

Lecture 17: Antialiasing – Review Questions

- How do we do antialiasing using the box filter?
- How can distributed ray tracing (using many sample rays per pixel) give us an approximation to the box filter?
- Use a signal processing description of sampling and filtering to explain why high frequency information in a texture can produce unwanted artifacts in an image (aliasing). (Refer to Jim Blinn's articles available from the course syllabus web page.)
- Does the box filter solve the problem? Explain why or why not.
- The sinc function is the theoretically correct filter to use in this situation. Use a frequency domain description to explain why this is true.
- How would we construct a filter based on the sinc function for antialiasing an image? What practical problems are encountered when trying to faithfully represent this function in the filter?
- Describe at least one practical filter that is a compromise between the box and sinc filters.
- How would you modify a distributed ray tracing scheme to implement such a filter?