



ICTS

INTERNATIONAL
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SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Seminar

Title : Instance-optimality in universal prediction

Speaker : Alankrita Bhatt (Granica Computing Inc. USA)

Date : Thursday, 30 October 2025

Time : 10:00 AM (IST)

Abstract : Data-driven decision-making systems seamlessly integrate into every facet of our daily lives. Despite this ubiquity, the current era has also brought with it a host of emerging challenges such as the need to make good decisions in the presence of uncertainty (about the future and the environment) as well as the storage and processing of high-volume data to improve decision-making. In this talk, I will discuss my research program, which takes an information-theoretic approach to modern problems arising in sequential decision-making. This perspective will be illustrated through the problem of *universal prediction*, where the goal is to make accurate, sequential forecasts without knowing in advance whether the data are stochastic, adversarial, or somewhere in between. I will present new algorithms and fundamental limits that characterize what is and isn't possible in this setting, highlighting broader principles for reliable decision-making under uncertainty.

Venue : Emmy Noether Seminar Room

Zoom Link: <https://icts-res-in.zoom.us/j/96095610162?pwd=6b2fEnfPIFQAamGJfpgxwosk4PTXp9.1>

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