1 Abstract

Given the increased use of digital media to communicate over time, it is necessary to create systems that can more accurately communicate as intended. In this project I will implement a machine learning system, that is trained on human hands gesturing 'thumbs up' and 'peace'. The system is tested on drawn images of the same gestures, thus indicating that further research into machine learning systems on drawn gestures can be used to preprogram human gestures in human computer interaction as well as computer mediated human interaction.

Note: The code is implemented with Klaes Rasmussen, as we both wanted to do image recognition on gestures and it allows us to test on each others training set. Furthermore our systems allow the suggested improvements if researched into this.

References

Allwood, J., Kopp, S., Grammer, K., Ahlsén, E., Oberzaucher, E., and Koppensteiner, M. (2007). The analysis of embodied communicative feedback in multimodal corpora: a prerequisite for behavior simulation. *Language Resources and Evaluation*, 41(3-4):255–272.

de Ruiter, J. P. (2007). Postcards from the mind: The relationship between speech, imagistic gesture, and thought. *Gesture*, 7(1):21 – 38.

Duggan, M. and Smith, A. (2013). *Social Media Update 2013*. Pew Research Center, 0 edition.

Ekman, P. (1992). An argument for basic emotions. *Cognition and Emotion*, 6(3-4):169–200.

Kipp, M. and Martin, J.-C. (2009). Gesture and emotion: Can basic gestural form features discriminate emotions? In *Affective Computing and Intelligent Interaction and Workshops, 2009. ACII 2009. 3rd International Conference on*, pages 1–8.

Rubine, D. H. (1992). *The Automatic Recognition of Gestures*. PhD thesis, Pittsburgh, PA, USA. UMI Order No. GAX92-16029.

So, W. C., Chen-Hui, C. S., and Wei-Shan, J. L. (2012). Mnemonic effect of iconic gesture and beat gesture in adults and children: Is meaning in gesture important for memory recall? *Language and Cognitive Processes*, 27(5):665–681.

Wachs, J. P., Kölsch, M., Stern, H., and Edan, Y. (2011). Vision-based hand-gesture applications. *Commun. ACM*, 54(2):60–71.