

RUIQI FENG

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EDUCATION

North Carolina State University Jan. 2023 - May. 2023

Undergraduate (exchange student) in Computer Science

Fudan University Sept. 2020 - Now

Undergraduate in Physics, **GPA:** 3.66/4, **Ranking:** 14/112

PUBLICATION

- **Ruiqi Feng**, Cuiqin Bai. (2023). Numerical Simulation of Tennis Racket Effect using COMOSL. College Physics. [\[PDF\]](#)

EXPERIENCES

PBG (Photonic Crystal) Lab at Fudan University Jan. 2022 - Jan. 2023

Research Assistant

- Developed a high-performance film design framework by adopting the underlying physics rules and realized parallelism on GPU which improved the computation efficiency by over 100× while keeping the memory footprint small.
- Investigated the frequency-biasedness of the learning process and provided a solution that alleviates the frequency problem.

Machine Learning Lab at North Carolina State University Feb. 2023 - Now

Research Assistant

- Proposed a unified view of understanding of existing robust graph neural networks.
- Improved the robustness of graph neural networks with novel smoothness penalties inspired by unbiased penalized linear regression models. Our MCP-like penalty achieves SOTA performance against adversarial attacks.

SELECTED PROJECTS

Y-86 Simulation Sept. 2022 - Dec. 2022

- Implement an emulator of a sequential CPU in "Y-86" architecture, including modeling the registers, ALU, basic functionalities of the main memory, etc.

Monte-Carlo Classical Heisenberg Model Dec. 2022 - Jan. 2023

- Implemented a numerical simulator of the Classical Heisenberg model, which models ferromagnetism.
- Observed the phase transition and determined the Curie temperature of a periodic lattice containing $5 \times 5 \times 5$ magnetic dipoles per period.

AWARDS AND PRIZES

- Outstanding Student Scholarship Oct. 2022
- Top Students of the Physics Department Prize at Fudan University Jun. 2022
- Third Prize in Chinese Physics Contest for Undergraduates Jan. 2022
- Second prize in China Undergraduate Mathematical Contest in Modeling Nov. 2021
- Outstanding Student Scholarship Oct. 2021
- Freshman Scholarship at Fudan University Sept. 2020

TOOLS

Programming Languages: Python, C/C++, Java, Matlab, Mathematica

Tools and Frameworks: PyTorch, Git, L^AT_EX, Numba