

EXTENDING DYNAMIC RANGE USING ND FILTERING PATTERNS ON AN 8-BIT SENSOR

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Scholarly Paper Presentation

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ABSTRACT

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Show that capturing more information from a high dynamic range (HDR) scene using a Neutral Density (ND) filter pattern on a 1280 x 1024 pixel 8 bit monochromatic CCD sensor is feasible and compelling. To determine feasibility, simulation is performed on appropriate HDR imagery using Matlab. An example HDR scene is selected consisting of a lit hallway with a doorway into a darkened room, each region having scene information. The simulation output consists of fused images with a simple digital cut and paste approach. A more sophisticated fusion scheme for the output is not used since that introduces more effects on the output and fusion scheme selection is beyond the scope of this effort. A subjective judgment of continuing the masked sensor effort is made based on the evaluation of the output scenes.

The next steps would be further simulation as well as obtaining evaluation hardware. The implications might also be extended to other sensor types.