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20MCA414
S4-MCA

Forensic Face Sketch Construction and Recognition

ABSTRACT

In this modern age, the overall crime rate is increasing day-by-day and to cope up with this the law enforcement departments too should find ways that would speed up the overall process and help them in bringing one to justice. One such way can be using face recognition technology for identifying and verifying the criminal.The traditional approach here is to use the hand-drawn face sketches drawn by forensic sketch artists to identify the criminal, modernizing this would mean using the hand-drawn sketch and then matching them with the law enforcement department's database to identify the criminal. Using this approach would result in the various limitations with latest technologies and even would be time consuming as there are very few forensic sketch artists available when compared to the increasing crime ratio.

A convolution neural network (CNN) framework for matching composite sketches with digital images is proposed in this work. The framework consists of a base CNN model that uses a swish activation function in the hidden layers. Both composite sketches and digital images are trained separately in the network by providing matching pairs and mismatching pairs. The final output from the network's final layer is compared with the threshold value, and then the pair is assigned to the same or different class.