Simulating eye adaptation and visual acuity in VR/photosphere: Work in Progress
Thanks for the projection Andy
VR view web : Google VR JavaScript API (DEMO)
Adaptation and Progression Through Space

credit: Michael Martinez for L+U
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Progression of view around space: Not Linear: Will the Same Approach Work?
Target Adaptation (DEMO)
Adaptation Grid (DEMO)
Response Curves

Image Lightness

Luminance (Log10(cd/m^2))
Sorted Response Curves
Exposure levels
Exposure Sequence
Time-Dependent Visual Adaptation
Sumanta N. Pattanaik, Jack Tumblin, Hector Yee, Donald P. Greenberg (2000)
Adaptation Grid
Response Curves

Image Lightness

Luminance (Log10(cd/m^2))
Exposure levels
Exposure Sequence
Issues with process so far:

- rendering transparency has high latency on mobile
- frequent crashing on mobile
- No clear path to accurate adaptation time
- Adaptation field of view seems too small.

SOLUTION:

- Preload textures
- Use enough exposure steps (determined by $L = L_0 \times \text{base}^{\text{exposure}}$) to smooth transitions
- create time delay dependent on # of exposure steps traveled
Dynamic Adaptation VRview (DEMO)
Next Steps

• more accurately model adaptation times (include slow adaptation model for higher contrast scenes)
• incorporate acuity/veiling/color visibility from pcond
• Increase hotspot density / better packing / non circular outlines.
• calculate adaptation with eye model and weight pixels by solid angle
• Check sensitivity of viewer adaptation, device brightness and contrast.
• validation?????