**Advanced Graphics - Assignment 2: Interactive Ray Tracer (BVH)**

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**Introduction**In this report we will describe our project for Assignment 2 of Advanced Graphics. We used a BVH to achieve real-time rendering for many triangles.

**Implemented functionality:**

We implemented a BVH, which can be built in multiple ways. We use the binning [1] approach combined with SAH [2]. In our code it’s also possible to use “normal” SAH or a median-split BVH. As expected, the median-split BVH gives the worst results. The “normal” SAH is too slow to use for kind of big scenes, such as the Stanford Bunny (~70k triangles). Therefore, it only is logical that we use the combined SAH and binning approach, where SAH is used in each bin.

We use 16 bins, because in [2] it is stated that “16 bins seem to be very close to the optimum”.

Our ShadowRays have an early out when traversing through the BVH, to increase efficiency.

early out bij shadowRays door BVH. Also "smart" bounds calculation for Partition.

Ordered traversal huilen

**Division of work:**

**References**  
[1] On fast Construction of SAH-based Bounding Volume Hierarchies, Wald, 2007  
  
[2] Heuristics for Ray Tracing using Space Subdivision, MacDonald & Booth, 1990

(iets over Dustin’s pa?)