Dihan Dai

Curriculum Vitae

Department of Mathematics, University of Utah
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Education

2016–2022 **Ph.D. in Mathematics**, University of Utah, Salt Lake City, US.

2012–2016 **B.Sc. in Mathematics**, Zhejiang University, Hangzhou, China.

Research Interests

- numerical methods for hyperbolic systems
- uncertainty quantification
- structure-preserving methods
- shallow water models
- data science and machine learning

Awards

- Departmental Summer Research Fellowship, University of Utah, 2021.
- First-Class Scholarship for Outstanding Merit, Zhejiang University, 2014.

Publications

- Dihan Dai, Yekaterina Epshteyn, and Akil Narayan, Hyperbolicity-Preserving and Well-Balanced Stochastic Galerkin Method for Shallow Water Equations, *SIAM Journal on Scientific Computing*, `https://doi.org/10.1137/20M1360736`
- Dihan Dai, Yekaterina Epshteyn, and Akil Narayan, Hyperbolicity-Preserving and Well-Balanced Stochastic Galerkin Method for Two-Dimensional Shallow Water Equations, *submitted*, `https://arxiv.org/abs/2104.11268`
- Dihan Dai, Akil Narayan, and Yekaterina Epshteyn, Non-Dissipative and Structure-Preserving Emulators via Spherical Optimization, *submitted*, `https://arxiv.org/abs/2108.12053`
- Dihan Dai, Yekaterina Epshteyn, and Akil Narayan, Projection-Based Hyperbolic-Preserving Numerical Schemes for Stochastic Galerkin System of Shallow Water Equations, *in preparation*
- Dihan Dai, Yekaterina Epshteyn, and Akil Narayan, Energy Stable Scheme for Stochastic Galerkin System of Shallow Water Equations, *in preparation*

Talks

May 2021 *Stochastic Galerkin Method for Shallow Water Equations* (poster presenter)
ICERM workshop in Advances and Challenges in Hyperbolic Conservation Laws

Mar 2021 *Stochastic Galerkin Method for Shallow Water Equations* (invited)
Applied Math Seminar, University of Utah

Mar 2019 *Google's PageRank*
Applied Math Collective, University of Utah

Conferences/Workshop

May 2021	**ICERM workshop in Advances and Challenges in Hyperbolic Conservation Laws** Virtual Conference
Mar 2021	**SIAM Conference on Computational Science and Engineering (CSE21)** Virtual Conference
Sept 2020	**Second Symposium on Machine Learning and Dynamical Systems** Virtual Conference
Apr 2019	**The Second SIAM Wasatch Student Chapters Conference** Utah State University, Logan, Utah, USA.

Teaching

Instructor

- Math 1320 - Engineering Calculus II (Spring 2021)
- Math 1320 - Engineering Calculus II (Fall 2020)
- Math 13 - Bridge to Engineering Calculus (Fall 2020)
- Math 2210 - Calculus III (Summer 2020)
- Math 1310 - Engineering Calculus I (Spring 2020)
- Math 1060 - Trigonometry (Fall 2019)
- Math 1100 - Business Calculus (Spring 2019)
- Math 1090 - Business Algebra (Fall 2018)

Lab Teaching Assistant

- MATH 2250 - Differential Equations and Linear Algebra (Spring 2018)
- MATH 1321 - Accelerated Engineering Calculus II (Fall 2017)
- MATH 2250 - Differential Equations and Linear Algebra (Spring 2017)
- MATH 2250 - Differential Equations and Linear Algebra (Fall 2016)

Skills

- Programming Langaue: C, MATLAB, Python (with NumPy, SciPy), Fortran, C++ (basic), C# (basic), SQL
- Software: LaTeX, Microsoft Office series, git (version control).
- Languages: Mandarin (native), Cantonense (native), English (fluent)