



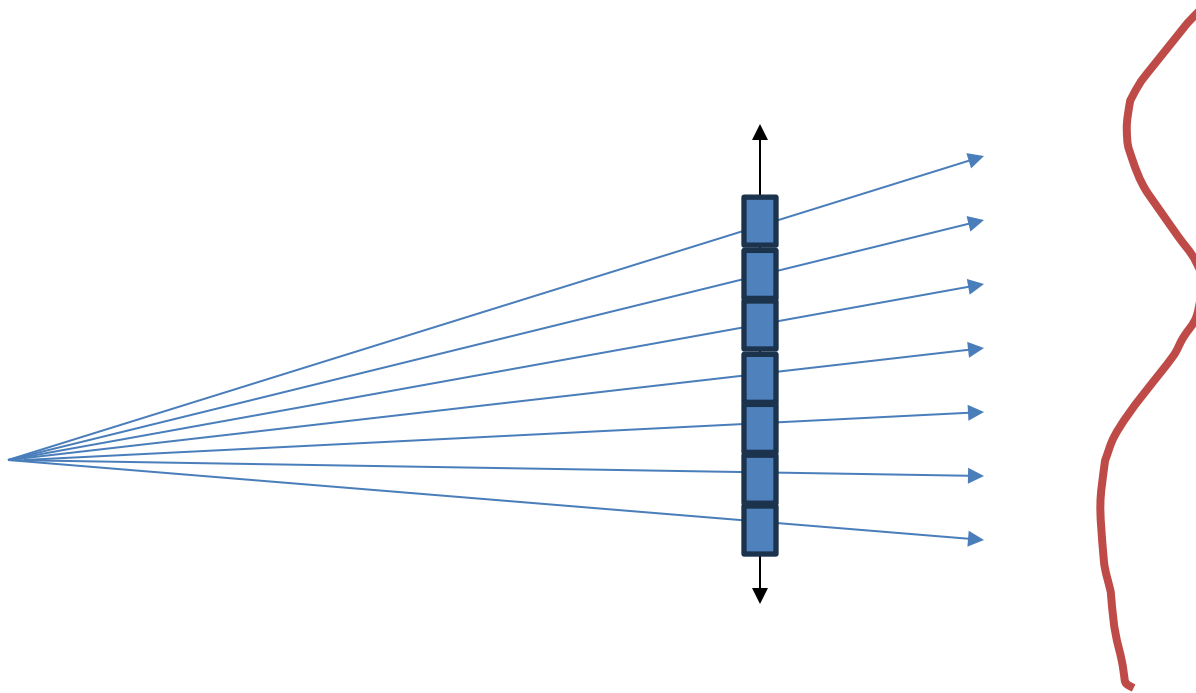
2D and 3D Splatting

CS535

Daniel Aliaga

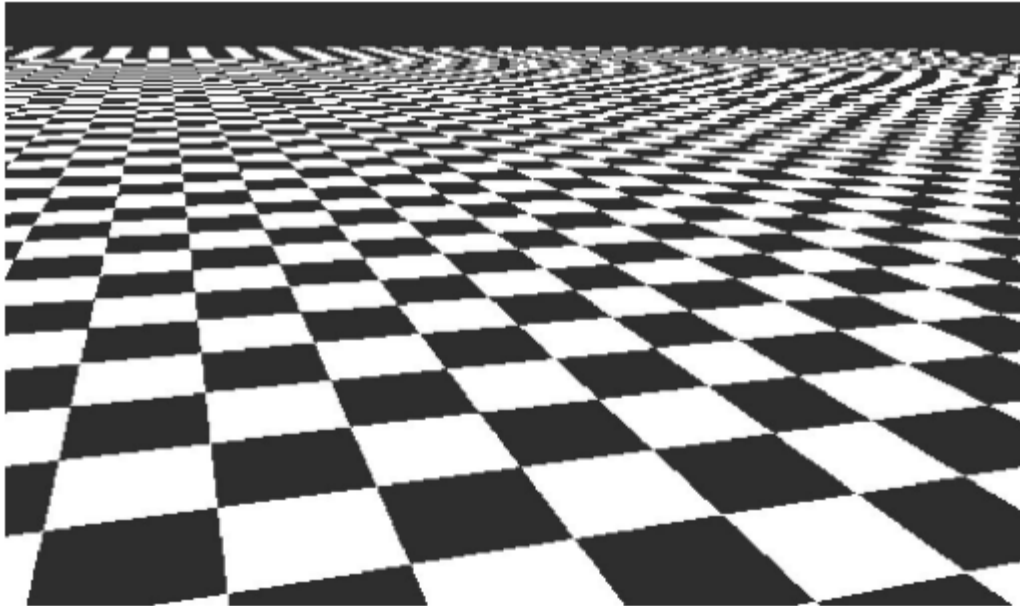


