Randy Price

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EDUCATION

George Mason University (GMU) — Fairfax, VA
Postdoctoral Research Scholar — Sept. 2021 – Present
Advisors: Harbir Antil and Rainald Löhner

University of Maryland, Baltimore County (UMBC) — Baltimore, MD
Ph.D. Applied Mathematics — Aug. 2015 – Aug. 2021
Advisor: Animikh Biswas, Co-advisor: Bedrich Sousedik
Thesis Title: Topics in Data Assimilation and Uncertainty Quantification

University of Maryland, College Park — College Park, MD
B.S. Mathematics, Minor in Computer Science — Aug. 2010 – May 2014

PUBLICATIONS AND PREPRINTS

1. H. Antil, R. Price. Data assimilation for neural network surrogate pde models. (in preparation).
2. H. Antil, R. Löhner R. Price. Learning one time step of a chemically reacting flow. (in preparation).
3. A. Biswas, M. Jolly, R. Price. Comparison of ensemble Kalman filter and nudging algorithm for the Navier–Stokes equations. (in preparation).
4. H. Antil, R. Löhner, R. Price. NINNs: Nudging induced neural networks. (submitted 2022 to SIAM journal on Scientific Computing). https://arxiv.org/abs/2203.07947.
5. H. Antil, R. Löhner, R. Price. Data assimilation with deep neural nets informed by nudging. (in review for Computer Methods in Applied Mechanics and Engineering). https://arxiv.org/abs/2111.11505.
6. B. Sousedik, H. Elman, K. Lee, R. Price. On surrogate learning for linear stability assessment of Navier–Stokes equations with stochastic viscosity. Applications of Mathematics (2022): 1-23. https://doi.org/10.21136/AM.2022.0046-21.
7. B. Sousedik, R. Price. A stochastic Galerkin method with adaptive time-stepping for the Navier–Stokes equations. Journal of Computational Physics 468 (2022): 111456. https://doi.org/10.1016/j.jcp.2022.111456.
8. A. Biswas, R. Price. Continuous data assimilation for the three-dimensional Navier–Stokes equations. SIAM Journal on Mathematical Analysis 53.6 (2021): 6697-6723. https://doi.org/10.1137/20M1323229.

FUNDING AND AWARDS

1. Funded by Airforce Office of Scientific Research (AFOSR), National Science Foundation and Defense Threat Reduction Agency (DTRA) during postdoc.
2. Internship at IFM Prover working on filtering signals, Summer 2021.
3. Accepted for Internship Network in the Mathematical Sciences, Spring 2021 (Johns Hopkins University & University of Illinois).
4. Gene Golub SIAM Summer School, Inverse Problems: Systematic Integration of Data with Models under Uncertainty, Summer 2018; received full support from SIAM.

PRESENTATIONS

1. Nudging Applications in Data Assimilation, Control and Neural Networks, Differential Equations Seminar, University of Maryland, Baltimore County, November 2022.
2. Nudging Applications in Data Assimilation, Control and Neural Networks, Sayas Numerics Day, University of Maryland, Baltimore County, September 2022.
3. Nudging Applications in Data Assimilation, Control and Neural Networks, International Conference on Continuous Optimization (ICCOPT), Lehigh University, July 2022.
4. Nudging Applications in Data Assimilation, Control and Neural Networks, Accurate ROMs for Industrial Applications at Virginia Tech, July 2022.
5. Nudging in Data Assimilation and Optimal Control, Finite Element Circus, November 2021.
6. Discrete Data Assimilation for the 2D Navier-Stokes Equations, UMBC Graduate Student Seminar, October 2020.
7. Continuous Data Assimilation for the 3D Navier-Stokes Equations, UMBC Differential Equations Seminar, March 2020.
8. A Data Assimilation Algorithm for the 3D Planetary Geostrophic Viscous Model, UMBC Graduate Student Seminar, October 2019.
9. Stochastic Finite Element Methods and Numerical Results for the Time Dependent Heat Equation, UMBC Graduate Student Seminar and Differential Equation Seminar, 2018.
10. Navier-Stokes Discretizations, UMBC Graduate Student Seminar, 2018.
11. Measures of Dimension, UMBC Graduate Student Seminar, 2017.

TEACHING EXPERIENCE

Teaching Assistant

Math 151 - Calculus and Analytic Geometry I	Spring 2018
Math 152 - Calculus and Analytic Geometry II	Fall 2017, Spring 2019
Math 155 - Applied Calculus	Summer 2016, Fall 2016, Spring 2017
Math 221 - Introduction to Linear Algebra	Spring 2016
Math 251 - Multivariable Calculus	Fall 2018, Fall 2019
Math 302 - Intro. to Mathematical Analysis II	Spring 2020, Fall 2020, Spring 2021
Math 411 - Linear Algebra	Spring 2021
Math 430 - Matrix Analysis	Fall 2020
Math 601 - Measure Theory	Spring 2021
Preparation Sessions for Qualifying Exams	Summer 2019, Winter 2019

CONFERENCES AND SEMINARS ORGANIZED

Support team for East Coast Optimization Meeting (ECOM), March 31 - April 1, 2022.

Support team for the Center for Mathematics and Artificial Intelligence Colloquium since September 2021.

Support team for PDE and Data Control Seminar at George Mason University since September 2021.