

Title of the Talk

Towards Fair and Controllable Generative Models

by: **Prof. Venkatesh Babu R**

Abstract: Diffusion-based generative models have transformed image synthesis, enabling applications from generative art to data augmentation. However, challenges in mitigating biases and achieving precise control hinder their broader impact. In this talk, I will present our recent efforts to evaluate, debias, and enhance the controllability of text-to-image diffusion models. This talk will briefly examine the geographical biases in popular image generative models and discuss our recent work on Mitigating Biases in Blackbox Feature Extractors for Image Classification Tasks. We also discuss our proposed Distribution Guidance, a novel technique operating in the semantically rich latent space of diffusion models to address demographic biases in face generation. Further we will discuss our work on adding additional control in text to image models enabling fine-grained attribute editing along with accurate personalization of human faces.