Zikang Qin

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Education

Nanjing Normal University, B.S. in Computational Mathematics　　　　　　　　　Sept 2012 – July 2017
- GPA: 3.04/4.0

China Academy of Engineering Physics, M.S. in Computer Science　　　　　　　　Sept 2018 – July 2021
- Dissertation title: *Study on efficient methods for solving time harmonic Maxwell equation in waveguide*
- GPA: 2.77/4.0

China Academy of Engineering Physics, Ph.D. in Computational Mathematics　　　Sept 2023 – July 2026
- Dissertation title: *Study on efficient methods for discrete linear systems of structural elements in static analysis*
- GPA: 3.40/4.0

Experience

Software Engineer, CETC 38th Research Institute – Hefei, Anhui Province　　　　Aug 2021 – Aug 2022
- Integrated Kalman filter modules into the ReWorks embedded system platform for real-time radar track data processing

Software Engineer, Universaland – Hefei, Anhui Province　　　　　　　　　　　Oct 2022 – Aug 2023
- Developed an adaptive network adjustment module for a GNSS high-precision positioning software
- Improved positioning precision by 10%–15%

Research Projects

Efficient Methods for Solving Time-Harmonic Maxwell Equations in SiP Applications
- Designed a **multigrid** preconditioner based on shifted relative permittivity
- Developed an **MPI-based distributed parallel solver**, achieving favorable numerical performance
- Tools Used: C, MPICH, PETSc

Efficient Methods for Solving Structural Element Discrete Linear Systems in Static Analysis
- Developed a **parallel graph-partitioning multigrid coarsening module** using ParMETIS
- Constructed **multigrid interpolation operators** based on rigid body modes and Kirchhoff theory
- Designed an **MPI-based distributed parallel aggregation-based multigrid preconditioner**, significantly improving static structural simulation efficiency
- Tools Used: C, MPICH, ParMETIS, PETSc

Publications

CSCMO: Relative Permittivity-Based Complex Shifted Operator Preconditioning Method for Solving Time-Harmonic Maxwell Equations　　　　　　　　　　　　　　　Aug 2025

Zikang Qin, Xiaoyu Duan, Hengbin An, etc

Applied Numerical Mathematics (JCR Q1), Accept

Comparison of Two Methods for Accelerating Convergence of Vector Sequences　　Dec 2021

Zikang Qin, Hengbin An, Xinyu Wang

Journal on Numerical Methods and Computer Applications, 10.12288/szjs.s2020-0704

Professional Skills

Programming: C, Python, MATLAB
Parallel Computing: MPI, PETSc, AMGX, Hypre, MUMPS
Languages: English (proficient), Chinese (native)

Honors & Awards

Chinese College Students Math Competition, Second Prize　　　　　　　　　　Nov 2014
Chinese College Students Math Competition, Third Prize　　　　　　　　　　　Nov 2015
NNU Mathematical Contest in Modeling, First Prize　　　　　　　　　　　　　May 2015