Problem

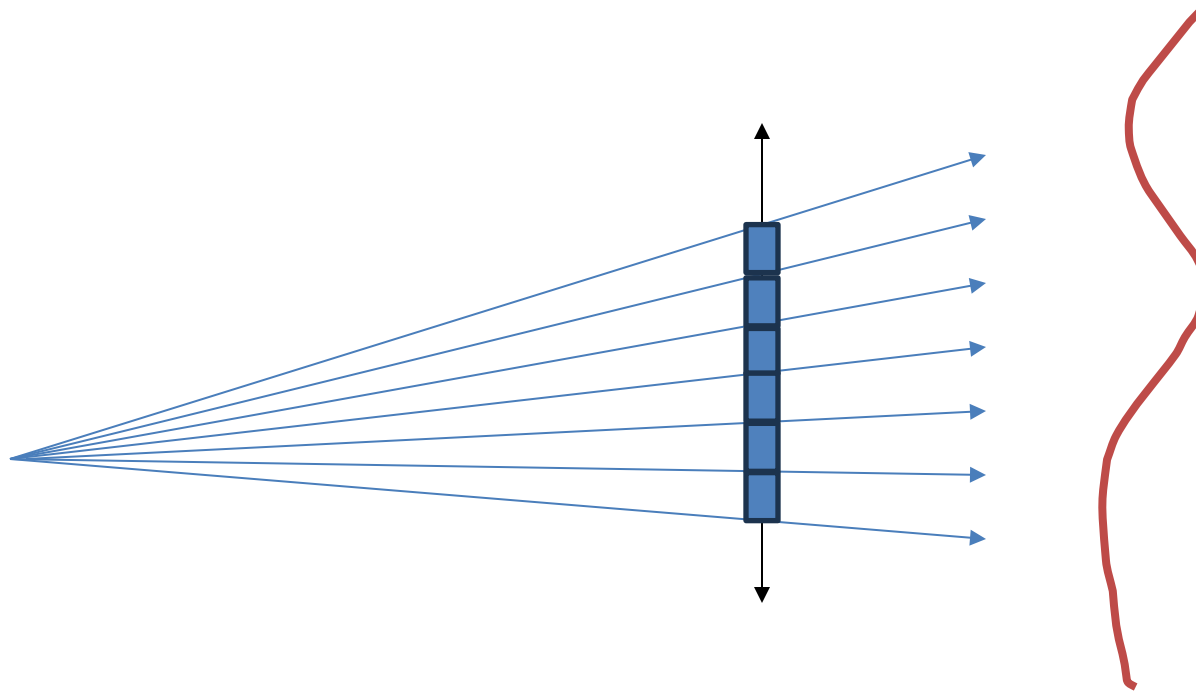


With what do we fill in the pixel?

Problem: aliasing?



