15-464/15-664 Reference List for April 19, 2021

Today we looked at a few more deformable body papers. First, we reviewed Shape Matching for fast, stable, deformable body simulation.

Müller, Matthias, Bruno Heidelberger, Matthias Teschner, and Markus Gross. "Meshless deformations based on shape matching." *ACM transactions on graphics (TOG)* 24, no. 3 (2005): 471-478.
https://dl.acm.org/doi/abs/10.1145/1073204.1073216
https://www.youtube.com/watch?v=LAoQJ1dhk1w

We then returned to the Finite Element Method, looking at the following paper on how to make the approach robust to large deformations, including element inversion:

Irving, Geoffrey, Joseph Teran, and Ron Fedkiw. "Invertible finite elements for robust simulation of large deformation." In *Proceedings of the 2004 ACM SIGGRAPH/Eurographics symposium on Computer animation*, pp. 131-140. Eurographics Association, 2004. http://dl.acm.org/citation.cfm?id=1028541

We had a look at the following two papers, which discuss fast and interactive finite element simulation.

Kim J, Pollard NS. Fast simulation of skeleton-driven deformable body characters. ACM Transactions on Graphics (TOG). 2011 Oct 1;30(5):121.
http://www.cs.cmu.edu/~junggon/projects/fastsimuldbody/fastsimuldbody.htm

Kim, Junggon, and Nancy S. Pollard. "Direct control of simulated nonhuman characters." *IEEE Computer Graphics and Applications* 31, no. 4 (2011): 56-65.
http://www.cs.cmu.edu/~junggon/projects/directcontrol/directcontrol.htm

At the end of class, I mentioned this course and article by Theodore Kim. If you are interested in this topic, you may want to have a look at some of the other papers on his website.

Kim, Theodore, and David Eberle. "Dynamic deformables: implementation and production practicalities." In *ACM SIGGRAPH 2020 Courses*, pp. 1-182. 2020.
http://www.tkim.graphics/DYNAMIC_DEFORMABLES/

Smith, Breannan, Fernando De Goes, and Theodore Kim. "Analytic eigensystems for isotropic distortion energies." *ACM Transactions on Graphics (TOG)* 38, no. 1 (2019): 1-15 http://www.tkim.graphics/