

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 for Graph-Based Clustering, *in preparation*

Talks

- | | |
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| May 2021 | <i>Stochastic Galerkin Method for Shallow Water Equations</i> (poster presenter)
ICERM workshop in Advances and Challenges in Hyperbolic Conservation Laws |
| Mar 2021 | <i>Stochastic Galerkin Method for Shallow Water Equations</i> (invited)
Applied Math Seminar, University of Utah |
| Mar 2019 | <i>Google's PageRank</i>
Applied Math Collective, University of Utah |

Conferences/Workshop

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| 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 |

Sept 2020	Virtual Conference Second Symposium on Machine Learning and Dynamical Systems
Apr 2019	Virtual Conference 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 Language: C, MATLAB, Python (with NumPy, SciPy), Fortran, C++ (basic), C# (basic).
- Software: L^AT_EX, Microsoft Words, Microsoft Excel, Microsoft PowerPoint.
- Languages: Mandarin (native), Cantonese (native), English (fluent)