UNIVERSITY OF SOUTH FLORIDA

Defense of a Doctoral Dissertation

Estimation of Human Pose Categories and Physical Object Properties from Motion Trajectories
by
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For the Ph.D. degree in Computer Science & Engineering

It is essential for the autonomous cars to infer the intent of the pedestrians to avoid collisions. Estimating orientation of pedestrians with respect to the on-board camera is a first step towards this goal. We present computer vision based algorithms implemented using Deep Learning network architectures, ConvNet and Recurrent Neural Network, to estimate body orientation from still images and videos of pedestrians. We also present methods to estimate fine-grained 3D position of body joints from image as well as dynamic properties of falling objects from their motion trajectories.

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