

**“DETECTFACE” - FACE GENERATION BASED ON  
FACIAL ATTRIBUTES FOR CRIMINAL EYEWITNESS  
TESTIMONIES IN SRI LANKA**

**Helani Kathyana Waidyaratne**

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**Department of Computing**

**Informatics Institute of Technology, Sri Lanka**

**in collaboration with**

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## **Abstract**

The “forensic face generation” is one of the major fields in forensic science that helps criminal investigations to carry out their investigation process. According to a survey conducted by United States Law Enforcement Agencies confirms that 80% of agencies use computer-automated systems while Sri Lanka is still far behind in the process of face generation with a lot of inefficiencies in the current manual process. Hence this research introduces a novel approach for the manual face generation process, while eliminating the inefficiencies of the manual procedure of Sri Lanka. In order to overcome this situation, this study introduces an automated deep learning-based software solution targeting the Sri Lankan population. In this research, an image synthesis has been done according to a given feature by using StyleGAN. The controlled image was retrieved by using a correlation between the features of generated image and the noise in latent space. By this approach, when a one facial attribute is given as input, the generated image gives an accuracy of 79.28%. The ultimate goal of this research study is to provide a system for law enforcement agencies to carry out an efficient and effective face generation process that can lead to an increase the success rate of suspect identification.

**Keywords:** Face Generation, Facial Attribute, StyleGAN, Latent Space, Sri Lanka