

Dallas Foster, Resume

CONTACT INFORMATION	Massachusetts Institute of Technology (801)828-5740 Department of Aeronautics and Astronautics	
RESEARCH INTERESTS	Uncertainty Quantification (UQ), Climate and Earth System Research, Scientific Computing, Machine Learning, Data Assimilation.	
EDUCATION	Department of Mathematics, Oregon State University Ph.D. in Mathematics	2021
	Department of Mathematics, University of Utah B.S. in Mathematics B.S. in Political Science	2016
APPOINTMENTS	Postdoctoral Research Assistant Massachusetts Institute of Technology, Cambridge, MA Uncertainty Quantification techniques for large scale data-driven problems. Reference: Youssef Marzouk ymarz@mit.edu	2021-Present
	Graduate Research Assistant Oregon State University , Corvallis, OR Data Assimilation techniques for nonlinear advection- diffusion equations with stochastic wave velocity. Reference: Juan M. Restrepo juan.restrepo@ornl.gov	2016-2021
	SIParCS Intern National Center for Atmospheric Research, Boulder, CO Analysis of the ocean boundary layer depth using probabilistic machine learning. Reference: David John Gagne dgagne@ucar.edu	2020 - 2021
	Graduate Research Assistant Los Alamos National Laboratory, Los Alamos, NM Bayesian inference in data-driven analysis of annual to decadal sea surface temperature anomaly statistics. Reference: Nathan Urban nurban@bnl.gov	2018-2019
	Undergraduate Research Assistant University of Utah, Salt Lake City, UT Data-driven inverse models modeling Arctic sea ice. Reference: Kenneth M. Golden golden@math.utah.edu	2014-2016

RELEVANT SKILLS	Uncertainty Quantification	Monte Carlo Methods: (Adaptive) MCMC, HMC, LMC, Bayesian Statistics, Stochastic (PDE) Modeling, Gaussian Processes Polynomial Chaos, Stochastic Galerkin and Collocation Methods.
	Machine Learning	Dense, Convolutional, Recurrent, Adversarial, and Generative NNs Bayesian NNs, Probabilistic Graphical Models, Weight Uncertainty
	Programming Languages	7 Years Experience with Python, MATLAB, Mathematica, R, Julia 4 Years Experience with C, C++, Fortran, FEniCS (Finite Element) 3 Years Experience with OpenMP, MPI, OpenCL, TensorFlow Misc. Software: Stan, Git, Docker, scikit-learn, Atom, Visual Studio
SELECTED PUBLICATIONS	D. Foster , J.M. Restrepo, Dynamic Likelihood Filter: A Data Assimilation Scheme that Exploits Hyperbolicity in Wave Problems to Propagate Observations, In preparation, 2020.	
	D. Foster , David John Gagne II, Daniel B. Whitt, Probabilistic Machine Learning Estimation of Ocean Mixed Layer Depth from Dense Satellite and Sparse In-Situ Observations, Submitted to <i>Journal of Advances in Modeling Earth Systems</i> , 2020.	
	D. Foster , D. Comeau, and N. M. Urban, A Bayesian Approach to Regional Decadal Predictability: Sparse Parameter Estimation in High-Dimensional Linear Inverse Models of High-Latitude Sea Surface Temperature Variability, <i>J. Climate</i> , 33, 6065-6081.	
INVITED SELECTED PRESENTATIONS	<i>Dynamic Likelihood Filter: A Data Assimilation Scheme that Exploits Hyperbolicity in Wave Problems to Propagate Observations</i> , D. Foster , J.M. Restrepo. 2020 Fall Meeting of the American Geophysical Union. Oral Presentation, December 2020.	
	<i>A Bayesian approach to regional decadal predictability: Sparse parameter estimation in high-dimensional linear inverse models of high-latitude sea surface temperature variability</i> , D. Foster , N. Urban, D. Comeau. 2019 Fall Meeting of the American Geophysical Union. Poster Presentation, December 2020.	
HONORS AND AWARDS	Presidential Scholarship, University of Utah	2012-2016
	Provost Distinguished Scholarship, Oregon State University	2016-2017
	ARCS (Achievement Rewards for College Scientists) Foundation Scholar	2016-2019
	SIAM Student Chapter Certificate of Recognition 2020	2020
PROFESSIONAL AFFILIATIONS	American Physical Society (APS)	
	Member	2019-Present
	American Geophysical Union (AGU)	
	Member	2019-Present
	Candidate: Secretary for Nonlinear Geophysics	2020
	Society for Industrial and Applied Mathematics (SIAM)	
	Member	2011-Present
	Oregon State University Chapter of SIAM	
	Treasurer	2016-2018
	President	2018-2020