

Advanced Image Synthesis

Week 6

We will integrate the different strategies for Monte Carlo integration that we discussed in the last weeks and compare their efficiency. Please finish the implementation until 28/11/2017 and present your results.

1. Integrate the [light probe](#) into your Monte Carlo integrator so that you can approximate

$$I = \int_{H_x^2} \ell_x(\omega) \cos \theta d\omega$$

where $\ell_x(\omega)$ is the signal from the light probe.

2. Compare (quasi) Monte Carlo integration
 - i) with uniform sampling;
 - ii) with cosine-weighted importance sampling;
 - iii) with stratified sampling;
 - iv) with low discrepancy sequences

as a function of the number samples and time. Consider also possible combinations of the different strategies. Generate corresponding plots for mean error and variance.

3. How could you make the computations more efficient? Implement promising strategies?