Stress Classification on Thermal Images: A Deep Stacked Autoencoder Approach

Yusuf Gandhi Putra

Faculty of Information Technology, Universitas Advent Indonesia, Bandung Barat; yusuf@unai.edu

Abstract: Stress is an inseparable part of modern people's lives and it may lead to various undesirable conditions. Thus, it becomes an increasingly important subject to study how to detect stress. There are essentially two methods to detect stress: obtrusive and non-obtrusive methods. The non-obtrusive methods are more desirable as it requires minimal contact with the subjects. Sharma constructed a data set consisting of thermal videos of people watching either stressful or non-stressful films. This data set is the primary data used for experiments in this thesis. This thesis describes our attempts to classify images extracted from the videos using deep neural network approaches in a form of stacked autoencodesr. We commenced two different experiments using two different topologies. The result shows that autoencoder can classify stress effectively from thermal images.

Keywords: Stress classification, neural networks, autoencoders