भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Applied Physics & Machine Learning Seminar Series, IIT Hyderabad

Online webinar on **Oct 20, 2020 at 3 :00 PM**

Date : 20-10-2020
Time : 03:00 PM (IST)
Speaker : **Dr. Michele Buzzicotti**
Affiliation : University of Rome "Tor Vergata"
Title : Artificial Intelligence meets complex flows, from optimal navigation to reconstruction of turbulent data
Link : https://meet.google.com/pvv-ocne-xiv

Abstract

We study the applicability of artificial intelligence (AI) tools to different open problems in fluid dynamics, from the search of an optimal navigation strategy in complex environments to data reconstruction from partial measurements of turbulent flows. To solve the navigation problems we follow a Reinforcement Learning (RL) approach. Here, we focus on finding the path that minimizes the navigation time between two given points in a fluid flow. For the reconstruction problem, we explore the capability of Generative Adversarial Network (GAN) to generate missing data. In particular, we investigate on a quantitative basis, their use in reconstructing 2d damaged snapshots extracted from a large numerical database of 3d turbulence in the presence of rotation.

Short Bio:

Michele Buzzicotti has obtained his PhD in theoretical physics in 2017 at the University of Rome Tor Vergata, where he has an appointment as a Researcher. His main research activity is the study of turbulent flows using numerical simulations. He is also interested in the application and development of Artificial Intelligence (AI) tools to fluid flow problems.