

Course Syllabus and Timeline

8:30 - 8:45 Taubin

- Introductory remarks

8:45 - 10:00 Rossignac

- Introduction and motivation
- Storage cost for Geometric representations
- Triangulated meshes
- Compressing tradeoffs (topology/geometry and storage/performance)
- Geometric accuracy and error measures
- Exploiting geometry and topology predictors
- The Edgebreaker approach to connectivity compression (2 bits/triangle guaranteed)
- Its extension to tetrahedral meshes
- Progressive refinement of geometric data

10:00 - 10:15 COFFEE BREAK

10:15 - 11:30 Taubin

- The MPEG-4 Mesh Coding tools
- Single resolution mode : Topological Surgery (TS)
- Progressive bit-stream syntax
- Compression of non-manifold meshes
- Hierarchical mode : Progressive Forest Split (PFS)
- Effect of mesh smoothing on compression ratios
- Demos

11:30 - 12:00 Deering

- Formats for *executable* compressed geometry.
- Real-time hardware rendering of compressed geometry.

12:00 - 1:30 LUNCH BREAK

1:30 - 2:15 Deering

- Examples based on OpenGL and Java3D.
- Trade-offs for compression quality vs. space vs. compression time.

2:15 - 3:00 Hoppe

- Overview of progressive mesh (PM) representation.
- Analysis of space compression using basic PM scheme.
- Recent enhancements to improve space compression, with results.

3:00 - 3:15 COFFEE BREAK

3:15 - 3:45 Hoppe

- Overview of progressive simplicial complex (PSC) representation, and results of progressive encoding of model topology.
- Discussion of tradeoffs in using progressive vs. non-progressive representations.

3:45 - 5:00 Gotsman

- Coding of connectivity and geometry of 3D meshes
- Advanced geometric prediction rules
- Coding of other mesh properties
- Coding of progressive geometric information
- Demos of some commercial products

5:00 - 5:15 Rossignac

- Conclusions