# Improved Sectional Tone Mapping for HDR Imagery

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*Motivation:* High dynamic range (HDR) imaging is becoming more common in consumer entertainment. State of the art approaches utilize local tone mapping to map imagery for display on lower quality HDR and legacy SDR displays. However many of these algorithms suffer from temporal instability and image artifacts such as halos. We plan to build upon a 'sectional-tone-mapping' approach to improve performance.

# Goal and Methodology

*Goal*: Improve local detail and contrast while maintaining temporal stability using edge aware regions as a guide to the local tone mapping operators.

Plan of Action

1. Use the HDR image database from Stuttgart and the 'Sectional Tone Mapping' paper as a ground truth reference
2. Replace the 16x9 local blocks with edge aware regions – adjust tone mapping operator to be "stronger" (maintain more contrast locally)
3. Test the performance via subjective user study

# Dataset and Initial Results

- Stuttgart Dataset (SPIE Electronic Imaging 2014)
  - 18 scenes graded for BT.2020 PQ 0.005-4000cd/m^2

NC with domain transform

GLOBAL

SECTIONAL

SECTIONAL EDGE MAP