Criston Hyett

Fields Of Interest

Physics-Informed Machine Learning, Reduced-Order Modeling, Optimization

Education

2019-2024 (expected) **Ph.D.**, *University of Arizona*, Tucson, AZ.
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

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.

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 natural gas and energy grids upon inclusion of renewable energies.

Experience

2020-present **Graduate Research Assistant**, *University of Arizona*, Tucson, AZ.

Summer 2021 **Graduate Student Researcher**, *Los Alamos National Labs*, Los Alamos, NM.

Summer 2020 **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.

Talks

Feb, 2022 Introduction to Optimal Gas Flows on a Network
SIAM Student Brownbag, (planned)

Nov, 2021 Machine Learning Statistical Evolution of the Coarse-Grained Velocity Gradient Tensor
APS Division of Fluid Dynamics Meeting

Mar, 2021 Machine Learning Stochastic Differential Equations: Applications in Reduced-Order Models of Turbulence
SIAM Student Brownbag

Nov, 2020 Machine Learning Statistical Lagrangian Geometry of Turbulence
APS Division of Fluid Dynamics Meeting

Teaching

Fall 2019 Math 112: College Algebra

Spring 2020 Math 112: College Algebra

Fellowships

Jan 2022 - present	Roots for Resilience Data Science Scholarship	*University of Arizona Data Science Institute, Arizona Institute for Resilience*

Computer Languages

Julia	Proficient	*Used daily in development of research software*
C/C++	Proficient	*Used extensively in an embedded environment at Raytheon Missile Systems*
Bash	Comfortable	*Basic functionality used daily*
Python	Comfortable	*Used weekly*
R	Beginner	
Matlab	Comfortable	*Interpretted monthly*
Cuda	Beginner	
Ada	Comfortable	*Interpretted daily while at RMS*

Computer skills

Open Software	git, github, LaTeX
HPC	Slurm
Methodologies	CI (Jenkins), TDD, Agile
Operating Systems	Linux, Windows

Service and Leadership

Aug 2021 - present	SIAM Brownbag Student Colloquium Organizer
Jul 2018 - Jul 2019	Certified Scrum Master: Scaled Agile Framework

Interests

Reproducible, Interpretable Science	Using the paradigm of *Literate Programming* and *Test Driven Development* with a minimal toolchain built from Emacs & git, to co-locate scientific justification with source controlled software, and reproducible results.

Human Languages

English	Native Speaker
Spanish	Basic
Japanese	Beginner
Amharic	Beginner