NEXT LEVEL INNOVATION IN ROBOTICS AND AUTONOMY

Author: **Dr. Sethu Vijayakumar**

Title: **Shared Autonomy: The Future of Interactive Robotics**

The next generation of robots are going to work much more closely with humans, other robots and interact significantly with the environment around it. As a result, the key paradigms are shifting from isolated decision making systems to one that involves shared control -- with significant autonomy devolved to the robot platform; and end-users in the loop making only high level decisions.

This talk will briefly introduce powerful machine learning technologies ranging from robust multi-modal sensing, shared representations, scalable real-time learning and adaptation and optimal scheduling of compliant actuation that are enabling us to reap the benefits of increased autonomy while still feeling securely in control.

This also raises some fundamental questions: while the robots are ready to share control, what is the optimal trade-off between autonomy and control that we are comfortable with?

Domains where this debate is relevant include self-driving cars, offshore asset inspection and maintenance, deep sea and autonomous mining, shared manufacturing, exoskeletons/prosthetics for rehabilitation as well as smart cities to list a few