

♪ CV updated on September 15, 2025



Yi Zhang

Work Address

Huajiang Huigu #4-408A
School of Mathematics and Computing Science
Guilin University of Electronic Technology
Guilin, China

Home Address

Huajiang Qinggonglou
Guilin University of Electronic Technology
Guilin, China

↔ **CONTACT**

Personal website: www.mathischeap.com
Email: zhangyi-aero@hotmail.com
Mobile: +86 199 7417 1867

↔ **RESEARCH INTERESTS & SKILLS**

Structure-preserving discretization, mimetic spectral element method, finite element method, numerical analysis, computational fluid dynamics, parallel computing

↔ **EXPERIENCE**

Teacher

Discrete geometries of mathematics and physics (DGMP)
Department of Information and Computing Science
School of Mathematics and Computing Science
Guilin University of Electronic Technology, Guilin, China

November 2023 - present

Post-doctoral researcher

Robotics and Mechatronics
Faculty of Electrical Engineering, Mathematics & Computer Science
University of Twente, Enschede, the Netherlands

November 2022 - November 2023

Post-doctoral researcher

Computational Mechanics
School of Aeronautics and Astronautics
Sun Yat-sen University, Shenzhen, China

February 2022 - October 2022

↔ EDUCATION

Ph.D.

September 2016 - January 2022 (including one gap year)

Aerodynamics

Delft University of Technology, Delft, the Netherlands

Mimetic Spectral Element Method and Extensions toward Higher Computational Efficiency

Master of Science

September 2013 - February 2016

Aerodynamics

Delft University of Technology, Delft, the Netherlands

Spatially mass-, kinetic energy- and helicity-preserving mimetic discretization of 3D incompressible Euler flows

Bachelor of Science

September 2009 - June 2013

Aircraft Environment and Life-supporting Engineering

Nanjing University of Aeronautics and Astronautics, Nanjing, China

↔ PUBLICATIONS

- Yi Zhang, Marc Gerritsma, Bridge the mimetic spectral element method to simplicial meshes, part I: triangular meshes, under review.
- S.D.M. de Jong, Andrea Brugnoli, Ramy Rashad, Yi Zhang, Stefano Stramigioli, A domain decomposition strategy for natural imposition of mixed boundary conditions in port-Hamiltonian systems, arXiv:2501.06107.
- Xuan Luo, Zichao Jiang, Yi Zhang, Qinghe Yao, Zhuolin Wang, Gengchao Yang, Bohua Huang, A CNN-based particle tracking method for large-scale fluid simulations with Lagrangian-Eulerian approaches, arXiv:2412.18379.
- Yi Zhang, Artur Palha, Andrea Brugnoli, Deepesh Toshniwal, Marc Gerritsma, Decoupled structure-preserving discretization of incompressible MHD equations with general boundary conditions, arXiv:2410.23973.
- Andrea Brugnoli, Ramy Rashad, Yi Zhang, Stefano Stramigioli, Finite element hybridization of port-Hamiltonian systems, Appl. Math. Comput. 498 (2025) 129377, <https://doi.org/10.1016/j.amc.2025.129377>.
- Zhuolin Wang, Zichao Jiang, Yi Zhang, Gengchao Yang, Trevor Hocksun Kwan, Yuhui Chen, Qinghe Yao, A moving least square immersed boundary method for SPH with thin-walled structures, Comp. Part. Mech. 11 (2024) 1981–1995, <https://doi.org/10.1007/s40571-024-00721-2>.
- Yi Zhang, Artur Palha, Marc Gerritsma, Qinghe Yao, A MEEVC discretization for two-dimensional incompressible Navier-Stokes equations with general boundary conditions, Journal of Computational Physics 510 (2024) 113080. <https://doi.org/10.1016/j.jcp.2024.113080>.
- Zhuolin Wang, Zichao Jiang, Yi Zhang, Gengchao Yang, Trevor Hocksun Kwan, Yuhui Chen, Qinghe Yao, A moving least square immersed boundary method for SPH with thin-walled structures, Comp. Part. Mech. 11 (2024) 1981–1995.
- Zichao Jiang, Zhuolin Wang, Qinghe Yao, Gengchao Yang, Yi Zhang, Junyang Jiang, A neural network-based Poisson solver for fluid simulation, Neural Process Letters 56 (2024) 233.
- Qinghe Yao, Zhuolin Wang, Yi Zhang, Zijie Li, Junyang Jiang, Towards real-time fluid dynamics simulation: A data-driven NN-MPS method and its implementation, Mathematical and Computer Modelling of Dynamical Systems 29 (2023) 95–115.

- Y. Zhang, A. Palha, M. Gerritsma and L. G. Rebholz, A mass-, kinetic energy- and helicity-conserving mimetic dual-field discretization for three-dimensional incompressible Navier-Stokes equations, part I: Periodic domains, *Journal of Computational Physics* 451 (2022) 110868, doi.org/10.1016/j.jcp.2021.110868.
- Y. Zhang, J. Fisser and M. Gerritsma, A hybrid mimetic spectral element method for three-dimensional linear elasticity problems, *Journal of Computational Physics*, 433 (2021) 110179, doi.org/10.1016/j.jcp.2021.110179.
- V. Jain, Y. Zhang, A. Palha and M. Gerritsma, Construction and application of algebraic dual polynomial representations for finite element methods on quadrilateral and hexahedral meshes, *Computers & Mathematics with Applications*, 95 (2021) 101-142, doi.org/10.1016/j.camwa.2020.09.022.
- Y. Zhang, V. Jain, A. Palha, M. Gerritsma, The Use of Dual B-Spline Representations for the Double de Rham Complex of Discrete Differential Forms, *Lecture Notes in Computational Science and Engineering* 133 (2021) 227-242, doi.org/10.1007/978-3-030-49836-8_11
- Y. Zhang, V. Jain, A. Palha, M. Gerritsma, Discrete Equivalence of Adjoint Neumann–Dirichlet div-grad and grad-div Equations in Curvilinear 3D Domains, *Lecture Notes in Computational Science and Engineering* 134 (2020) 203-213, doi.org/10.1007/978-3-030-39647-3_15
- M. Gerritsma, V. Jain, Y. Zhang, A. Palha, Algebraic Dual Polynomials for the Equivalence of Curl-Curl Problems, *Lecture Notes in Computational Science and Engineering* 132 (2020), doi.org/10.1007/978-3-030-30705-9_27.
- Y. Zhang, V. Jain, A. Palha, M. Gerritsma, The Discrete Steklov–Poincaré Operator Using Algebraic Dual Polynomials, *Computational Methods in Applied Mathematics* 19(3) (2019) 645-661, doi.org/10.1515/cmam-2018-0208.
- Y. Zhang, V. Jain, A. Palha, M. Gerritsma, A high order hybrid mimetic discretization on curvilinear quadrilateral meshes for complex geometries, In proceedings of 6th European Conference on Computational Mechanics & 7th European Conference on Computational Fluid Dynamics (2019) 426-437.
- M. Gerritsma, A. Palha, V. Jain, Y. Zhang, Mimetic Spectral Element Method for Anisotropic Diffusion, *Numerical Methods for PDEs. SEMA SIMAI Springer Series* 15 (2018) 31-74, doi.org/10.1007/978-3-319-94676-4_3.

For other academic activities of me, please see www.mathischeap.com.