

Computer Vision and Challenges of HCI

Yuri Ivanov

Massachusetts Institute of Technology

In the past 15-20 years computer vision became a very popular interface for human-computer interaction. It allows for keyboard-free, untethered interactions to be easily implemented. Wide availability of video cameras made it possible for people to use vision-based interfaces as a primary mode of interaction with their machines. Dropping price of fast mass storage devices allow us to keep complete logs of our lives. But very surprisingly, these technological advances created a new problem - vast amounts of video data can be stored cheaply, but when it is needed, finding the right bit of data becomes much like finding a needle in a haystack.

In our work we attempt to analyze human behavior on a large scale. We use cameras to measure where people go and what they do. We found that traditional computer vision approaches often fail when the amount of data is very large. Real videos can be noisy, they have limited field of view, they are difficult to process fast. To solve these problems we situate video cameras in a large network of motion sensors and use them jointly with cameras to look at people during extensive intervals of time. In my talk I will introduce one possible direction for efficient and robust analysis of human behavior on a large scale.