

“IDENTIFY”

A Face Image Generation Approach for Identification of Criminals

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Abstract

Facial composite is one of the major fields in forensic science which helps the crime scene investigation officers to carry out their investigation process smoothly. A survey conducted in United States confirms that nearly 80% of the law enforcement agencies in USA use computer based automated systems to generate composites, not only in USA most other countries use advanced tools to carry out this task. Sri Lanka is far behind in the process of facial composite generation with a lot of inefficiencies and a lot of improvements to be made in the current process of manual sketching of facial composites.

This research involves in automating the facial composite generation, eliminating the manual hand drawn process which is currently used in Sri Lanka. Despite the fact that there are many software used globally the application of these software will not assist in creating facial composites targeting Sri Lankan people as the facial features of the local population will not match the global facial feature templates.

“IDENTIFY” provides an end-to-end process of generating high quality images with the help of state of the art GAN model. Users can evolve and mutate facial features when generating the facial composite as same as the existing procedure. This system will be very useful in criminal investigation as it is capable of generating high quality facial composites in less than half an hour.

Keywords: Facial Composite Generation, Generative Model, Generative Adversarial Neural Network, Latent Vector Evolution, Convolutional Neural Network, Classification Score