



Indian Institute of Space Science and Technology

Valiamala, Thiruvananthapuram - 695 547, Kerala

Artificial Intelligence in Drug Discovery: Bridging High Content Screening to Target Discovery

A Colloquium by

Prof. Arvind Rao

Department of Computational Medicine and Bioinformatics

University of Michigan, USA



03:30 PM



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OCTOBER **2025**



IIST
Council Hall

The emergence of artificial intelligence (AI) is revolutionizing how we approach drug discovery, offering powerful tools that complement traditional laboratory methods through the discovery of driving biological mechanisms. This talk aims to demystify AI applications in life sciences, focusing on two transformative areas: image-based high-content screening and target discovery via deconvolving biological mechanisms of disease. Through real-world examples, we'll explore how AI transforms microscopy data into actionable insights, enabling researchers to analyze complex cellular phenotypes at unprecedented scale and speed. We'll examine how these same AI tools connect with target discovery platforms, creating a seamless pipeline from initial screening to target validation.

Designed specifically for life scientists without requiring computational background, this presentation will illuminate the practical benefits of AI tools in daily research workflows. We'll discuss how AI assists in analyzing vast libraries of compound effects on cells, identifying subtle patterns in biological responses, and prioritizing promising therapeutic targets. By the end of this talk, attendees will gain a clear understanding of AI's role in modern drug discovery, learning how these tools can enhance their research without requiring expertise in programming or machine learning.



About the speaker: Arvind Rao is a Professor in the Department of Computational Medicine and Bioinformatics at the University of Michigan. His group uses image analysis and machine learning methods to link image-derived phenotypes with genetic data, across biological scale (i.e. single cell, tissue and radiology data). Such methods have found application in radiogenomics, drug repurposing based on phenotypic screens and spatial profiling in tissue, as well as in spatial transcriptomics. Arvind received his PhD in Electrical Engineering and Bioinformatics from the University of Michigan, specializing in transcriptional genomics, and was a Lane Postdoctoral Fellow at Carnegie Mellon University, specializing in bioimage informatics. He is also a Fellow of American Medical Informatics Association (AMIA), The Royal College of Pathology (RCPath) in the UK (by published works) and American Association for Advancement in Science (AAAS).



Live Stream: <https://tinyurl.com/2p8c4wmx>