15-464 / 15-664 Reference List for Cloth

Cloth

This is a go-to paper for “traditional” cloth simulation:

Bridson, Robert, Ronald Fedkiw, and John Anderson. "Robust treatment of collisions, contact and friction for cloth animation." In *ACM Transactions on Graphics (ToG)*, vol. 21, no. 3, pp. 594-603. ACM, 2002. https://graphics.stanford.edu/papers/cloth-sig02/

You may wish to explore implicit integration:

Baraff, David, and Andrew Witkin. "Large steps in cloth simulation." In *Proceedings of the 25th annual conference on Computer graphics and interactive techniques*, pp. 43-54. ACM, 1998.

Cloth can be created using constraints instead of springs. These results started out as a class project:

Toh, Yue P. *Sticky-Finger Manipulation With A Multi-Touch Interface*. No. CMU-CS-11-124. CARNEGIE-MELLON UNIV PITTSBURGH PA SCHOOL OF COMPUTER SCIENCE, 2011.

http://www.dtic.mil/dtic/tr/fulltext/u2/a556674.pdf

http://www.kentoh.com/publications/

At the opposite extreme, yarn-level simulations produce beautiful results:

Kaldor, Jonathan M., Doug L. James, and Steve Marschner. "Simulating knitted cloth at the yarn level." In *ACM Transactions on Graphics (TOG)*, vol. 27, no. 3, p. 65. ACM, 2008.
http://www.cs.cornell.edu/projects/YarnCloth/

Wrinkles are a challenge:

Bridson, Robert, Sebastian Marino, and Ronald Fedkiw. "Simulation of clothing with folds and wrinkles." In *Proceedings of the 2003 ACM SIGGRAPH/Eurographics symposium on Computer animation*, pp. 28-36. Eurographics Association, 2003. https://graphics.stanford.edu/papers/cloth2003/

Zurdo, Javier S., Juan P. Brito, and Miguel A. Otaduy. "Animating wrinkles by example on non-skinned cloth." *Visualization and Computer Graphics, IEEE Transactions on* 19, no. 1 (2013): 149-158. http://www.gmrv.es/Publications/2013/ZBO13/

Design tools are also interesting:

Turquin, Emmanuel, Jamie Wither, Laurence Boissieux, Marie-Paule Cani, and John F. Hughes. "A sketch-based interface for clothing virtual characters." *IEEE Computer Graphics and Applications* 27, no. 1 (2007): 72-81. http://maverick.inria.fr/Publications/2007/TWBCH07/

Umetani, Nobuyuki, Danny M. Kaufman, Takeo Igarashi, and Eitan Grinspun. "Sensitive couture for interactive garment modeling and editing." *ACM Trans. Graph.* 30, no. 4 (2011): 90. http://www.cs.columbia.edu/cg/SC/

Try doing a simple version of this paper with a constraint based cloth model for stability?

How do we control cloth behavior?

What if we manipulate cloth constraints?

Powerful cloth simulator -- ARCSim:
http://graphics.berkeley.edu/resources/ARCSim/index.html

NPR cloth

http://www.researchgate.net/publication/251771987_NPR_in_production_animating_the_Sung_dynasty_painting_Children_at_Play/file/50463522ae6a1d1d66.pdf

https://www.youtube.com/watch?v=VpCcBsatd50

Mixing cloth and 2D animation

Jain, Eakta, Yaser Sheikh, Moshe Mahler, and Jessica Hodgins. "Three-dimensional proxies for hand-drawn characters." *ACM Transactions on Graphics (TOG)* 31, no. 1 (2012): 8.
http://graphics.cs.cmu.edu/projects/threeDproxy/