

Abstract

Research on identification on human faces is an interesting thing to discuss and has even been the subject of research for decades. The application of face identification has been widely implemented in the world, such as in the field of security. The human face itself is a key set of biometrics that provides demographic information such as age, gender, or ethnicity. Convolutional Neural Network (CNN), which is included in the Deep Learning system model, has given quite convincing results for processing data in the form of images and videos. Many researchers have recently begun to shift from the identification of large ethnicities such as Mongolian, Caucasian, and Negroid to sub-ethnicities such as Japanese, Korean, Chinese, and Vietnamese. Inspired by research that has been done by previous researchers, this research will build a CNN architectural model named EI-CNN that is able to identify five major ethnic groups in Indonesia. On testing using cross validation it is proven that EI-CNN1 can identify the majority ethnicity in Indonesia with an accuracy of 89.08%, precision of 89.47%, and recall of 89.80%. And for other datasets containing Vietnamese and Non-Vietnamese, EI-CNN2 can identify with an accuracy of 87,836%, precision of 87.97%, and recall of 87.68%.

Keywords: CNN, Face Identification, Ethnic Identification