

Postdoctoral Position in Turbulent Flows and Scientific Machine Learning

Department of Mechanical Engineering

About the Group

Our research explores the **two-way interaction between turbulence and modern AI**. We use advanced AI methods to develop new ways of generating, reconstructing, and exploring turbulent flows, while using turbulence as a rigorous scientific testbed to evaluate, understand, and advance AI methods.

Dr. Tianyi Li is an Assistant Professor in the Department of Mechanical Engineering at The Hong Kong Polytechnic University (PolyU; QS 2027: **#50**). Recent work by the PI has been published or accepted in leading journals including *Nature Machine Intelligence*, *Nature Communications*, and *Journal of Fluid Mechanics*.

Research Opportunities

We are recruiting **one postdoctoral researcher** at the interface of turbulent flows and scientific machine learning. Potential research directions include:

- **Reliable generative modeling of turbulence**, focusing on physical fidelity, robustness, and generalization;
- **Machine-learning-enhanced data assimilation**, focusing on physically grounded and robust inference;
- **Generative modeling of particle-based, coupled particle-field, and other multimodal turbulent systems**.

We particularly welcome candidates who bring complementary expertise or methods and can help extend these research directions in collaboration with the group.

Who We Are Looking For

Applicants should hold, or be close to completing, a PhD with a strong research background in turbulence or fluid mechanics, machine learning, computational science, or a closely related field.

Candidates should demonstrate strong research ability, solid programming and numerical skills, research independence, and effective communication and collaboration.

We particularly welcome candidates with strong expertise in one or more of the following areas:

- turbulence physics and theory;
- large-scale numerical simulation and scientific computing;
- scientific machine learning, especially generative modeling;
- data assimilation and inverse problems;
- experimental or observational flow data analysis.

Appointment

The initial appointment is expected to be for 12 months, with the possibility of extension to 24 months subject to satisfactory performance and funding availability.

A competitive remuneration package will be offered in accordance with PolyU regulations and the candidate's qualifications and experience.

How to Apply

Prospective applicants are encouraged to contact Dr. Tianyi Li informally.

Please email tian-yi.li@polyu.edu.hk with:

- a CV including a publication list;
- a brief description of your research experience and future interests (in the email body is sufficient); and
- up to three representative publications.

Suitable candidates will be contacted for further discussion.