Cody Costa

EE263

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Homework 2

**PYTHON IMAGE RESULTS:**

Please see attached code files to assignment submission for step-by-step procedure

PROBLEM 1)

Input Images: Clean Lena image

A person wearing a hat

AI-generated content may be incorrect.

Salt+Pepper and Gaussian noise Lena (used for filtering)



Output images:

Median Filter

A person wearing a hat

AI-generated content may be incorrect.

Smoothing Filter

A person wearing a hat

AI-generated content may be incorrect.

Combined Filter

A person wearing a hat

AI-generated content may be incorrect.

IN THIS CASE, THE MEDIAN FILTER GIVES THE SHARPEST IMAGE OF THE 3 FILTERS

PROBLEM 2)

Input Image: Lena with random noise

A person wearing a hat

AI-generated content may be incorrect.

Output Image: Smoothed, filtered image

A person wearing a hat

AI-generated content may be incorrect.

PROBLEM 3)

Input Image:

A couple of skeletons of a child

AI-generated content may be incorrect.

Output Images:

Bilateral Filter (left) Nagao Matsuyama filter (right)

A group of people standing in different poses

AI-generated content may be incorrect.

PROBLEM 4)

Input Image:

A couple of skeletons of a child

AI-generated content may be incorrect.

Output Images:

Standard Bilateral Filter



G(D) / I computation

A couple of x-ray images of a child

AI-generated content may be incorrect.

G(D) / I^2 computation

A couple of x-ray images of a child

AI-generated content may be incorrect.

IN THIS CASE, THE CUSTOM VECTORIZED BILATERAL FILTERS PRESERVE EDGES BETTER THAN THE REGULAR FILTER DOES

PROBLEM 5)

Computations on sample section of LENA image are as follows:

