

# SHIPING ZHOU

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## EDUCATION

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- **Ph.D. Candidate in Computational and Applied Mathematics**  
Missouri University of Science and Technology (expected graduation: 2024).  
Advisor: Dr. Yanzhi Zhang
- **M.S. in Computational Mathematics**  
Shandong University, China (2019)
- **B.S. in Mathematics and Applied Mathematics**  
Anhui University of Technology, China (2016)

## RESEARCH INTERESTS

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- Modeling and simulation for nonlocal models
- Finite difference methods and spectral methods
- Finite element methods
- Data-driven modeling and simulation
- Deep neural network for solving PDEs

## AWARDS

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- Paul W. Elie Graduate Research Award, Missouri University of Science and Technology, 2022
- Nonlocal School of Fractional Equations NSF Travel Award, 2022
- Mathematics and Statistics Alumni Endowed Scholarship, Missouri University of Science and Technology, 2022
- Gaoxiong Gan Scholarship Fund, Missouri University of Science and Technology, 2022
- 7th Annual Meeting of SIAM Central State Section Travel Award, 2022

## PUBLICATIONS AND PREPRINTS

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1. *Weak Galerkin finite element method with second-order accuracy in time for parabolic problems*, S. Zhou, F. Gao, B. Li, and Z. Sun, Appl. Math. Lett., 90 (2019), pp. 118-123.
2. *Fourier pseudospectral methods for the spatial variable-order fractional wave equations*, S. Zhou, X. Zhao, and Y. Zhang, (2022), submitted.
3. *Data-driven approach for the solutions of time-dependent PDEs using convolutional neural network*, S. Zhou, Y. Li, and Y. Zhang, to be submitted (November, 2022).
4. *A spectral-order method for the fractional PDEs with Dirichlet integral fractional Laplacian*, S. Zhou and Y. Zhang, to be submitted (December, 2022).
5. *Analytical and computational aspects of the high-order fractional Laplacian*, J.P. Borthagaray, Y. Wu, S. Zhou, and Y. Zhang, to be submitted (December, 2022).

## PRESENTATIONS

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1. Contributed talk: *Numerical studies on the high-order fractional Laplacian*. Midwest Numerical Analysis Day 2021, Rolla, MO, 10/2021.
2. Invited talk: *Numerical studies on the high-order fractional Laplacian*. 4th Annual Meeting of the SIAM Texas-Louisiana Section, South Padre Island, TX, 11/2021.
3. Seminar talk: *Numerical studies on the high-order fractional Laplacian*. Continuum Mechanics Seminar (CMS) at UNL, Online, 3/2022.
4. Poster: *Numerical studies on the high-order fractional Laplacian*. KU Numerical Analysis Day 2022, Lawrence, KS, 3/2022.
5. Seminar talk: *Numerical Methods for acoustic wave equations*. Graduate Seminar at Missouri University of Science and Technology, Rolla, MO, 4/2022.
6. Poster: *Numerical studies on the high-order fractional Laplacian*. Theoretical and Applied Aspects for nonlocal Models - Workshop of BIRS, Online, 7/2022.
7. Invited talk: *Accurate and efficient spectral method for fractional wave equations*. The 7th Annual Meeting of SIAM Central States Section, Stillwater, OK, 10/2022.

## TEACHING EXPERIENCE

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### Missouri University of Science and Technology

- **Lab instructor**, Calculus I (Fall 2020).
- **Grader**, Calculus I (Fall 2019 — Spring 2020).

## PROFESSIONAL MEMBERSHIP

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- Society for Industrial and Applied Mathematics (SIAM), 2021-present

## SKILLS

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- Expert in Numerically Solving PDEs.
- Skilled in MATLAB, Python, Fortran, and L<sup>A</sup>T<sub>E</sub>X.
- Proficient in Data-driven Machine Learning