

Static and Dynamic Hand Gesture Recognition Using Convolutional Neural Network Models

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Abstract : Similar to the touchscreen, hand gesture based human-computer interaction (HCI) is a technology that could allow people to perform a variety of tasks faster and more conveniently. This paper proposes a training method of an image-based hand gesture image and video clip recognition system using a CNN (Convolutional Neural Network) with a dataset. A dataset containing 6 hand gesture images is used to train a 2D CNN model. ~98% accuracy is achieved. Furthermore, a 3D CNN model is trained on a dataset containing 4 hand gesture video clips resulting in ~83% accuracy. It is demonstrated that a Cozmo robot loaded with pre-trained models is able to recognize static and dynamic hand gestures.

Keywords : deep learning, hand gesture recognition, computer vision, image processing

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