Rendering Tutorial 5

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Assigment 1

Implement the Axis-aligned Bounding Box member functions `AABB::center()`, `AABB::longestAxis()`, and `AABB::surfaceArea()`.

Code that implements the rest of the AABB class and Bounding Volume Hierarchies is given in the tutorial material. Also, the new virtual member function `Surface::aabb()` is already implemented for spheres and triangles. Integrate the given code into your own pathtracer.

Assigment 2

Implement the following improvements introduced by Monte Carlo theory, as discussed in the lecture:

- Russian Roulette. A good practical strategy is given in the lecture slides.
- Stratified Sampling in image space, per pixel. Hint: it is helpful to specify the *square root* of the number of samples per pixel so that it is easier to subdivide a pixel horizontally and vertically.

Measure the performance improvement given by Russian Roulette.

(For Stratified Sampling, it is not easy to find a scene and configuration that *visually* improves at this stage.)