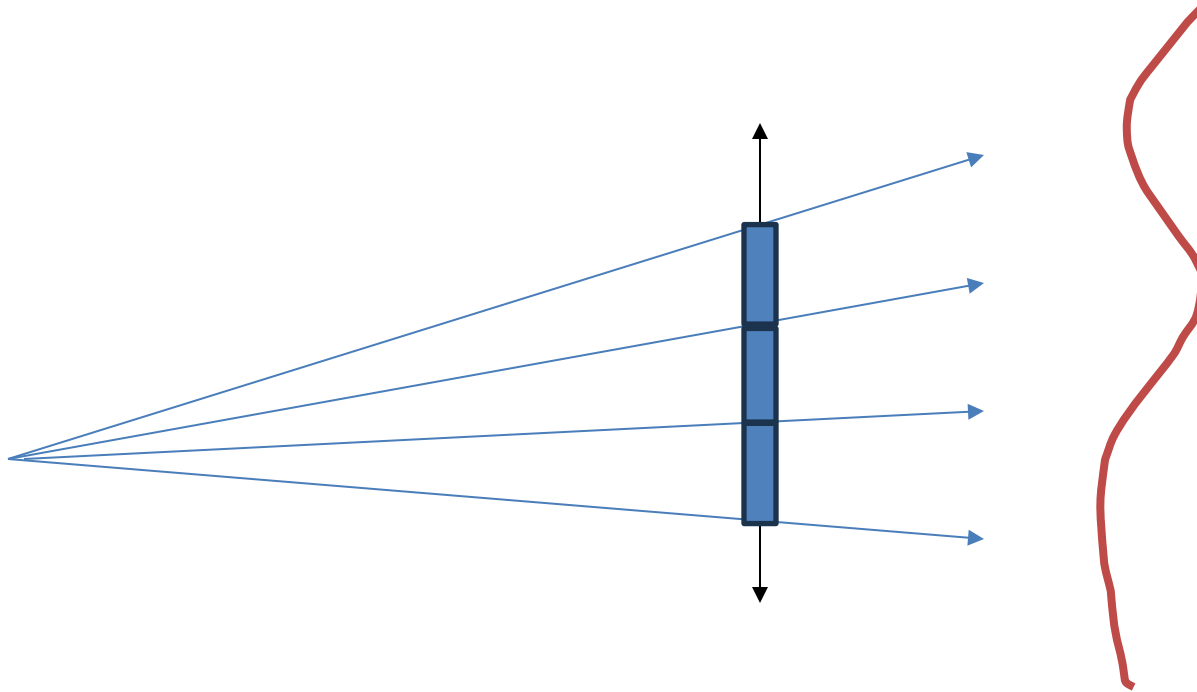
Simple solution: 1x1 splat



Issues?

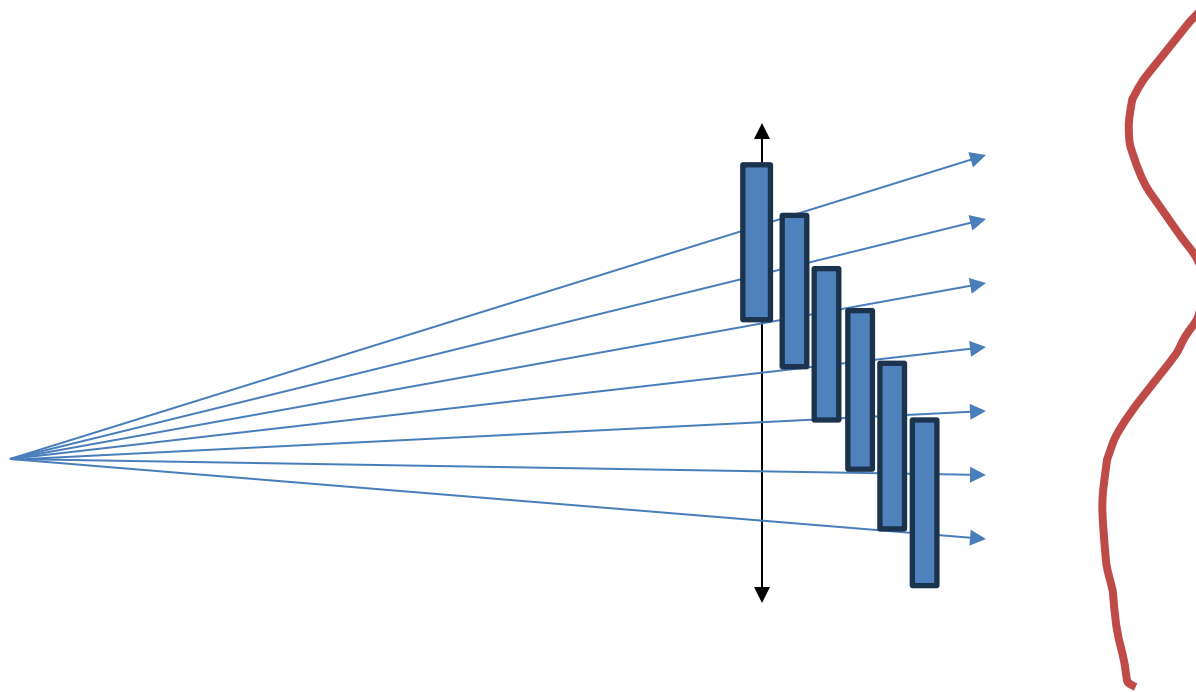


Simple solution: scaled



Issues?

Simple solution: 3x3 splat



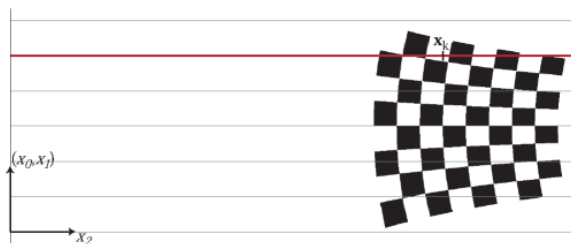
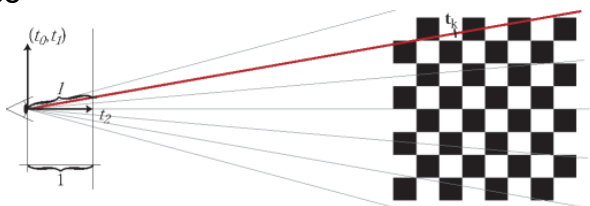
Issues?



