

Master's Thesis Review

Petr Husák, Emotive Facial Expression Detection

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The thesis presents a method to detect facial micro-expressions. The micro-expressions are brief spontaneous facial expression changes that appear involuntarily, usually in stressful situations when a subject is concealing his/her true emotional state. The proposed method is in fact very simple. The algorithm is based on analyzing raw intensities of carefully registered images over time. The topic has been greatly unexplored. Approaches in the literature are evaluated on datasets always acquired in an artificial laboratory setup. However, Petr collected a realistic dataset by manually annotating the micro-expressions present in Poker Game videos and TV interviews.

Petr worked on his thesis continuously and systematically for a long time. Petr carried out many experiments, including rather negative attempts at the beginning of our cooperation. Petr read a lot on micro-expressions. Besides the computer vision, he followed the psychology literature to understand the phenomenon more in depth. Petr passed an on-line course on micro-expression recognition, and then he went through many long videos on YouTube and carefully annotated the micro-expressions.

Petr proved his competence in programming, in an engineering design of a non-trivial computer vision method, and in quantitative experimental testing. The results of his thesis are clearly above average. The proposed method is original and in terms of detection accuracy, the results are competitive with the current state of the art. Petr has published his work on a regular conference [1] in parallel with his thesis. The paper [1] got very positive reviews.

On the other hand, Petr have been working on the problem for about two years, including his two summer internships at our CMP. Despite the difficulty of the problem, for such a great effort, I would expect even more elaborated method with better experimental results.

I suggest evaluating the thesis as

B – Very good.

Ing. Jan Čech, Ph.D.
Thesis Advisor

References

1. Petr Husák, Jan Čech, and Jiří Matas. Spotting Facial Micro-Expressions "In the Wild". In Proc. Computer Vision Winter Workshop, February 2017. Retz, Austria. (To Appear)