

Human Pose Estimation using Sequential Stage Architecture and Dense Connections for Gesture Recognition*

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Abstract— Real-time human pose estimation is one of the most demanding tasks for human-computer interaction and understanding human gestures. In this paper, we introduce a systematic design of a deep neural network for upper body pose estimation. The proposed network is designed to learn interactions between body parts by using a sequential stage architecture where belief maps from previous stages are used as the input to the next stage. This approach helps to replenish back-propagated gradients during training the network. Moreover, dense connections are efficiently implemented in the network for the high accuracy on the performance. We tested our network with various datasets and analyzed the results for estimating the real-time upper-body pose.

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