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Project Title: Image Forgery Detection System

Abstract

In today's digital era, the rapid dissemination of images across social media, news platforms, and online communities has increased the prevalence of image manipulation and forgery, leading to misinformation and trust issues. To address this challenge, we propose a Real-Time Image Forgery Detection System that leverages advanced machine learning and image processing techniques to detect manipulated images in real-time. The system is designed to identify common types of image forgeries, including copy-move forgery, splicing, and retouching, and can be extended to video forgery detection, including deepfakes. To improve usability, we introduce several unique features such as multi-modality support, which extends the system's functionality to video and audio forgery detection, and reverse image search, which cross-verifies images with online sources to identify previously manipulated versions. One key advantage of using a CNN for image forgery detection is its ability to handle unseen forgeries. However, CNNs can learn to recognize patterns that are not explicitly defined, allowing them to detect new and previously unseen types of forgeries. Overall, the use of CNNs for image forgery detection shows great potential in combating the problem of image tampering. Key potential use cases include detecting manipulated images in social media posts, verifying the authenticity of legal documents and forensic evidence, monitoring news platforms for fake content, and preventing the spread of deepfake videos. The project lays a solid foundation for the future of forgery detection, offering extensibility to handle new and evolving forms of image manipulation, such as those generated by adversarial models and GANs.

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