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Topic: Deep Learning for Emotion and Top-down Attention

ABSTRACT. Human emotion is an internal state of human brain which makes different decision and behavior from same sensory inputs. Therefore, for efficient interactions between human and machine, i.e. chatbot, it is important for the machine to estimate human emotions. Due to the internal nature, the classification accuracy of the emotion from a single modality is not high. For example, our result was ranked as Top-1 with only 61.6% accuracy for the emotion recognition task from facial images at EmotiW2015 challenge. In this tutorial we will first present a hierarchical Committee machine to win EmotiW2015 challenge, and further extend the ideas to multi-modal classification with top-down attention and identification of brain signals for the two-other brain internal states.

Biodata:

Soo-Young Lee is a professor of Electrical Engineering at Korea Advanced Institute of Science and Technology. In 1997, he established the Brain Science Research Centre at KAIST, and led Korean Brain Neuroinformatics Research Program from 1998 to 2008. He is now also a Co-Director of Center for Artificial Intelligence Research at KAIST, and leading Emotional Dialogue Project, a Korean National Flagship Project. He is President of Asia-Pacific Neural Network Society in 2017 and had received Presidential Award from INNS and Outstanding Achievement Award from APNNS. His research interests have resided in the artificial cognitive systems with human-like intelligent behavior based on the biological brain information processing. He has worked on speech and image recognition, natural language processing, situation awareness, internal-state recognition, and human-like dialog systems. Especially, among many internal states, he is interested in emotion, sympathy, trust, and personality. Both computational models and cognitive neuroscience experiments are conducted. His group marked Top-1 for the emotion recognition challenge from facial images (EmotiW; Emotion Recognition in the Wild) in 2015.