Deep Learning for Computer Vision: Challenges and Successful Applications in Manufacturing and Robotics

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Abstract: Deep learning models, especially deep convolutional neural networks, have become extremely popular in the computer vision community over the past few years. This popularity has led to a plethora of learning architectures and algorithms that have been particularly successful in image classification and object recognition problems. In this talk, I will discuss the challenges and methods to overcome them for two relatively unexplored applications: automated inspection of assembled parts with varying geometries and illumination conditions, and online perception of human actions during indoor object manipulation. I will conclude by pointing out several future research directions.

Bio: Ekta U. Samani is a Ph.D. student in the Department of Mechanical Engineering, working with Prof. Ashis Banerjee. Prior to this, she was working at Hindustan Petroleum Corporation Ltd., India. She obtained her B.Tech in Electrical Engineering with a minor degree in Computer Science Engineering from the Indian Institute of Technology, Gandhinagar. During her undergraduate education, she received the Nielsen Award grant for pursuing a summer research internship at the University of Washington. Her research interests include deep learning for vision-based applications and meta reinforcement learning for continuous control tasks.