Introduction of Static and Dynamic Features to Facial Nerve Paralysis Evaluation

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Abstract. This paper present a novel approach of facial nerve paralysis evaluation system where it includes both static and dynamic features to evaluate the severity level of paralysis and classify the type of paralysis whether it is Upper Motor Neuron (UMN) lesion or Lower Motor Neuron (LMN) lesion. Two assessment proposed in the system, regional assessment and lesion assessment, which used static and dynamic features respectively. Individual score, total score and paralysis score are introduced and experiments reveal that the proposed approach demonstrates till 100% accuracy in classifying the subjects into normal and patient, the level of severity, and also the type of lesion by using the *k*-NN classifier. The results proved that with more experiments and by increasing the number of the data, the system will become a great aid to clinicians in evaluation of facial nerve paralysis and rehabilitation programs to patients.

Keywords: Facial Nerve Paralysis, Facial Nerve Evaluation, Optical Flow, Gabor Filter, Upper Motor Neuron and Lower Motor Neuron

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