Learning human centered computing for vision and robotics

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Résumé

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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 with various applications such as human-machine interfaces and human-robot interfaces. We propose several neural 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 authentification of smartphone users through learning from data acquired from inertiel sensors.

Biographie :
Christian WOLF is associate professor (Maitre de Conférences, HDR) at INSA de Lyon and LIRIS, since 2005. Since 2017 he is on leave with INRIA (Chroma work group) and CITI. He is interested in computer vision and machine learning, deep learning, especially in the visual analysis of complex scenes in motion and robotics: gesture and activity recognition and pose estimation. In his work he puts an emphasis on models of complex interactions, on structured models, graphical models and on deep learning. He received his MSc in computer science from Vienna University of Technology (TU Wien) in 2000, and a PhD in computer science from INSA de Lyon, France, in 2003. In 2012 he obtained the habilitation diploma, also from INSA de Lyon.

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