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Drone Forensics: Investigating the Challenges and Solutions in the Age of UAVs

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Abstract

With the proliferation of Unmanned Aerial Vehicles (UAVs), commonly known as drones, the need for effective forensic methodologies to analyze and investigate incidents involving these devices has emerged. Drone forensics is a nascent field that addresses the unique challenges posed by the aerial nature of these devices, including data retrieval, analysis of flight logs, and evidence preservation. This paper explores the current state of drone forensics, identifies key challenges, and proposes solutions to enhance investigative processes in this evolving domain.

Keywords

Drone forensics, Unmanned Aerial Vehicles (UAVs), evidence retrieval, digital forensics, incident investigation.

Biographies

Sarala Gnaneshwari is a MTech student in Cyber Forensics and Information Security at University College of Engineering, Science and Technology, focusing on the intersection of digital forensics and Unmanned Aerial Vehicle (UAV) technology. With a background in Computer Science, During Her academic journey, Sarala Gnaneshwari completed an internship at Central Forensic Science Laboratory (CFSL), where they worked on real-world cases involving digital evidence collection and analysis. Additionally, they have hands-on experience working with forensic tools like FTK Imager, EnCase, related forensic investigations. Sarala Gnaneshwari's research interests include drone forensics, cryptography, AI integration in forensic tools, and the development of standardized forensic frameworks. Their work aims to bridge the gap between cutting-edge technology and legal compliance in the field of cyber forensics, particularly in emerging fields like UAV forensics. With a vision to contribute significantly to the evolving field of forensic science, Sarala Gnaneshwari continues to explore innovative solutions for data recovery and investigative analysis within drone technology.

Dr. R Sridevi is a Professor of CSE with 23 years of teaching experience. Presently working as Professor, Director, Directorate of Entrepreneurship, Innovation and Start-ups, JNTUH & Co.ordinator, Centre of Excellence in Cyber Security, JNTUH. Lead various roles as Head of the CSE Department nearly 3 years, Additional Controller of Examinations (EDEP), Additional Controller of Examinations (Result Processing). Worked as Chairman, Board of Studies for Department of CSE, JNTUHUCEH, Hyderabad. During the tenure of Head, organized several Workshops,

FDPs, curricular and extra-curricular events and 3 international conferences .Established three Research Labs IoT Lab , Digital Forensics Lab & Big Data Analytics Lab and one smart classroom under TEQIP in the department. Network security and information security are the research domains. Guided 7 PhDs & Published very good number of research papers in various national and international conferences and reputed journals with high indexing factor.