Error vs. number of points

RMS error

Sub-Sampled Grid
Right Triangles
Irregular Triangles

Number of points

Crater Lake

MAX error

Sub-Sampled Grid
Right Triangles
Irregular Triangles

Number of points

Crater Lake
RTIN Hierarchy

Complete Binary Tree

Cut in tree represents approximation

Mixing between levels

Triangles in cut must obey no "T-junctions"

Space Required \[ 2N \text{ bytes} + 4N \text{ bits} \]
- Array of elevations
- One bit per node "Am I in cut?"

Represent complete binary tree "implicitly" as an array (like binary heap)

Array index = 1. Path label of triangle as binary number

label \( t \)
- L-child = \( t.0 \)
- R-child = \( t.1 \)
View Sensitive Approximation

Visible Error

Triangle \( t \) is bad if it's in Field of View and

\[
\frac{h_t}{d_t} > \text{errThreshold}
\]

or

\[
\frac{|t|}{d_t} > \text{sizeThreshold}
\]

Create approximation with no bad triangles

[Badness changes as viewer moves]

SPACE +2 bytes per \( \Delta \) to store \( h \) (max. error)
Fast Approximation
Top-Down (depth-first search) approach

Propagate Split to neighbor 3
(recursively)

How to determine addresses of neighbors
- Store 3 pointers (12 bytes) per Δ BAD
- Calculate neighbor address from Δ address GOOD