# Dr. Shontz
## CSE 598C: Meshing Techniques
## Fall 2011 Reading List

**1. Connections of Meshes to PDEs**
a. S.J. Owen. A survey of unstructured mesh generation technology, Proc. of the 7th International Meshing Roundtable, p. 239-267, 1998.
b. C. Johnson. Numerical Solution of Partial Differential Equations by the Finite Element Method, Cambridge University Press, 1988.

**2. Applications of Meshing**
a. H. Wang, J.F. O'Brien, and R. Ramamoorthi. Data-driven elastic models for cloth: Modeling and measurement, ACM Transactions on Graphics, 30 (4), 71, 2011.
b. Research presentation by Dr. Drapaca
c. Research presentation by Dr. Craven
d. Research presentation by Dr. Shontz[+]

**3. Delaunay Mesh Generation Techniques**
a. Selected readings from H. Edelsbrunner. Geometry and Topology for Mesh Generation, Cambridge University Press, 2006.

**4. Advancing Front Methods**
a. P.L. George and E. Seveno. The advancing-front mesh generation method revisited, International Journal for Numerical Methods in Engineering, 37, p. 3605-3619, 1994.
b. R.V. Garimella and M.S. Shephard. Boundary layer mesh generation for viscous flow simulations, Int. J. Numer. Meth. Engng., 49, p. 193-218, 2000.

**5. Quadtree/Octree Methods**
a. W.J. Schroeder and M.S. Shephard. A combined octree/Delaunay method for fully automatic 3-D mesh generation, International Journal for Numerical Methods in Engineering, 29, p. 37-55, 1990.
b. J. Qian and Y. Zhang. Sharp feature preservation in octree-based hexahedral mesh generation for CAD assembly models, Proc. of the 19th International Meshing Roundtable, 2010.

**6. Other Types of Mesh Generation Methods**
a. K. Shimada and D.C. Gosard. Bubble mesh: Automated triangular meshing of non-manifold geometry by sphere packing, Proc. of ACM Symposium on Solid Modeling and Applications, p. 409-419, 1995.
b. X. Roca, E. Ruiz-Girones, and J. Sarrate. Receding front method: A new approach applied to generate hexahedral meshes of outer domains, Proc. of the 19th International Meshing Roundtable, 2010.

**7. Mesh Quality Improvement Methods**
a. J.R. Shewchuk, Two discrete optimization algorithms for the topological improvement of tetrahedral meshes, Unpublished, 2002.
b. S.P. Sastry and S.M. Shontz, Performance characterization of nonlinear optimization methods for mesh quality improvement, Engineering with Computers, Published online July 9, 2011.

c. L.A. Freitag and P. Plassmann, Local optimization-based simplicial mesh untangling and improvement, Int. J. Numer. Meth. Engng., 49, p. 109-125, 2000.
d. Research presentation by Dr. Shontz[+]

**8. Connections Between Meshing and Solvers**
a. P.M. Knupp, Remarks on mesh quality, 45th AIAA Aierspace Sciences Meeting and Exhibit, 2007.
b. Q. Du, Z. Huang, and D. Wang, Mesh and solver co-adaptation in finite element methods for anisotropic problems, Numer Methods Partial Differential Eq, 21, p. 859-874, 2005.
c. J.R. Shewchuk, What is a good linear element? Interpolation, conditioning, and quality measures, Unpublished, 2002.

**9. Mesh Warping/Morphing**
a. M.Alexa. Recent advances in mesh morphing, Computer Graphics Forum, 21 (2), p. 173-198, 2002
b. Research Presentation by Dr. Shontz[+]

**10. Adaptive Mesh Refinement**
a. M.C. Rivara. Algorithms for refining triangular grids suitable for adaptive and multigrid techniques, International Journal for Numerical Methods in Engineering, 20, p. 745-756, 1984.
b. J. Behrens and M. Bader. Efficiency considerations in triangular adaptive mesh refinement, Phil. Trans. R. Soc. A, 367, p. 4577-4589, 2009.
c. J.G. Castanos and J.E. Savage. Parallel refinement of unstructured meshes, Proc. of the 1999 IASTED International Conference Parallel and Distributed Computing and Systems, 1999.

**11. Mesh Compression**
a. M. Isenburg. Triangle strip compression, Computer Graphics Forum, 20 (2), p. 91-101, 2001.
b. J. Peng, C.-S. Kim, and C.-C. J. Kuo. Technologies for 3D mesh compression: A survey, J. Vis. Commun. Image R., 16, p. 688-733, 2005.
c. H. Hoppe. Progressive meshes, Proc. of 1996 SIGGRAPH Conference, 1996.

**12. Parallel Mesh Techniques**
a. C. Walshaw, M. Cross, and M.G. Everett. A parallelisable algorithm for optimising unstructured mesh partitions, Mathematics Research Report, University of Greenwich, 1995.
b. T. Coupez, H. Digonnet, and R. Ducloux. Parallel meshing and remeshing, Applied Mathematical Modeling, 25, p. 153-175, 2000.

+ = I gave a single presentation on my research which covered mesh warping methods, mesh quality improvement methods, and biomedical applications of these techniques.