15-464/15-664 Reference List for April 10, 2019

Before I list the papers that I discussed in class, let me mention that this reference is very thorough, and contains a great deal of background material up to 2011:

Geijtenbeek, Thomas, Nicolas Pronost, Arjan Egges, and Mark H. Overmars. "Interactive character animation using simulated physics." *Eurographics-state of the art reports* 2 (2011). http://www.cs.uu.nl/docs/vakken/mgp/literature/Interactive%20Character%20Animation%20Using%20Simulated%20Physics%20-%20A%20State-of-the-Art%20Review.pdf

We began by talking about state machine based control, beginning with papers from the 90's:

Raibert, Marc H., and Jessica K. Hodgins. "Animation of dynamic legged locomotion." In *ACM SIGGRAPH Computer Graphics*, vol. 25, no. 4, pp. 349-358. ACM, 1991. http://dl.acm.org/citation.cfm?id=122755&dl=ACM&coll=DL&CFID=657285216&CFTOKEN=27654732

Jessica K. Hodgins, Wayne L. Wooten, David C. Brogan, and James F. O'Brien. 1995. Animating human athletics. In *Proceedings of the 22nd annual conference on Computer graphics and interactive techniques* (SIGGRAPH '95), Susan G. Mair and Robert Cook (Eds.). ACM, New York, NY, USA, 71-78. DOI=10.1145/218380.218414 http://doi.acm.org/10.1145/218380.218414

Yin, KangKang, Kevin Loken, and Michiel van de Panne. "Simbicon: Simple biped locomotion control." In *ACM Transactions on Graphics (TOG)*, vol. 26, no. 3, p. 105. ACM, 2007. http://www.cs.ubc.ca/~van/papers/Simbicon.htm

Coros, Stelian, Philippe Beaudoin, and Michiel van de Panne. "Generalized biped walking control." *ACM Transactions on Graphics (TOG)*. Vol. 29. No. 4. ACM, 2010. http://www.cs.ubc.ca/~van/papers/2010-TOG-gbwc/

Coros, Stelian, et al. "Locomotion skills for simulated quadrupeds." *ACM Transactions on Graphics (TOG)*. Vol. 30. No. 4. ACM, 2011. http://www.cs.ubc.ca/~van/papers/2011-TOG-quadruped/index.html

We then moved on to the topics of motion optimization, and adding muscles to give the character's movement a more biological base.

Wang, Jack M., David J. Fleet, and Aaron Hertzmann. "Optimizing walking controllers." *ACM Transactions on Graphics (TOG)* 28.5 (2009): 168. http://www.dgp.toronto.edu/~jmwang/optwalk/

Wang, Jack M., David J. Fleet, and Aaron Hertzmann. "Optimizing walking controllers for uncertain inputs and environments." *ACM Transactions on Graphics (TOG)*. Vol. 29. No. 4. ACM, 2010. http://www.dgp.toronto.edu/~jmwang/optuie/

Wang, Jack M., et al. "Optimizing locomotion controllers using biologically-based actuators and objectives." *ACM transactions on graphics* 31.4 (2012). http://vladlen.info/publications/optimizing-locomotion-controllers-using-biologically-based-actuators-and-objectives/

Geijtenbeek, Thomas, Michiel van de Panne, and A. Frank van der Stappen. "Flexible muscle-based locomotion for bipedal creatures." *ACM Transactions on Graphics (TOG)* 32, no. 6 (2013): 206. http://www.cs.ubc.ca/~van/papers/2013-TOG-MuscleBasedBipeds/index.html

One breakthrough in motion optimization was to allow contacts to vary, creating a smooth objective function by allowing forces to be generated (with penalty) even when contact had not yet been achieved.

Mordatch, Igor, Emanuel Todorov, and Zoran Popović. "Discovery of complex behaviors through contact-invariant optimization." *ACM Transactions on Graphics (TOG)* 31.4 (2012): 43. http://dl.acm.org/citation.cfm?id=2185539

Mordatch, Igor, et al. "Animating human lower limbs using contact-invariant optimization." *ACM Transactions on Graphics (TOG)* 32.6 (2013): 203. http://vladlen.info/publications/animating-human-lower-limbs-using-contact-invariant-optimization/
