15-464/15-664 Reference List for April 5 2023

Today after the paper presentations, we saw a quick series of videos. Here are the papers related to the different videos that I showed in the last few minutes of class.

The first video I showed was from the following paper and shows using changing rest shape of a simulated deformable as an artist tool to create expressive character performances.

Coros, Stelian, Sebastian Martin, Bernhard Thomaszewski, Christian Schumacher, Robert Sumner, and Markus Gross. "Deformable objects alive!." *ACM Transactions on Graphics (TOG)* 31, no. 4 (2012): 1-9. https://dl.acm.org/doi/abs/10.1145/2185520.2185565

The following papers relate to applications of the Material Point Method:

Wang, Stephanie, Mengyuan Ding, Theodore F. Gast, Leyi Zhu, Steven Gagniere, Chenfanfu Jiang, and Joseph M. Teran. "Simulation and visualization of ductile fracture with the material point method." *Proceedings of the ACM on Computer Graphics and Interactive Techniques* 2, no. 2 (2019): 1-20. https://www.youtube.com/watch?v=JsHeG0nk7JU

Ding, Mengyuan, Xuchen Han, Stephanie Wang, Theodore F. Gast, and Joseph M. Teran. "A thermomechanical material point method for baking and cooking." *ACM Transactions on Graphics (TOG)* 38, no. 6 (2019): 1-14. https://www.youtube.com/watch?v=iBpolaB4DqA

Sun, Yuchen, Xingyu Ni, Bo Zhu, Bin Wang, and Baoquan Chen. "A material point method for nonlinearly magnetized materials." *ACM Transactions on Graphics (TOG)* 40, no. 6 (2021): 1-13. https://www.youtube.com/watch?v=2zqJ1wvverA

We took a very quick look at a Monte Carlo method for fluid simulation

Rioux-Lavoie, Damien, Ryusuke Sugimoto, Tümay Özdemir, Naoharu H. Shimada, Christopher Batty, Derek Nowrouzezahrai, and Toshiya Hachisuka. "A Monte Carlo Method for Fluid Simulation." *ACM Transactions on Graphics (TOG)* 41, no. 6 (2022): 1-16. https://riouxld21.github.io/research/publication/2022-mcfluid/

We saw an approach for texturizing volumetric fluid simulations based on a sample texture:

Aurand, Joshua, Raphael Ortiz, Silvia Nauer, and Vinicius C. Azevedo. "Efficient Neural Style Transfer for Volumetric Simulations." *ACM Transactions on Graphics (TOG)* 41, no. 6 (2022): 1-10. https://studios.disneyresearch.com/2022/11/30/efficient-neural-style-transfer-for-volumetric-simulations/

We also saw a modern approach for simulating fire and combustion:

Nielsen, Michael B., Morten Bojsen-Hansen, Konstantinos Stamatelos, and Robert Bridson. "Physics-Based Combustion Simulation." *ACM Transactions on Graphics (TOG)* 41, no. 5 (2022): 1-21. https://dl.acm.org/doi/full/10.1145/3526213#sec-supp

Moving to SPH fluids, we saw an approach for fast neighborhood search using Octrees

Fernández-Fernández, José Antonio, Lukas Westhofen, Fabian Löschner, Stefan Rhys Jeske, Andreas Longva, and Jan Bender. "Fast Octree Neighborhood Search for SPH Simulations." *ACM Transactions on Graphics (TOG)* 41, no. 6 (2022): 1-13.
https://animation.rwth-aachen.de/publication/0579/

Finally, I ran out of time to show this one, but you may also find this paper interesting:

Liu, Jinyuan, Mengdi Wang, Fan Feng, Annie Tang, Qiqin Le, and Bo Zhu. "Hydrophobic and Hydrophilic Solid-Fluid Interaction." *ACM Transactions on Graphics (TOG)* 41, no. 6 (2022): 1-15.
https://jinyuan-liu.github.io/projects/2022hydro/