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COMP 4270 Computer Graphics

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### **Literature Review #2**

For this literature review the two papers were dealing with animation generated via computers. These two papers explain how humans can use computer generated animation to assist us in practically anything we do. The first article titled “*Space-Time sketching of character animation*” focuses on the idea of a new of space time sketching for free-form animation of 3D characters, while the second article titled “*Computer Graphics Animation for Objective Self-Evaluation*” focuses on High school students learning to dance with motion capture and 3D animations.

The first article talked about how creating artistic and exaggerated styles of animation requires tools to be flexible which allow them to do what they need to accomplish. The researchers made use of various things tools that helped them translate strokes of a pencil to computer animation. Anything that is being drawn has data recorded, and it has its style of drawing analyzed by the algorithms the researchers are using. This way they could understand how they can change and alter their art styles. The purpose of the article was to compare and analyze sketching patterns among artist to the algorithms that can calculate and generate points on a 2D plane. From this data they can then squash or stretch their drawings, which the algorithm can learn and continue to generate more points. This is very similar to vectors in linear algebra, as it translates from a 2D perspective to a 3D one once the computer animation takes place.

The second article is about how Japanese schools are required to teach dance to their youth in school, but thanks to this requirement there is a shortage of qualified personal to teach the students. So they decided on self-teaching to learn how to dance in specific styles. In addition to self-teaching a research team decided to use computer animation to record and simulate students dancing. Afterwards the students can watch mimic versions of themselves dancing generated by the computer so that they could learn from their mistakes and improve. The students each were able to correct the errors in how they went about dancing. It was ambiguous to their style of dancing because they had no instructor to correct them, so each thought they had their respective dance styles down.

Both of the papers were great resources for individuals who need assistances with understanding where they messed up and needs improvements on, primarily in a physical form. In Area's where they have a lack of skill, this can be a good learning experience. Many students and I included could benefit from knowing which parts I need help in so that we can increase the learning speed. This would definitely optimize the amount of time spent learning.

Reference Page:

***Computer Graphics Animation for Objective Self-Evaluation***

**BibTex:**

@ARTICLE{8103319,  
author={Y. Usui and K. Sato and S. Watabe},  
journal={IEEE Computer Graphics and Applications},  
title={Computer Graphics Animation for Objective Self-Evaluation},  
year={2017},  
volume={37},  
number={6},  
pages={5-9},  
keywords={computer aided instruction;computer animation;image motion  
analysis;teaching;computer graphics animation;dance teaching;data collection;motion  
capture;nonqualified dance instructors;objective self-evaluation;student collaborative  
learning;Animation;Computer graphics;Education;Motion measurement;animation;computer  
graphics;computer graphics education;motion capture},  
doi={10.1109/MCG.2017.4031074},  
ISSN={0272-1716},  
month={November},}

**ACM Ref:**

Y. Usui, K. Sato and S. Watabe, "Computer Graphics Animation for Objective Self-Evaluation,"  
in *IEEE Computer Graphics and Applications*, vol. 37, no. 6, pp. 5-9, November/December  
2017.

doi: 10.1109/MCG.2017.4031074

keywords: {computer aided instruction;computer animation;image motion  
analysis;teaching;computer graphics animation;dance teaching;data collection;motion  
capture;nonqualified dance instructors;objective self-evaluation;student collaborative  
learning;Animation;Computer graphics;Education;Motion measurement;animation;computer  
graphics;computer graphics education;motion capture},

URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8103319&isnumber=8103309>

***Space-time sketching of character animation***

**BibTex:**

@article{Guay:2015:SSC:2809654.2766893,  
author = {Guay, Martin and Ronfard, R{\e}mi and Gleicher, Michael and Cani, Marie-Paule},  
title = {Space-time Sketching of Character Animation},  
journal = {ACM Trans. Graph.},  
issue\_date = {August 2015},  
volume = {34},

number = {4},  
month = jul,  
year = {2015},  
issn = {0730-0301},  
pages = {118:1--118:10},  
articalno = {118},  
numpages = {10},  
url = {http://doi.acm.org/10.1145/2766893},  
doi = {10.1145/2766893},  
acmid = {2766893},  
publisher = {ACM},  
address = {New York, NY, USA},  
keywords = {sketch-based animation, space-time, squash-and-stretch, stylized animation},

**ACM Ref:**

Martin Guay, Rémi Ronfard, Michael Gleicher, and Marie-Paule Cani. 2015. Space-time sketching of character animation. *ACM Trans. Graph.* 34, 4, Article 118 (July 2015), 10 pages.  
DOI: <https://doi.org/10.1145/2766893>