Topic: Human Behavior Understanding via Deep Learning for Human Robot Collaboration

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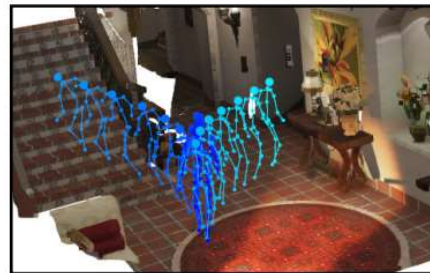
Description:
Robots usually work in isolated robot cells. Nowadays service robots are also expected to operate in the areas of household, entertainment and public environments, where the robots are supposed to comply with social norms and naturally interact and collaborate with humans. In order to behave socially, the robots need visual perceptual capabilities to understand human behaviors, such as predicting human future motions and recognizing human actions for better collaboration, predicting human destinations to avoid interfering human behaviors, and detecting joint attentions / human engagement to initiate interactions.

In this topic, you are going to explore deep learning models, e.g. Variational Autoencoder (VAE), Transformer, etc. to learn intelligent perception capabilities, and apply learned models to service robots. The potential of Virtual Reality (VR) and simulation would also be explored to enhance the learning and application processes.

Possible Human Destinations   Human Future Motions