

# Deep Fake Image and Video Detection using Machine learning

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**Abstract:** *Deep fake technology has rapidly advanced in recent years, presenting a significant challenge in distinguishing between authentic and manipulated media content. This abstract outlines the current state of research and development in deep fake image and video recognition, focusing on methodologies and advancements in detection techniques. The abstract begins by elucidating the motivation behind deep fake recognition, highlighting its implications in various domains such as politics, journalism, and entertainment. It then delves into the technical aspects, discussing the underlying principles of deep fake generation and the emergence of sophisticated algorithms capable of producing highly convincing fake media. Furthermore, the abstract provides insights into the evolving landscape of deep fake detection mechanisms. It discusses traditional approaches based on artifacts analysis and statistical methods, as well as the recent surge in machine learning and AI-based detection techniques. Notably, it emphasizes the importance of dataset curation, model training, and validation strategies in achieving robust detection performance. Moreover, the abstract touches upon the challenges and limitations faced by current deep fake recognition systems, including the arms race between generators and detectors, scalability issues, and ethical considerations. It concludes by underscoring the significance of interdisciplinary collaboration and ongoing research efforts in addressing these challenges and fostering trust in digital media integrity. Overall, this abstract offers a concise overview of the landscape of deep fake image and video recognition, serving as a primer for researchers, practitioners, and policymakers engaged in combating the proliferation of synthetic media manipulation.*

**Keywords:** Deep fake, Image and video recognition, Detection techniques, Algorithms, Machine learning, Data setcuration, Model training, Ethical considerations, Inter disciplinary collaboration, Digital media integrity

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