Il problema

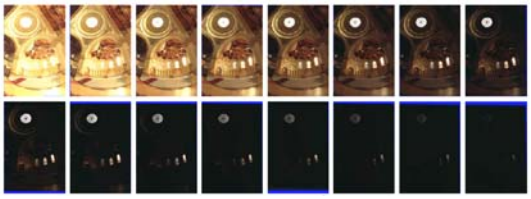
Range of luminance:

100 000 000:1 — in the natural world

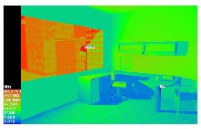
10 000:1 — that the eye can accommodate in a single view

100:1 — that a typical CRT monitor can display

High Dynamic Range Images (HDR)



Tone mapping

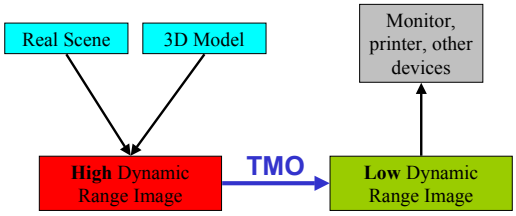


Underexposed mapping of original luminance gamma.

Overexposed mapping of original luminance gamma.

ACE tone mapping of original gamma.

TMO's main goal is:

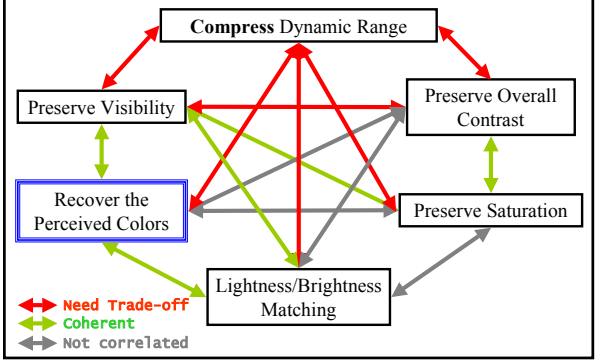


reproducing the **Visual Sensation** of the **Scene**.

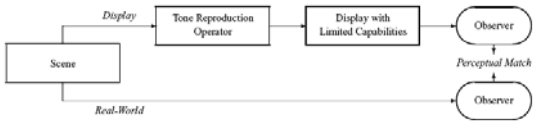
TMO's sub-goals:

- **Compress** the *Dynamic Range*
- **Preserve** *Visibility*
- **Preserve** *Overall Contrast*
- **Preserve** *Saturation*
- **Recover** *Perceived Colors*
- *Lightness/Brightness* **Match**

Relationships between goals



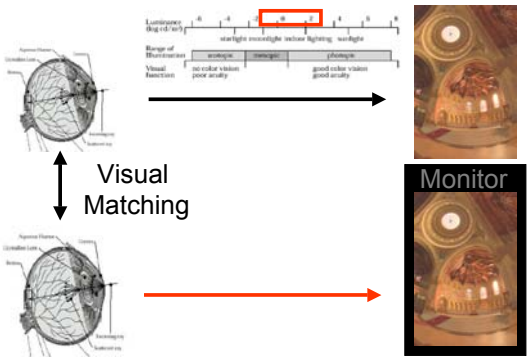
Tone reproduction



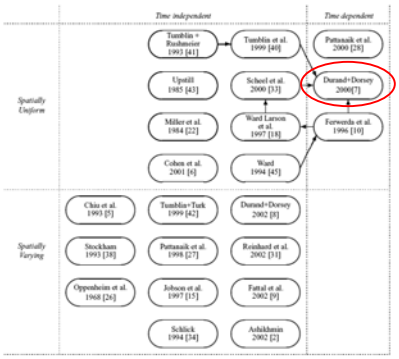
•Pro: Semplice

•Contro: Niente scene in ambienti aperti

Stesso contesto!



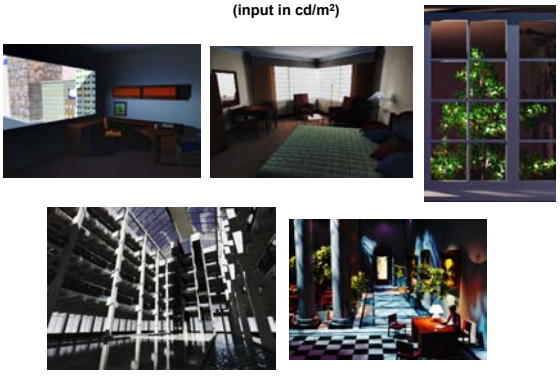
Tone Mapping



Quali realtime?

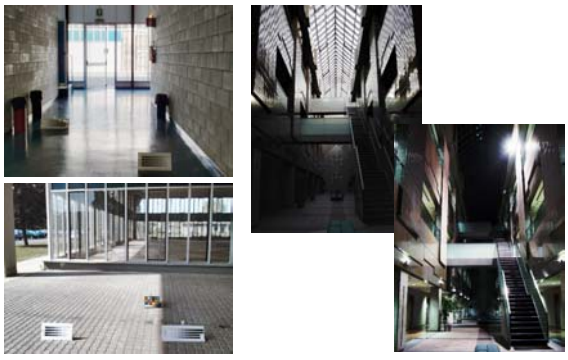
Results on synthetic images

(input in cd/m²)



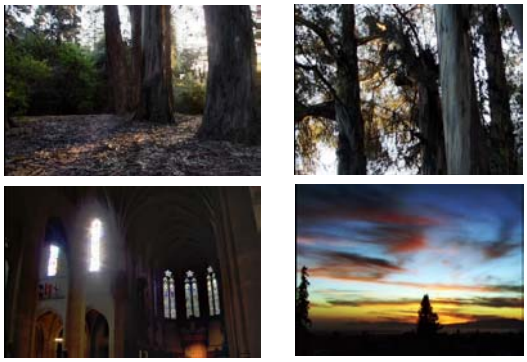
Results on real HDR images

(input in cd/m²)



Results on real HDR images

(input in cd/m²)



Visual comparison

Ward Fattal Rehinard Hitah

Color constancy effect

Visual comparison

Ward Fattal Rehinard Hitah

Strong glare effect | Un-natural (too detailed) | Poor overall contrast | Good trade-off

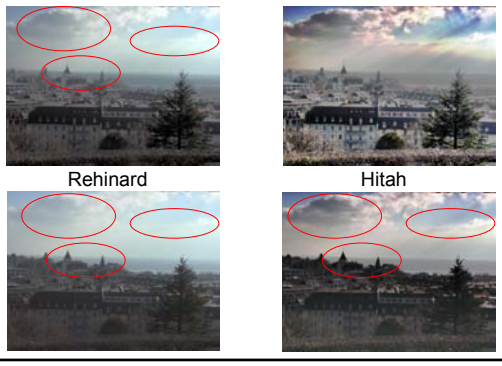
Visual comparison

Ward Rehinard Hitah

Well saturated | Poor overall contrast | Good overall contrast – less saturated sky

Visual comparison

Ward ACE "basic"



Rehinard Hitah