

Fields Of Interest

Dynamical Systems & Control, Reduced-Order Modeling,
Physics-Informed Machine Learning, Uncertainty Quantification

Education

- 2019-2024 **Ph.D.**, *University of Arizona*, Tucson, AZ.
(expected) Applied Mathematics
- 2019-2021 **M.S.**, *University of Arizona*, Tucson, AZ.
Applied Mathematics
- 2012-2016 **B.S.**, *University of Arizona*, Tucson, AZ.
Mathematics & Physics

Research

- 2021-present **Optimal Natural Gas Flows in a Network with Uncertainty**
We work to determine optimal flows on a natural gas network under the coupled gas and energy grids upon inclusion of intermittent renewable energies and under stressing scenarios.
- 2020-present **Machine Learning Statistical Evolution of the Coarse-Grained Velocity Gradient Tensor**
We use cutting edge machine learning techniques to create physics-informed reduced order models of the inherently chaotic evolution of the velocity gradient tensor in isotropic turbulence.

Work Experience

- Summer 2023 **Google Summer of Code contributor**, *NumFocus/Julia SciML*.
- 2020-present **Graduate Research Assistant**, *University of Arizona*, Tucson, AZ.
- Summers 2020-22 **Graduate Student Researcher**, *Los Alamos National Labs*, Los Alamos, NM.
- 2019-2020 **Graduate Teaching Assistant**, *University of Arizona*, Tucson, AZ.
- 2016-2019 **Software Engineer II**, *Raytheon Missile Systems*, Tucson, AZ.

Computer Languages

Julia	Proficient
C/C++	Proficient
Python	Comfortable
Bash	Comfortable
Matlab	Comfortable
Cuda	Beginner

Computer skills

Open Source	git/workflow, \LaTeX , Linux
HPC	Slurm, Docker, parallel computing
Methodologies	CI, TDD, Agile

Fellowships

- Aug 2021 - May 2023 NSF Data-Driven Research Training Group Traineeship *University of Arizona College of Science, Mathematics*
- Jan 2022 - May 2022 Roots for Resilience Data Science Scholarship *University of Arizona Data Science Institute, Arizona Institute for Resilience*

Service and Leadership

- Apr 2023 Organized and presented “Introduction to Parallelization” for NSF Data-Driven Research Training Group
- Mar 2023 Graduate Mentor for American Statistical Association DataFest Competition
- Quarterly 2021-2022 Organized and presented “Introduction to HPC” seminar for Math PhD students
- Aug 2021 - May 2022 SIAM Brownbag Student Colloquium Organizer
- Jul 2018 - Jul 2019 Certified Scrum Master: Scaled Agile Framework

Publications

- Hyett, Criston** et al. **2023a**. “Control of Line Pack in Natural Gas System: Balancing Limited Resources under Uncertainty”. In: *PSIG Annual Meeting*. PSIG, PSIG–2314.
- Hyett, Criston** et al. **2023b**. *Differentiable Simulator For Dynamic and Stochastic Optimal Gas and Power Flows*. arXiv: 2310.18507 [math.OC].
- Tian, Yifeng et al. **2022**. “Lagrangian Large Eddy Simulations via Physics Informed Machine Learning”. In: *arXiv preprint arXiv:2207.04012*.
- Woodward, Michael et al. **2021**. “Physics Informed Machine Learning of SPH: Machine Learning Lagrangian Turbulence”. In: *arXiv preprint arXiv:2110.13311*.

Selected Talks

- Hyett, Criston** et al. **2023**. “Velocity gradient prediction using parameterized Lagrangian deformation models”. In: *Bulletin of the American Physical Society*.
- Hyett, Criston** et al. **2021**. “Machine Learning Statistical Evolution of the Coarse-Grained Velocity Gradient Tensor”. In: *APS Division of Fluid Dynamics Meeting Abstracts*, E31–009.

Human Languages

- English Native Speaker
- Spanish Basic