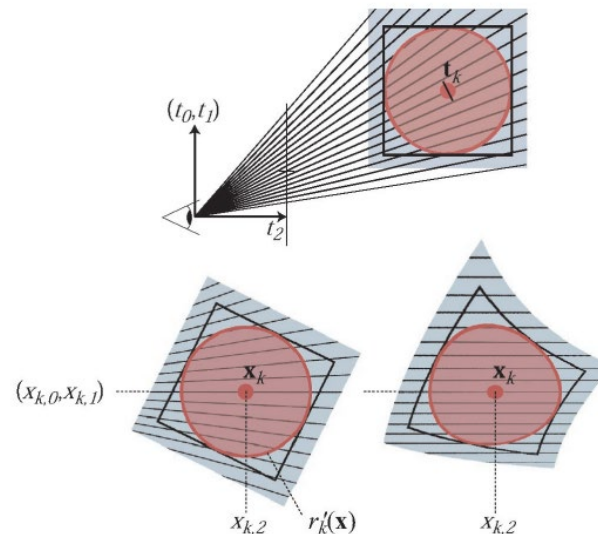
Problem

- If you render/ray-trace/ray-cast/NERF/warp “one pixel” how do you render it to the framebuffer?

Camera space

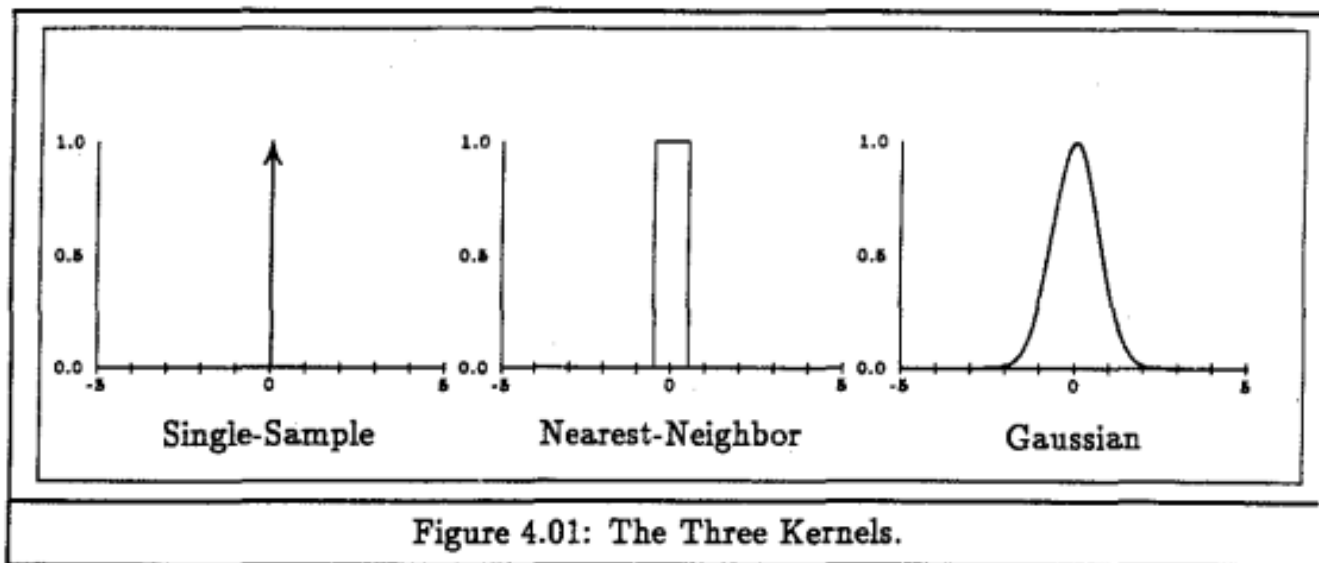


Ray space





Westover splatting:





