

# Forensic Face Sketch Recognition

Aatika Syed, Huda Farhat, Manisha Singh, Tauheed Khan, Vrushali Hadke

Department of Computer Science and Engineering

Anjuman College of Engineering and Technology, Nagpur, Maharashtra, India

**Abstract:** *In modern society, the overall crime rate is increasing day by day, and in order to overcome this, law enforcement department must also find ways to speed up the entire process and help bring justice. One such method is to use facial recognition technology to identify the criminal. The traditional approach here is to use a hand-drawn sketch of a face, drawn by forensic artist to identify the criminal. Upgrading it will allow us to identify the criminals using hand-drawn sketches and then matching it with law enforcement databases. This approach is time consuming as there are few forensic artists available compared to the increasing crime ratio which is subject to various limitations with the latest technology and increasing crime rates. Our project provides law enforcement department a standalone platform that allows users to create composite sketches of a suspect's face using the drag-and-drop feature without the aid of forensics, thereby reducing time gaps and speeding up the process. The application automatically matches complex face sketches with police database.*

**Keywords:** Forensic Face Sketch, Face Sketch Construction, Face Recognition, Criminal Identification, Deep Learning

## REFERENCES

- [1]. W. Zhang, X. Wang and X. Tang, "Coupled information-theoretic encoding for face photo-sketch recognition," CVPR 2011, 2011, pp. 513-520, doi: 10.1109/CVPR.2011.5995324. MathWorks "what is deep learning" [2022] (online). Available: <https://www.mathworks.com/discovery/deep-learning.html>
- [2]. Klare, Brendan, and Anil K. Jain. "Sketch-to-photo matching: a feature-based approach." Biometric technology for human identification VII. Vol. 7667. International Society for Optics and Photonics, 2010.
- [3]. P. C. Yuen and C. H. Man, "Human Face Image Searching System Using Sketches," in IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans, vol. 37, no. 4, pp. 493-504, July 2007, doi: 10.1109/TSMCA.2007.897588.
- [4]. Patil, Abhijit, et al. "Forensic Face Sketch Construction and Recognition." International Journal of Information Technology (IJIT) 6.4 (2020).
- [5]. S. Klum, H. Han, A. K. Jain and B. Klare, "Sketch based face recognition: Forensic vs. composite sketches," 2013 International Conference on Biometrics (ICB), 2013, pp. 1-8, doi: 10.1109/ICB.2013.6612993.
- [6]. Facial Recognition. Available: <https://www.kaspersky.com/resource-center/definitions/what-is-facial-recognition>.
- [7]. Applications of Facial Recognition. Available: <https://www.facefirst.com/blog/amazing-uses-for-face-recognition-facial-recognition-use-cases/>
- [8]. Ali, Tauseef, Raymond Veldhuis, and Luuk Spreeuwens. "Forensic face recognition: A survey." Centre for Telematics and Information Technology, University of Twente, Tech. Rep. TR-CTIT-10-40 1 (2010).
- [9]. Galea and R. A. Farrugia, "Forensic Face Photo-Sketch Recognition Using a Deep Learning-Based Architecture," in IEEE Signal Processing Letters, vol. 24, no. 11, pp. 1586-1590, Nov. 2017, doi: 10.1109/LSP.2017.2749266.
- [10]. Zeinstra, Chris G., Didier Meuwly, A. Cc Ruifrok, R. Nj Veldhuis, and Lieuwe Jan Spreeuwens. "Forensic face recognition as a means to determine strength of evidence." Forensic Sci Rev 30, no. 1 (2018): 21-32.
- [11]. Ouyang, Shuxin, et al. "Forgetmenot: Memory-aware forensic facial sketch matching." Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition. 2016.
- [12]. Aatika Syed, Huda Farhat, Manisha Singh, Tauheed Khan, Vrushali Hadke and Prof. Ritish G. Shrivastav, "Forensic Face Sketch Construction", in Gis Science Journal, doi:20.18001.GSJ.2022.V9I3.22.3898105.