

16-899: Reference list for Monday, Jan 25th

This is a good short intro, with many references to follow up on, but little detail.

Okamura AM, Smaby N, Cutkosky MR. An overview of dexterous manipulation. In *Robotics and Automation, 2000. Proceedings. ICRA'00. IEEE International Conference on 2000* (Vol. 1, pp. 255-262). IEEE.

http://www.researchgate.net/profile/Allison_Okamura/publication/221069635_An_Overview_of_Dexterous_Manipulation/links/547b5d1d0cf205d16881c4c9.pdf

This longer article is carefully done, and includes numerical examples.

Prattichizzo D, Trinkle JC. Grasping. In *Springer handbook of robotics 2008 Jan 1* (pp. 671-700). Springer Berlin Heidelberg.

<http://gimiha.googlecode.com/svn/trunk/doc/ref/handbook%20of%20robotics/ch28.pdf>

This paper covers the situation where we may have many tendons of different strengths. (It specifically looks at measuring grasp quality for the human hand.) We'll mostly look at Section IV and the APPENDIX.

Li Y, Fu JL, Pollard NS. Data-driven grasp synthesis using shape matching and task-based pruning. *Visualization and Computer Graphics, IEEE Transactions on*. 2007 Jul;13(4):732-47.

<http://repository.cmu.edu/cgi/viewcontent.cgi?article=2262&context=compsci>

This paper shows that it makes a difference whether you consider hand anatomy or only contact points:

J. L. Fu and N. S. Pollard, 2006. [On the Importance of Asymmetries in Grasp Quality Metrics for Tendon Driven Hands](#), *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Beijing, China, pp 1068-1075, 2006.

Is a rigid body analysis sufficient? This paper investigates the value of soft contacts in control.

[Controlling Physics-Based Characters Using Soft Contacts](#), Sumit Jain, and C. Karen Liu, in *ACM Transactions on Graphics* (presented at SIGGRAPH Asia), 2011
<http://www.cc.gatech.edu/graphics/projects/Sumit/homepage/projects/softcontacts/index.html>

Here are some tools with built in models and supporting various kinds of typical grasp analyses:

GraspIt!

<http://www.cs.columbia.edu/~cmatei/graspit/>

SynGrasp

<http://sirslab.dii.unisi.it/syngrasp/>

OpenGrasp

<http://opengrasp.sourceforge.net/>

Grade your hand toolbox

<http://grasp.xief.net/>