Tianyue Yang

Personal Site | TY-Yang3015 | 15210283759a@gmail.com

Education

University of Cambridge, Department of Physics — **Cambridge, UK**
MPhil in Data Intensive Science — Oct 2025 - (Exp. Sep 2026)

Imperial College London, Department of Physics — **London, UK**
BSc in Theoretical Physics, First Class Honour — Oct 2022 - Jun 2025

Research Interests

• **AI for Science**: The application of Deep Learning in the fields of Physics, including Fluid Dynamics and Theoretical Chemistry.
• **Generative Modelling**: The application and improvement of deep learning-based generative models.
• **Science for AI**: Applying the scientific modelling skills in the field of Artificial Intelligence to gain understandings of the complex behaviour of AI models.

Publications / Preprints

Towards Scalable One-Step Generative Modeling for Autoregressive Dynamical System Forecasting
Tianyue Yang, Xiao Xue†; https://arxiv.org/abs/2605.05540, arXiv preprint.

MENO: MeanFlow-Enhanced Neural Operators for Dynamical Systems
Tianyue Yang, Xiao Xue†; https://arxiv.org/abs/2604.06881, arXiv preprint.

Uni-Flow: a unified autoregressive-diffusion model for complex multiscale flows
Xiao Xue, **Tianyue Yang**, Mingyang Gao, Leyu Pan, Maida Wang, Kewei Zhu, Shuo Wang, Jiuling Li, Marco F.P. ten Eikelder, Peter V. Coveney†; https://arxiv.org/abs/2602.15592, arXiv preprint.

Physical Fidelity Reconstruction via Improved Consistency-Distilled Flow Matching for Dynamical Systems
Sicheng Ma*, **Tianyue Yang***, Xiuzhe Wu, Xiao Xue†; https://arxiv.org/abs/2605.05975, arXiv preprint.

Accelerating Redshift-Conditioned Galaxy Image Synthesis with One-step Generative Modeling
Tianyue Yang, Sandro Tacchella, Xiao Xue†; https://arxiv.org/abs/2605.17546, arXiv preprint.

Equivariant U-Shaped Neural Operators for the Cahn–Hilliard Phase-Field Model
Xiao Xue, Marco F.P. ten Eikelder, **Tianyue Yang**, Yiqing Li, Kan He, Shuo Wang, Peter V. Coveney†; https://arxiv.org/abs/2509.01293, arXiv preprint.

*: Equal Contribution. †: Corresponding Author.

Research Experience

Deep Learning for Dynamical Systems — **London, UK**
Prof Peter Coveney, University College London, Centre for Computational Sciences — Jun 2025 -
• Funded Research Project under the joint supervision of Prof Peter Conveney and Dr Xue Xiao. The project focus on improving the application of deep learning techniques for physical dynamical systems.

Physics-inspired Deep Learning — **Remote**
Dr Shengchao Liu, Chinese University of Hong Kong — Long Term
• This project focuses on the extending the framework of K-Flow for multi-modal generation and one-step generation.

Deep Learning based VMC for Quantum Multi-body Systems **London, UK**
Prof Matthew Foulkes, Imperial College London Aug 2024 - March 2025
• Conducted a two-phased independent research project, first implementing the Transformer-based PsiFormer model within a JAX/Flax Variational Monte Carlo framework to study quantum many-body and muonic systems with improved accuracy, and subsequently extending existing quantum simulation methods by implementing a magnetic-field Hamiltonian to enable the study of quantum nuclei under extreme magnetic-field conditions.

Latent Diffusion for Weather Forecasting and Now-casting **Singapore**
Dr Ooi Chin Chun, Singapore Agency for Science, Technology and Research (ASTAR) Jun - Aug 2024
• Developed a JAX/Flax-based machine learning pipeline for a funded group project, implementing accelerated training and data loading and building a latent diffusion framework for time-series radar signal prediction under unstable meteorological conditions.

Languages and Skills

• **Awards:** UK Chemistry Olympiad (*National Top 30*), British Physics Olympiad (*Gold*), UKMT Senior Maths Challenge (*Gold*), Cambridge Chemistry Challenge (*Top 1%, Roentgenium Award*).

• **Programming Languages: Python** (for Machine Learning, Deep Learning and Data Science with **TensorFlow 2** and **Flax** with **JAX**, PyTorch & PyTorch Lightning) (*proficient*), **LaTeX** programming (*proficient*), **C++** (for Scientific Computing), **Rust** (for Numerical Methods)

• **Languages**: Chinese (*native*), English (*native*) and Japanese (*N1, proficient*).

Last updated: May 19, 2026