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 / 4.3 (rank in the major: 1st out of 40, 2019 fall -- 2022 summer)
- Thesis: Discontinuous Galerkin Methods for the p-Laplacian Equation

RESEARCH INTERESTS

- **High-order numerical methods for PDEs**: discontinuous Galerkin, finite difference/volume WENO, 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 (instructor: Prof. Jingrun Chen) 2022 Spring

HONORS AND AWARDS

- China National Scholarship (Top 3%) 12/2021
- China National Scholarship (Top 3%) 12/2020
- Gold Prize, USTC Outstanding Student Scholarship 10/2022
- Excellence Prize, the 13th S.-T. Yau College Student Mathematics Contest, Analysis and DE track 08/2022
- Second Prize, the 13th China National Mathematics Competition for College Students 12/2021
- 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%)