# Yue WU

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## EDUCATION

**B.S. in Information & Computational Science, School of the Gifted Young, University of Science and Technology of China (USTC)**                                        09/2019 – 07/2023
- Overall GPA: 3.96 / 4.30 (91.77 / 100.00) (rank in the major: $1^{st}$ / 40)
- Thesis: Discontinuous Galerkin Methods for the $p$-Laplacian Equation

## RESEARCH INTERESTS
- **High-order numerical methods for PDEs**: discontinuous Galerkin, finite element, spectral method
- **Scientific computing**: parallel solvers

## RESEARCH EXPERIENCE

**Numerical Simulation of Plasma Equilibrium Evolution in Nuclear Fusion**                     USTC
Supervisor: Prof. Mengping Zhang                                             06/2021 – 05/2022
- Developed a parallel hybrid finite difference-pseudo spectral code for resistive MHD in toroidal geometry
- Performed long-time simulation of resistive tearing mode instability in tokamaks
- Checked the results with researchers from the Institute of Plasma Physics, CAS, and against those from existing open-source codes
- Discussed the methodology and results with Prof. Chi-Wang Shu from Brown University
- Surveyed and implemented DG schemes for controlling divergence of the magnetic field in ideal MHD

**Positivity-Preserving Conservative Low Rank Methods for Vlasov Dynamics**          Purdue University (Online)
Supervisor: Prof. Xiangxiong Zhang                                           06/2022 – 08/2022
- Developed a low-rank correction algorithm with positivity preservation and orthogonality constraints via optimization
- Used the algorithm to post-process the data generated from the dynamic low-rank solver

**Discontinuous Galerkin Methods for the $p$-Laplacian Equation**                              USTC
Supervisor: Prof. Yan Xu                                                     12/2022 – 06/2023
- Proved an a priori error estimate for an LDG scheme for the $p$-Laplacian equation
- Developed and implemented a preconditioned gradient descent method which provides $hk$-independent convergence

## TEACHING EXPERIENCE
- TA, Computational Methods B, USTC (lecturer: Prof. Jingrun Chen)                 02/2022 – 06/2022

## HONORS AND AWARDS
- USTC Outstanding Undergraduate Award                                                06/2023
- Individual "Chia-Chiao Lin" Gold Medal (top 1), the $14^{th}$ S.-T. Yau College Student Math Contest, Applied and Comp. Math track                                                          06/2023
- Team Silver Medal (top 1 in Applied and Comp. Math part), the $14^{th}$ S.-T. Yau College Student Math Contest                                                                       06/2023
- Gold Prize, USTC Outstanding Student Scholarship                                    10/2022
- Excellence Prize, the $13^{th}$ S.-T. Yau College Student Math Contest, Analysis and PDEs track        08/2022
- China National Scholarship (top 3%)                                                 12/2021
- Second Prize, the $13^{th}$ Chinese Math Competitions (CMC)                          12/2021
- China National Scholarship (top 3%)                                                 12/2020
- Promotional Ambassador for Wuxi as an Outstanding Student Representative             08/2020
- Third Prize, USTC Freshman Scholarship                                              09/2019

**SELECTED COURSEWORK**

- **Math:** Real Analysis, Functional Analysis, Differential Equations I/II (undergrad/grad)
- **Numerics:** Numerical Analysis, Numerical PDE (grad), FEM (grad), CFD (grad; audit)

**TECHNICAL PROFICIENCIES**

- **Computer:** C/C++, Matlab, Fortran, MPI, LaTeX, Mathematica, Python
- **Languages:** Chinese (native), English (fluent)

**STANDARDIZED TESTS**

- **TOEFL iBT:** 106 (R: 28, L: 27, S: 25, W: 26)
- **GRE General:** 327 (V: 157, Q: 170, W: 3.5)
- **GRE Subject (Mathematics):** 970 (97%)