boston University; Boston, MA, May 2025
2. *Scalable Parameter Calibration for Expensive Ecosystem Models*, Presenter: Andrew Roberts, Collaborators: Michael Dietze, Jonathan Huggins. Ecological Forecasting Initiative (EFI2025), Virginia Tech; Blacksburg, VA, May 2025
3. *Bayesian Inversion with Probabilistic Surrogates: Posterior Approximation and Sequential Design* (Poster), Presenter: Andrew Roberts, Collaborators: Michael Dietze, Jonathan Huggins. Kernel Methods for Uncertainty Quantification and Experimental Design, Institute for Mathematical and Statistical Innovation (IMSI); Chicago, IL, April 2025.
4. *Gaussian process emulators for the solution of Bayesian inverse problems: applications to land surface modeling* (Talk), Presenter: Andrew Roberts, Collaborators: Michael Dietze, Jonathan Huggins. Uncertainty Quantification for Remote Sensing Inverse Problems; Jet Propulsion Laboratory, September 2024.
5. *Parameter Calibration and Uncertainty Quantification for Expensive Ecosystem Models* (Talk), Presenter: Andrew Roberts, Collaborators: Michael Dietze, Jonathan Huggins. 3rd New England Student Research Symposium in Statistics and Data Science; Boston University, April 2024.
6. *Active Learning for Posterior Approximation: Calibrating Expensive Ecosystem Models* (Poster), Presenter: Andrew Roberts, Collaborators: Michael Dietze, Jonathan Huggins. EnviBayes Workshop on Complex Environmental Data; Colorado State University, 2023.