15-464 / 15-664 Reference List for Crowds

Crowds

Boids model: http://www.red3d.com/cwr/boids/

Check out UNC's extensive and varied computer graphics research in this area:
http://gamma.cs.unc.edu/research/crowds/

Julien Pettre is another current expert in this area. Some recent papers:

Jordao, Kevin, Julien Pettré, Marc Christie, and M-P. Cani. "Crowd sculpting: A space-time sculpting method for populating virtual environments." In *Computer Graphics Forum*, vol. 33, no. 2, pp. 351-360. 2014. https://www.youtube.com/watch?v=2BpOdiYkZS4

Lemercier, Samuel, Asja Jelic, Richard Kulpa, Jiale Hua, Jérôme Fehrenbach, Pierre Degond, Cécile Appert-Rolland, Stéphane Donikian, and Julien Pettré. "Realistic following behaviors for crowd simulation." In *Computer Graphics Forum*, vol. 31, no. 2pt2, pp. 489-498. Blackwell Publishing Ltd, 2012. https://www.youtube.com/watch?v=ULQcBjv_7TE

These two groups offered a SIGGRAPH course this year:

Pettré, Julien, and Ming Lin. "New generation crowd simulation algorithms." In *ACM SIGGRAPH 2014 Courses*, p. 4. ACM, 2014. http://dl.acm.org/citation.cfm?id=2615446

Funda Durupinar studies how personality models can be used in crowd simulation: https://sites.google.com/site/fdurupinar/home/publications-1

Dirk Helbing studies crowds from the social sciences perspective. It is well worth taking a look at his social forces model to see what it does and does not do well. Some classic and recent references are listed below. You can see his 2009 talk on the social force model here: http://vimeo.com/21067729

Helbing, Dirk, and Peter Molnar. "Social force model for pedestrian dynamics." *Physical review E* 51, no. 5 (1995): 4282. http://arxiv.org/pdf/cond-mat/9805244.pdf

Johansson, Anders, Dirk Helbing, and Pradyumn K. Shukla. "Specification of the social force pedestrian model by evolutionary adjustment to video tracking data." *Advances in complex systems* 10, no. supp02 (2007): 271-288. http://arxiv.org/pdf/0810.4587.pdf

Moussaïd, Mehdi, Dirk Helbing, and Guy Theraulaz. "How simple rules determine pedestrian behavior and crowd disasters." *Proceedings of the National Academy of Sciences* 108, no. 17 (2011): 6884-6888. http://www.pnas.org/content/108/17/6884.full.pdf+html