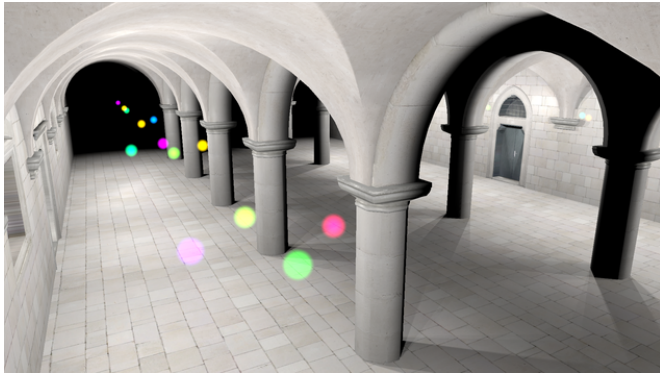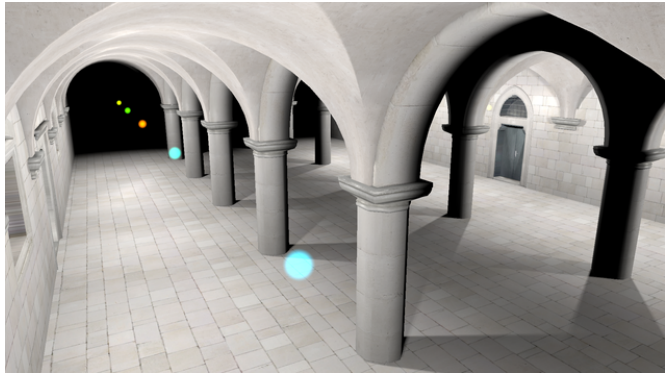(a) *The light distribution of 80 lights.*

(b) *The resulting reference solution at 97.8 ms.*
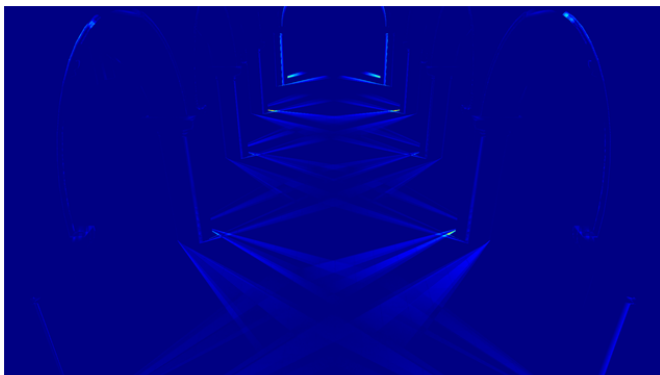

(c) *The clustering with 26 clusters.*

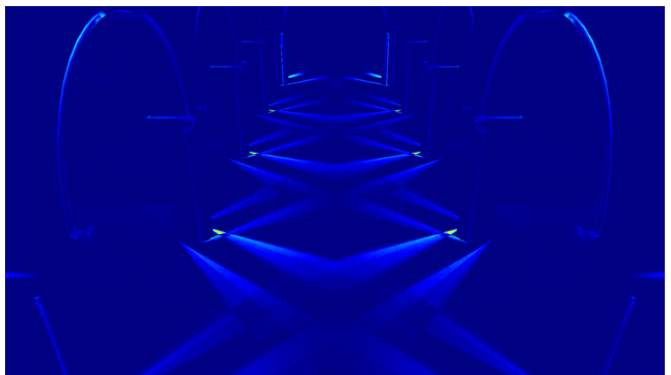(d) *The clustering with ten clusters.*

(e) *The resulting shadows for the cluster distribution at 43.1 ms.*

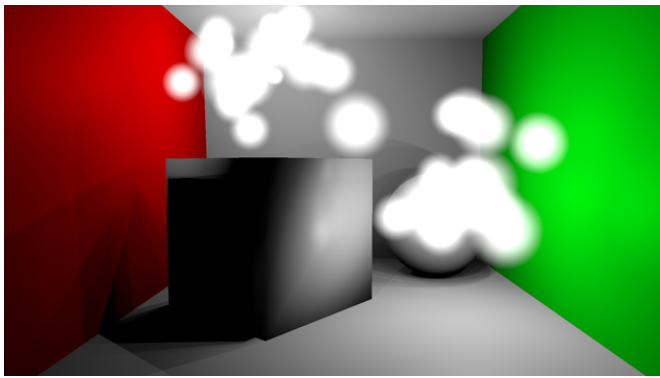(f) *The resulting shadows for the cluster distribution at 20.7 ms.*

