Project 3:
Real-Time Ray Tracing
Description

• In this project, you’re going to implement Real-Time Ray Tracing (RTRT)

• All you need to do, is to denoise a sequence of noisy images in a temporal way
Some Useful Tips

• In this project, you don’t have to make everything real-time. You can pre-generate a set of 1SPP images along with the G-buffers and the motion vectors.

• It doesn’t matter whether you use CPU or GPU to implement.

• You don’t have to implement ray tracing (specifically, 1 SPP path tracing) yourself. You can just use Intel’s Embree (CPU) or NVIDIA’s OptiX (GPU, e.g. the optixPath example from its SDK) or any other tool that performs ray tracing for you.
Some Useful Tips

• You don’t have to accurately calculate the motion vectors (but you can, and it is encouraged that you do so!). Instead, you can find any Computer Vision tool that calculates optical flow for you.

• You can just use a 31x31 cross / joint bilateral filter for spatial filtering.
Due and Submission

• This project is due May 25

• Submission format is the same as before
  - But let me know what kind of temporal artifacts that you have witnessed / produced
Enjoy!