Dihan Dai

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 system
- uncertainty quantification
- structure-preserving methods
- shallow water models
- machine learning and deep learning

Awards

- Departmental Summer Research Fellowship, University of Utah, 2021.
- First-Class Scholarship for Outstanding Merit, Zhejiang University, 2018.

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 Structure-Preserving Function Approximation *(in preparation)*
- Yiming Xu, and Dihan Dai, Archetypal Analysis on Graphs, *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
Dec 2020 **Machine Learning in Science & Engineering**

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).
- Software: LaTeX, Microsoft Words, Microsoft Excel, Microsoft PowerPoint.
- Languages: Mandarin (native), Cantonense (native), English (fluent)