

Steganography: Concealing Information within Images using GUI-based Application

Bhavesh Jha¹, Vibhav Kumar Dubey², Ajay Rai³

Students, Department of Computer Science and Engineering^{1,2,3}
Dronacharya Group of Institutions, Greater Noida, Uttar Pradesh, India

Abstract: *Steganography is a captivating method used to conceal sensitive data within seemingly harmless information, like images, audio files, or videos. This research paper introduces a Java-based graphical user interface (GUI) application for steganography, implemented using the Swing framework. The application enables users to hide messages or files within images and retrieve them later, offering a seamless and user-friendly experience. The paper delves into the underlying technology and algorithms employed in steganography, as well as the notable features and functionality of the developed GUI application. Experimental results effectively demonstrate the application's efficiency and effectiveness in concealing and retrieving information while preserving the integrity of the carrier image. The research emphasizes the practical applications of steganography and the importance of user-centric interfaces in enhancing the accessibility and usability of cryptographic techniques.*

Keywords: Steganography, Cryptography, Invisibility, Undetectability, Confidentiality

REFERENCES

- [1]. Chan, C.K., Cheng, L.M., 2004. Hiding data in images by simple LSB substitution. *Pattern Recognition*, vol. 37. Pergamon.
- [2]. Ali-al, H., Mohammad, A., 2010. Digital Audio Watermarking Based on the Discrete Wavelets Transform and Singular Value Decomposition, *European Journal Of Scientific Research*, vol. 39(1), pp. 231-239
- [3]. Amirthanjan, R., Akila, R. & Deepika Chowdavarapu, P., 2010. A Comparative Analysis of Image Steganography, *International Journal of Computer Application*, 2(3), pp. 2-10.
- [4]. Arnold, M., 2000. Audio watermarking: Features, applications and algorithms, *Proceeding of the IEEE International Conference on Multimedia and Expo*, pp. 1013-1016.
- [5]. Bandyopadhyay, S.K., 2010. An Alternative Approach of Steganography Using Reference Image. *International Journal of Advancements in Technology*, 1(1), pp. 05-11.
- [6]. Bloom, J. A. et al., 2008. *Digital watermarking and Steganography*. 2nd ed. Morgan Kaufmann.
- [7]. Bishop, M., 2005. *Introduction to computer security*. 1st ed. Pearson publications. Cachin, C., 2004. *Information: Theoretic model for steganography*. Workshop on information hiding, USA.
- [8]. Cox, I., Miller, M., Bloom, J., Fridrich, J. & Kalker, T., 2008. *Digital watermarking and Steganography*. 2nd Ed. Elsevier. David, W. (2004) *Managing information: IT for Business purpose*. 3rd edn, pg. no. 215, Elsevier.
- [9]. Hellman, M.E., 2002. An overview of public key cryptography. *IEEE communication magazine*.
- [10]. Jeffrey A., Bloom et al., 2008. *Digital watermarking and steganography*, 2nd edn, Morgan Kaufmann publications.