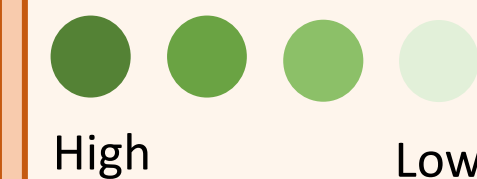


Adaptive Dynamic Global Illumination

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Probe importance



Motivation

- DDGI – With fixed ray budget per frame and uniform ray distribution, rays per probe reduces with more probes.
- Dynamic changes are hard to capture with few rays per probe.
- Alternative: non-uniform ray sampling.

Problem

- Store millions of probe in memory.
- Sample only a subset of probes.
 - Which subset to sample?
 - How to sample?

Our approach

- Compress probes – enabling millions.
- Adaptively sample a subset of probes:
 - Define heuristics – camera, geometry, irradiance change etc.
 - Quantify the heuristics with coarsely sampled pilot-rays.
 - Parallel Markov-Chain sampling.
 - Trace adaptive rays and store.

Conclusion

- Improved concentration of resources:
 - Reduce lag in probe updates and capture transient changes.
- Performance depend on no. of parallel chains, independent of probe count.