(g) *The error for 26 clusters compared to the reference solution.*
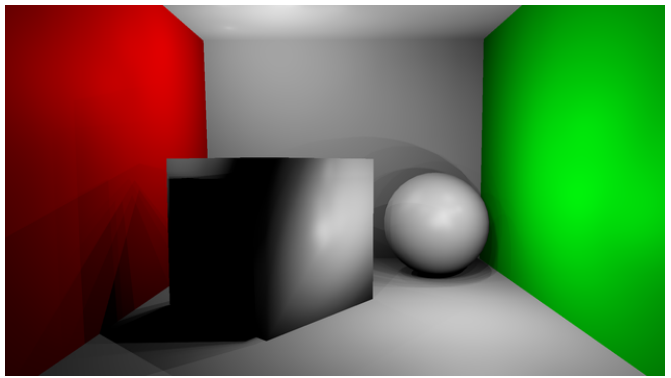

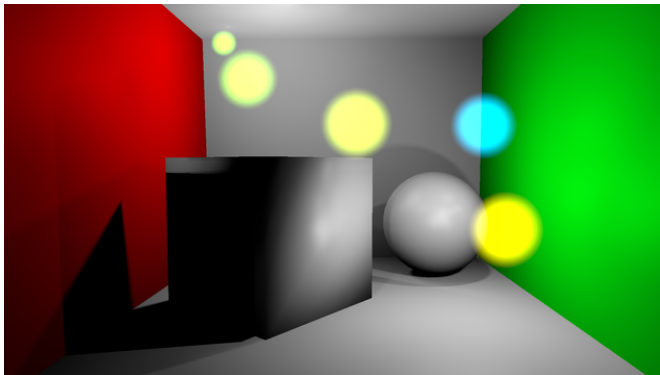(h) *The error for ten clusters compared to the reference solution.*

Figure 1: *Comparison for the Dabrovic Sponza scene. The results are rendered on an Intel Xeon E5620 CPU with 2.4 GHz, 8 GB RAM and a NVIDIA GeForce GTX 680 graphics card with 2048 MB memory. The screen resolution for all images is 1920x1080 and the resolution of one face in a cube shadow map is set to 1024x1024. We use a Poisson disk with eight samples for PCSS. The scene is downloaded from: http://graphics.cs.williams.edu/data*

(a) *The light distribution of 32 lights.*

(b) *The resulting reference solution at 20.0 ms.*

(c) *The clustering fwith five clusters.*
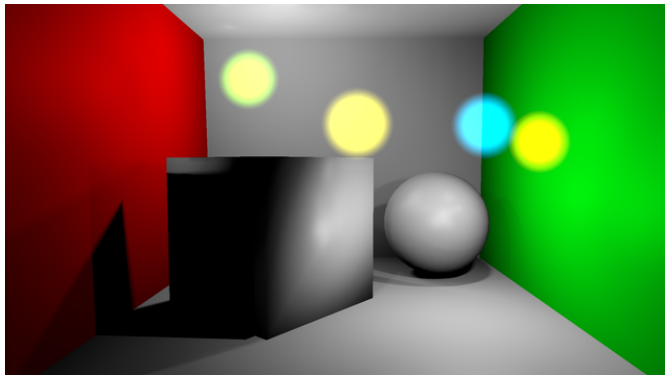
(d) *The clustering with four clusters.*
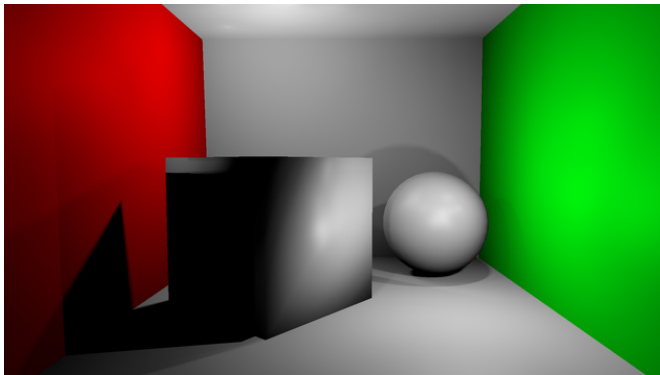
(e) *The resulting shadows for the cluster distribution at 12.1 ms.*
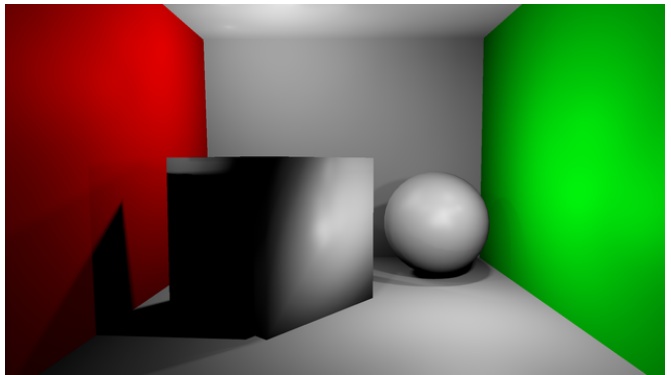
(f) *The resulting shadows for the cluster distribution at 11.1 ms.*

