Research, Informatics and Graduate Studies

PhD/Master (MSc) Position in Data-driven Prediction of Turbulent Systems (GS-2025003) – Group of Assoc. Prof. Vikrant Gupta

Description
The Mechanical Engineering (Robotics) Program (group of Vikrant Gupta) is looking for 2 PhD/Master students to conduct high-quality research on predicting turbulent systems using data assimilation methods (Bayesian inference) and machine learning tools (Diffusion and attention models).

Project Details
Data-driven methods are gaining popularity for predicting complex turbulent flow systems. However, fundamental questions about the effectiveness of these methods under practical situations remain unanswered. Currently, low-order simplified models (such as Mann model for wind field prediction) are used in industry. These models are quick even under challenging conditions and work with limited measurements. However, their accuracy is generally low. Can we exploit the increase in computational resources and use data-driven methods, such as classical Bayesian inference-based data assimilation techniques or recently developed deep learning networks? The candidate will have state-of-the-art GPU computational facilities and will work with other group members to tackle the most challenging problems in time-series forecasting with wide-ranging applications from wind energy to drag reduction and financial markets.

Keywords
Turbulence, Chaos, Bayesian inference, Machine learning.

Selection Criteria

- Master (for PhD)/Bachelor (for M.Sc.) degree (or equivalent) in Mechanical Engineering or related (essential)
- Strong background in python (essential) and C++ (preferable)
- Strong background in partial differential and ordinary differential equations (essential)
- Strong interest in GPU computations and high-performance computing (desirable)
- Strong interest to work in team, and travel to Israel (essential)
- Good communication skills, good command of English (essential)
- Ability to author scientific reports and co-author scientific publications (essential)
- The candidates must fulfill the requirements for admission to the Technion Graduate School and need to comply with its regulations leading to the PhD/Master degree: https://graduate.technion.ac.il/en/prospective-students/

Application:

- Application deadline: 31 January 2026
- Send required documents electronically to: vikrant.gupta@gtiit.edu.cn

Contact
Assoc. Prof. Vikrant Gupta

Position
PhD/Master

Program
Mechanical Engineering (Robotics)

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Web Page Link

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December 18, 2025

Location
Guangdong Technion – Israel Institute of Technology (GTIIT), China & Technion-Israel Institute of Technology, Israel.

Fees & Finance

How to Apply

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