

Wenyu Shan

School of Physics, Peking University

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Education

Peking University, BSc in Atmospheric Physics (Expected Graduation: 2026) Sept 2022 – Present

- **GPA:** 3.79/4.00

- **Coursework:**

Physics: Introduction to atmospheric sciences (A), Fundamentals of Atmospheric Physics (A), Fundamentals of Atmospheric Dynamics (A+), Theoretical Mechanics (A), Electrodynamics (A+), Computational Physics (A+)

Mathematics: Calculus (A), Linear Algebra (A-), ODE&PDE (A-), Complex Function (A), Probability and Statistics Curriculum (A+)

Computation: Introduction to Computation (A-), Introduction to data science (A+)

Research Experience

Data-Driven Subsurface Flow Reconstruction Using Vision Transformers Jul 2025 – Present
(Soon to be published)

Advisors: Prof. Dorian Abbot(UChicago), Prof. Eli Tziperman(Harvard), Prof. Pedram Hassanzadeh(UChicago) **Location:** The University of Chicago

- Conducted Quasi-Geostrophic (QG) simulation to estimate inner flow dynamics of layered fluid systems.
- Trained AI models, demonstrating that the AI-based approach outperforms traditional SQG theory in climate diagnostics.

Delving into RL for Image Generation with CoT: A Study on DPO vs. GRPO Feb 2025 – Jul 2025
(Accepted by NeurIPS 2025)

Co-authors: Chengzhuo Tong, Ziyu Guo, Renrui Zhang **Location:** Peking University

- Conducted a comparative study on DPO vs. GRPO for autoregressive image generation.
- Investigated domain generalization, reward-model sensitivity, and the effects of scaling.

Temporal Prediction of Velocity Fields Based on Machine Learning. Feb 2024 – Jul 2025
Advisors: Prof. Dorian Abbot(UChicago), Prof. Jun Yang, Prof. Pedram Hassanzadeh(UChicago) **Location:** Peking University

- Conducted Multilayer Shallow Water Barotropic Wind Field Simulation.
- Performed temporal prediction using the wind field generated by the simulation based on machine learning.

Conferences & Academic Activities

Summer Research at University of Chicago Jul 2025 - Sept 2025

- Collaborated with Prof. Dorian and Prof. Eli on **Data-Driven Subsurface Flow Reconstruction Using Vision Transformers**
- Attended Jurnel Club "AI4Climate" given by Prof. Dorian Abbot and Prof. Pedram Hassanzadeh

Participated in National Symposium on Planetary Science Oct 2024

- Attended lectures on Exoplanet Atmosphere, Atmosphere and Oceans of the Solar System Planets, Exoplanet Detection, and others.
- Gave a report titled "**Temporal Prediction of Velocity Fields Based on Machine Learning.**"

Participated in Distinguished Lectures on Planetary Atmospheres Aug 2024

- Attended lectures focused on Planetary Atmospheres.

Participated in Shanghai Jiao Tong University Physics Summer School

Jul 2024

- Attended lectures on quantum field theory, quantum computing, cosmology, and astrophysics.
- Participated in seminars on differential geometry and general relativity.

Honors & Awards

Peking University Model Student (top 10%)	2024 - 2025
Qin Wanshun-Jin Yunhui Scholarship	2024 - 2025
Peking University Model Student	2023 - 2024
Geru Zheng Outstanding Student Scholarship	2023 - 2024
Peking University Outstanding Academic Achievement Award	2022 - 2023
Peking University Third-Class Scholarship	2022 - 2023

Technical & Languages Skills

Programming Languages: Python(professional), Matlab, C++(basic)

Simulation Softwares: Origin, Mathematica(basic)

Other Tools: DaVinci, Lightroom(basic)

Languages Skills: Mandarin (Native), English (Fluent), TOEFL: 103, GRE: 318