

Reference List for 15-464 / 15-664 March 8, 2017

Monday's discussion of final projects brought up a number of directions for follow-up.

Some papers building on deformables with point based systems were discussed.

On controlling properties of point based deformable objects:

Müller M, Keiser R, Nealen A, Pauly M, Gross M, Alexa M. Point based animation of elastic, plastic and melting objects. In Proceedings of the 2004 ACM SIGGRAPH/Eurographics symposium on Computer animation 2004 Aug 27 (pp. 141-151). Eurographics Association. <http://dl.acm.org/citation.cfm?id=1028542>

<https://www.youtube.com/watch?v=kN3PatKTs7g>

Here is the paper related to contact:

Hetdelherger RK, Gross MT. Contact handling for deformable point-based objects. In Vision, Modeling, and Visualization 2004: Proceedings, November 16-18, 2004, Stanford, USA 2004 (p. 315). IOS Press. http://cg.informatik.uni-freiburg.de/publications/2004_VMV_collisionResponse.pdf

<https://www.youtube.com/watch?v=q68tkCa5nJs>

You can find a lot more on this topic here:

Teschner M, Kimmerle S, Heidelberger B, Zachmann G, Raghupathi L, Fuhrmann A, Cani MP, Faure F, Magnenat-Thalmann N, Strasser W, Volino P. Collision detection for deformable objects. In Computer graphics forum 2005 Mar 1 (Vol. 24, No. 1, pp. 61-81). Blackwell Publishing Ltd. <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8659.2005.00829.x/full>

Here is the paper on untangling cloth:

Baraff D, Witkin A, Kass M. Untangling cloth. In ACM Transactions on Graphics (TOG) 2003 Jul 27 (Vol. 22, No. 3, pp. 862-870). ACM. <http://dl.acm.org/citation.cfm?id=882357>

This paper seems very doable for making braids:

Choe B, Ko HS. A statistical wisp model and pseudophysical approaches for interactive hairstyle generation. IEEE Transactions on Visualization and Computer Graphics. 2005 Mar;11(2):160-70. <http://ieeexplore.ieee.org/abstract/document/1388227/>

<http://graphics.snu.ac.kr/publications/2005-choe-HairModeling/index.html>

The “Tangled” paper I mentioned is this one, but it has very little detail.

Ward K, Simmons M, Milne A, Yosumi H, Zhao X, Studios WD. Simulating Rapunzel's hair in Disney's Tangled. In SIGGRAPH Talks 2010 Jul 26. http://disney-animation.s3.amazonaws.com/uploads/production/publication_asset/56/asset/rapzHairSim.pdf

One example of how to render SPH fluids is nicely covered in this paper, but implementing this even partially is a project in itself:

Losasso F, Talton J, Kwatra N, Fedkiw R. Two-way coupled SPH and particle level set fluid simulation. IEEE Transactions on Visualization and Computer Graphics. 2008 Jul;14(4):797-804. <http://ieeexplore.ieee.org/abstract/document/4459322/>

<https://www.youtube.com/watch?v=M-gB5Jojbeg>

Here is the paper on how the characters in the game “Spore” are animated:

Hecker C, Raabe B, Enslow RW, DeWeese J, Maynard J, van Prooijen K. Real-time motion retargeting to highly varied user-created morphologies. ACM Transactions on Graphics (TOG). 2008 Aug 1;27(3):27. <http://dl.acm.org/citation.cfm?id=1360626>

http://chrishecker.com/Real-time_motion_retargeting_to_highly_varied_user-created_morphologies

For lift, take a look at the section on the aerodynamics model in this paper:

Wu JC, Popović Z. Realistic modeling of bird flight animations. ACM Transactions on Graphics (TOG). 2003 Jul 1;22(3):888-95. <http://dl.acm.org/citation.cfm?id=882360>

<https://www.youtube.com/watch?v=SoM1nS3uSrY>

This topic made me think of “Paperman.” There are probably better video links out there, but here is one that works today.

<https://www.youtube.com/watch?v=JF9uz3EGSok>