(g) *The error for five clusters compared to the reference solution.*
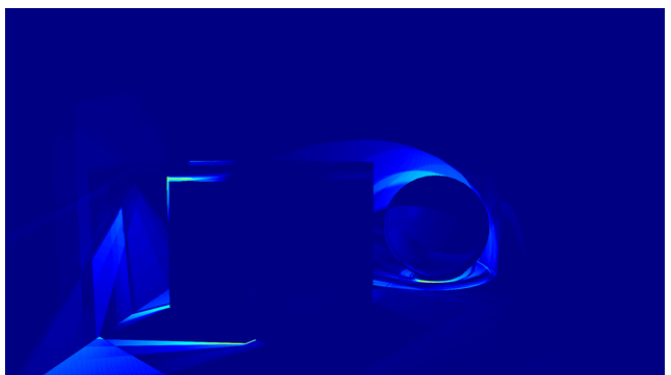
(h) *The error for four clusters compared to the reference solution.*

Figure 2: *Comparison for the Cornell Box scene. The results are rendered on an Intel Xeon E5620 CPU with 2.4 GHz, 8 GB RAM and a NVIDIA GeForce GTX 680 graphics card with 2048 MB memory. The screen resolution for all images is 1920x1080 and the resolution of one face in a cube shadow map is set to 1024x1024. We use a Poisson disk with eight samples for PCSS. The scene is downloaded from: http://graphics.cs.williams.edu/data*
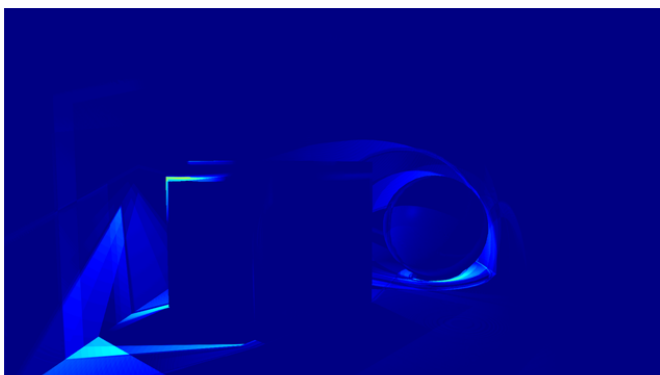
(a) *The light distribution of fourteen lights.*

(b) *The resulting reference solution at 39.3 ms.*

(c) *The clustering with nine clusters.*

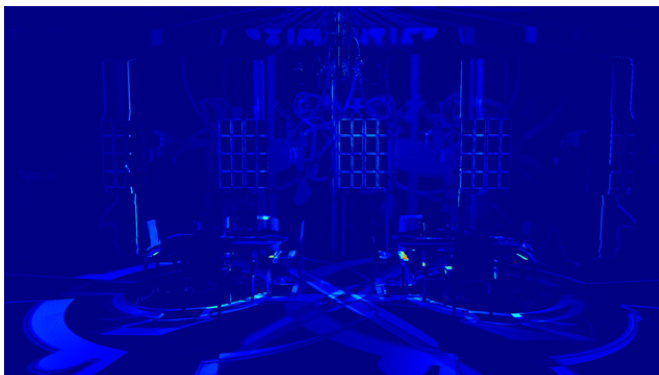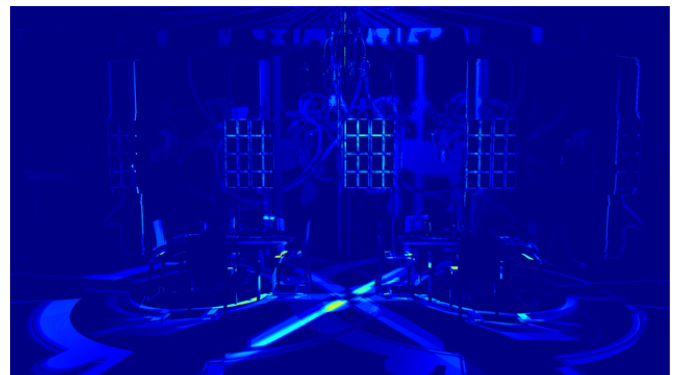**(d)** *The clustering with eight clusters.*

(e) *The resulting shadows for the cluster distribution at 32.9 ms.*

(f) *The resulting shadows for the cluster distribution at 30.5 ms.*

(g) *The error for nine clusters compared to the reference solution.*

(h) *The error for eight clusters compared to the reference solution.*

Figure 3: *Comparison for the Restaurant scene. The results are rendered on an Intel Xeon E5620 CPU with 2.4 GHz, 8 GB RAM and a NVIDIA GeForce GTX 680 graphics card with 2048 MB memory. The screen resolution for all images is 1920x1080 and the resolution of one face in a cube shadow map is set to 1024x1024. We use a Poisson disk with eight samples for PCSS. The scene is downloaded from: http://idst-render.com/scenes.html*