

## ABSTRACT

Eyebrows on human's face have important role in creating an expression emotion on human's face, this makes the research focuses at human's eyebrows. Generally, when we make an expression, we use eyebrows to show surprised expression, angry, and even sad. In a human's expression, eyebrow movement has a smallest *Action Unit* on human's face where it will be processed with facial action coding system (FACS). *Action Unit* on eyebrow movement is divided in to 3, namely: *Action Unit 1* (AU1), *Action Unit 2* (AU2) and *Action Unit 4* (AU4). FACS is formed because of the combination of AU movement from every muscle that has been researched, so that a human's face expression is formed. After that, AU becomes very important in deciding the human's face expression result by FACS and this final project researched about AU on human's eyebrow using LPQ-TOP and *Adaboost-SVM*. Both methods are part of previous researches where from those researches was obtained better accuracy in AU recognition on human's face or certain part of human's face. This research resulted the best obtained accuracy of 83.81% where eyebrow that is detected by system are AU on eyebrow and AU on normal condition. The best parameter on AU detection is obtained from searching result of LPQ-TOP with optimum parameter, and then feature selection between 400 until 768, where characteristic feature extraction on LPQ-TOP are 768 features. After that, searching the optimum *adaboost* iteration, and SVM classification with optimum parameter.

Keywords : FACS, AU, LPQ-TOP, *Adaboost-SVM*