

Learning human motion: gestures, activities, pose, identity

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This talk is devoted to (deep) learning methods advancing automatic analysis and interpreting of human motion from different perspectives and based on various sources of information, such as images, video, depth, mocap data, audio and inertial sensors. We propose several models and associated training algorithms for supervised classification and semi-supervised and weakly-supervised feature learning, as well as modelling of temporal dependencies, and show their efficiency on a set of fundamental tasks, including detection, classification, parameter estimation and user verification.

Advances in several applications will be shown, including (i) gesture spotting and recognition based on multi-scale and multi-modal deep learning from visual signals; (ii) human activity recognition using models of visual attention; (iii) hand pose estimation through deep regression from depth images, based on semi-supervised and weakly-supervised learning; (iv) mobile biometrics, in particular the automatic authentication of smartphone users through learning from data acquired from inertial sensors.