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CS445 Final Project Proposal

Motivation:

Balancing noise and blur is a major consideration in photography. How this paper combines both noisy and blurry photos into a clean image reduces the need for that concern. We hope to learn how to implement alternate methods of image enhancement.

Milestones:

- Kernel estimation completed on toy image (week 2)
- Residual deconvolution completed on toy image (week 2)
- De-ringing completed on toy image (week 3)
- All previous milestones integrated and tested on real image (week 4)

Evaluation:

For early tests, we will use a toy image. That is, a low-noise non-blurry image that is artificially modified with noise and blur. Kernel estimation on the toy image should result in a similar blur kernel to the one artificially applied. Residual deconvolution on the toy image should result in a similar image to the original, albeit with ringing artifacts. De-ringing on the toy image should result in a similar image to the original.

For the final test, we will verify using a real image. The result should be a de-blurred de-noise image.

Resources:

- Data: Blurry and noisy photos
- Equipment: Camera, Computer
- Paper: https://dl.acm.org/doi/pdf/10.1145/1275808.1276379

All resources are already present with the exception of the blurry and noisy photos. Those would be acquired later in the project using the camera.

Group:

- Wesley: Generate toy image, Kernel estimation
- Emilia: Residual deconvolution
- Both: De-ringing + real image testing