CS 4650/7650 ECE 4655/7655 Digital Image Processing 2025
Homework 3: Noise Filtering

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1   Abstract

The student (David Marino) analyzes results from Gaussian, median, and a self-implemented adaptive median filter on a set of test images. The goal is to improve the students' understanding of how these filters work and the effects they have on noisy images.

2   Introduction

The student (David Marino) begins by processing a set of similar test images with increasing amounts of noise. The differences of these images and the resulting ones processed through the filters are compared by their mean square error to deduce the similarity between the noisy images and the original ones. To begin, Gaussian and median filters are applied to the noisy images to understand how these filters serve as a means to denoise noisy images. Next, the student implements an adaptive median filter to see the effectivness compared to the previously mentioned Gaussian and median filter.