

A Survey of Deep Learning Methods for Noise Classification and Detection in Historical Image Analysis

Mounesh Arkachari¹ and Dr. K Satyanarayan Reddy²

Research Scholar, Department of Computer Science & Engineering,

Institute of Engineering & Technology, Srinivas University, Mangalore, India¹

Professor, Department of Computer Science & Engineering, Srinivas University, Mangalore, India²

Abstract: *Historical images often suffer from various types of noise due to aging, degradation, and other environmental factors, which can significantly impact their quality and usability. The advent of deep learning has revolutionized the field of image processing, offering robust methods for noise classification and detection. This survey provides a comprehensive overview of the current state-of-the-art deep learning techniques employed in historical image analysis for identifying and mitigating different types of noise. We review various deep learning architectures, including convolutional neural networks (CNNs), generative adversarial networks (GANs), and auto encoders, that have been applied to this problem. The paper discusses the strengths and limitations of each approach, highlights key challenges such as data scarcity and variability in noise types, and explores future directions in this field. The survey aims to serve as a resource for researchers and practitioners by summarizing the most effective methods, evaluating their performance on different datasets, and outlining potential avenues for further research.*

Keywords: Deep Learning, - Noise Classification, - Noise Detection, - Historical Image Analysis, - Image Restoration, - CNNs, - GANs, - Auto encoders