“EWA Splatting” and Reconstruction

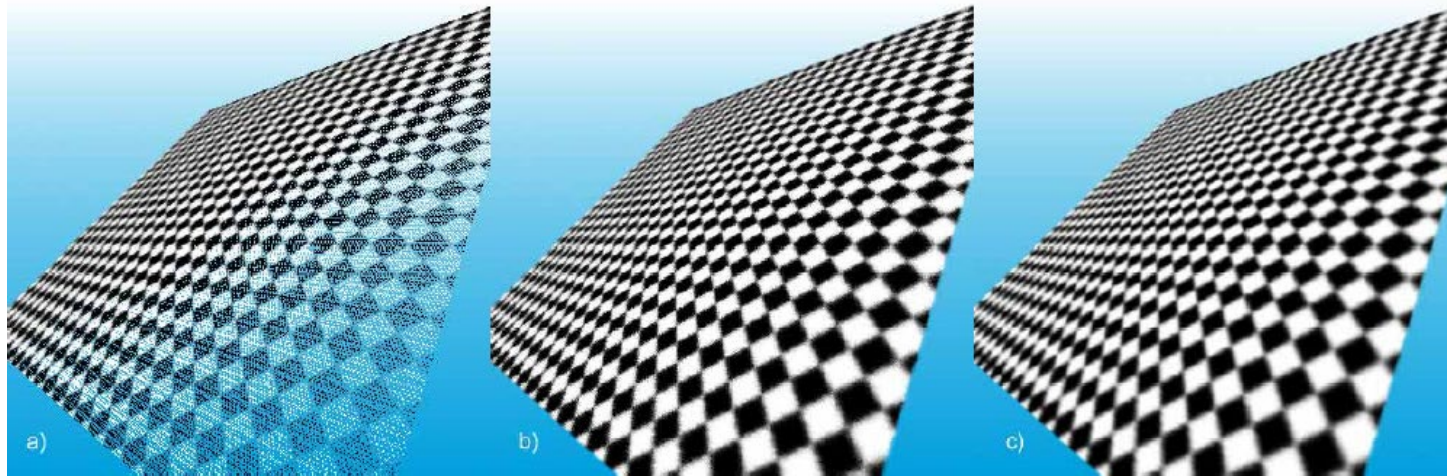
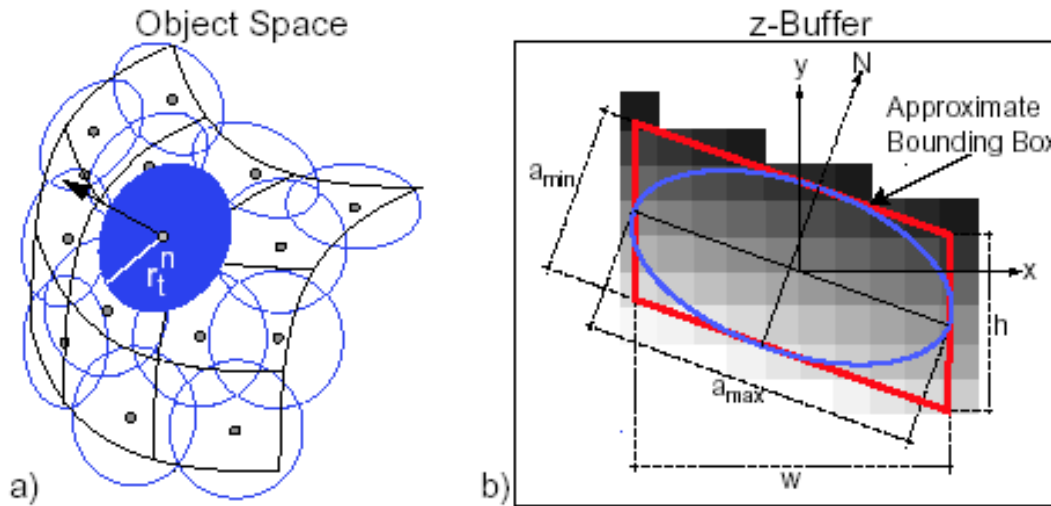
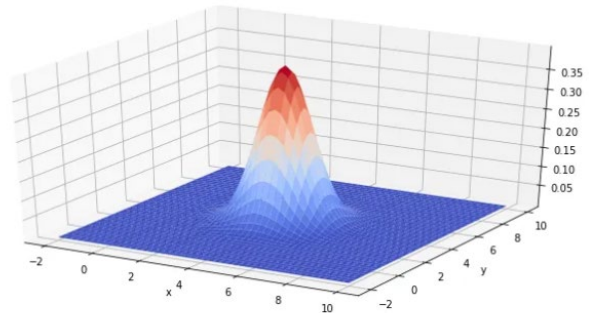


Figure 11: Tilted checker plane. Reconstruction filter: a) Nearest neighbor. b) Gaussian filter. c) Supersampling.

Recent 3D Gaussian Splatting



- <https://repo-sam.inria.fr/fungraph/3d-gaussian-splatting/>
- https://3dgstutorial.github.io/3dv_part1.pdf