

# Final Review

→ Email me Piles / UKL  
if your photon mapped  
model(s) by tomorrow  
(Wed) noon.

(if you're done early)

- What the course covered:

- C++ : assign. op =
  - big 3 (dstr., copy const.,)
  - templating (generic prog.)
- (operator) overloading  
(polymorphism)
- inheritance (photos: ray)  
(OOP)
- parallel programming  
(OMP, multi-use)
- STL

- Alg. Analysis

- Asymptotic function  
( $O(f(n))$ )

- Inductive proof

- Recurrence Relations  
(telescoping sum,  
recursive halves)

- Algorithms

- sorting: quick sort, merge sort, bubble sort, heap sort, selection sort, insert sort,

- Algs:  
shortest path
  - Data Structures
- 

- array
- list
- stack
- binary search tree
- AVL tree
- Hash table
- kd-tree
- graphs (adj. list, <sup>STL</sup> maps)

- EX1114:

- event-driven  
programming (Qt)

- dynamic programming

- photon mapping

# Final Exam

- asymptotic functions
  - big-oh (red & f(n))
  - order to  $O(f(n))$
  - then
$$f(n_1) < f(n_2) \leq f(n_3)$$

- recurrence relations

(30%)

- two long questions (solve)
- Practice what's in text

- Sorting algorithms:

Know: heapsort,

insertion sort,

selection sort,

bubble sort,

merge sort,

quicksort

- how they work,

how they compare

- shortest path :  
be able to run  
Dijkstra's in your  
head

- C++ :

- "what does this  
program do?"

(couple of these, tricky!)



- AVL trees:

- be able to do

rotations

- know inorder,

pre-order, post-

order traversals

(print)