

**Name:** Alex Parker

**Course:** MA3D

**Presentation Title:** 'Pen & Pixel: An Analysis of Techniques Used to Apply 2D Animation Stylings to 3D Computer Animation'

-----

**Abstract:**

'Pen & Pixel' researches the techniques behind artistically driven hybrid animation: animation employing both 2D and 3D techniques. My studies break down the characteristic elements of traditional 2D animation and 3D computer animation, identifying the components of each that offer distinctive artistic and technical advantages and aesthetics. Through the analysis of the sampled animations, my study offers a more thorough understanding of the technology behind hybrid animation techniques, as well as insight into the human reasoning behind their desired aesthetics and advantages.

From these findings, I have mapped out theoretical networks and logic for a shader that would apply key aesthetics of traditional animation to 3D geometry, with tests demonstrating the challenges and potential of the research.

-----

**Annotated References:**

**Benard, P., Cole, F., Kass, M., Mordatch, I., Hegarty, J., Senn, M., Fleischer, K., Pesare, D., Breeden, K., 2013. Stylizing Animation by Example [online]. SIGGRAPH 2013, Anaheim 21-25 July. New York: ACM. Available from: <https://graphics.pixar.com/library/ByExampleStylization/paper.pdf> [Accessed 8 May 2017].**

Pixar's technical memo *Stylizing Animation by Example* discusses the overarching goals and reasoning behind applying 2D visual stylings to 3D computer animation, and provides a look into the technical process behind the algorithms written and used to define procedural 2D style elements and the particular challenges faced in their application to 3D geometry. The paper details the difficulties of these techniques interacting with animated geometry, and the scalability of the concepts explored in regards to future projects in varying art styles.

**Cartoon Brew, 2015. Sergio Pablos Talks About His Stunning Hand-Drawn Project 'Klaus' [Exclusive] [online]. New York: Cartoon Brew LLC. Available from: <http://www.cartoonbrew.com/interviews/sergio-pablos-talks-about-his-stunning-hand-drawn-project-klaus-exclusive-113621.html> [Accessed 9 May 2017].**

This interview with director Sergio Pablos discusses the reasoning behind the particular visual treatment of his animated short 'Klaus', breaking down the individual elements of the film that present challenges and opportunities for unique aesthetics and technical advancement. Pablos gives an overview of the multiple technical and hand-crafted processes involved in the film's production, and how this hybrid approach has been integrated into the studio's animation pipeline.

ChrisOatley.com, 2012. *The Making of 'Paperman' and The Future of Disney Animation* [online]. Visual Voice, LLC. Available from: <http://chrisoatley.com/making-of-paperman/> [Accessed 9 May 2017].

This featurette details the process behind 'Paperman', from the short's conception, to the inspirations behind its visual style, on through the technical approaches used to apply 2D animated line work to 3D geometry through the short's custom software, 'Meander'. The featurette provides annotated samples of the animated short, breaking scenes down to their technical elements to illustrate the interaction between hand-drawn pieces and their 3D counterparts, and the technology used to bring them together.

-----

### Complete Reference List:

3DArtist, 2014. *The Making of Disney's New Animated Short: 'Feast'* [online]. UK:Future Plc. Available from: <https://www.3dartistonline.com/news/2014/10/the-making-of-disneys-new-animated-short-feast/> [Accessed 12 May 2017].

Animator Island, 2015. *Three Reasons Why "Klaus" is a Game Changer for Animation* [online]. Available from: <http://www.animatorisland.com/3-reasons-why-klaus-is-a-game-changer-for-animation/> [Accessed 9 May 2017].

Benard, P., 2013. *Stylizing Animation by Example* [video, online]. Vimeo. Available from: <https://vimeo.com/64407522> [Accessed 9 May 2017].

Benard, P., Cole, F., Kass, M., Mordatch, I., Hegarty, J., Senn, M., Fleischer, K., Pesare, D., Breeden, K., 2013. *Stylizing Animation by Example* [online]. SIGGRAPH 2013, Anaheim 21-25 July. New York: ACM. Available from: <https://graphics.pixar.com/library/ByExampleStylization/paper.pdf> [Accessed 8 May 2017].

Cartoon Brew, 2015. *Sergio Pablos Talks About His Stunning Hand-Drawn Project 'Klaus' [Exclusive]* [online]. New York: Cartoon Brew LLC. Available from: <http://www.cartoonbrew.com/interviews/sergio-pablos-talks-about-his-stunning-hand-drawn-project-klaus-exclusive-113621.html> [Accessed 9 May 2017].

ChrisOatley.com, 2012. *The Making of 'Paperman' and The Future of Disney Animation* [online]. Visual Voice, LLC. Available from: <http://chrisoatley.com/making-of-paperman/> [Accessed 9 May 2017].

Fast Company, 2012. *Pixar's John Lasseter Weighs in on Art and Technology* [online]. Mansueto Ventures, LLC. Available from: <https://www.fastcompany.com/1680857/pixars-john-lasseter-weighs-in-on-art-and-technology> [Accessed 12 May 2017].

*Feast*, 2014. [animated short film, online]. Directed by Patrick Osborne. Burbank: Walt Disney Animation Studios. Available from: <https://www.youtube.com/watch?v=9txvviStzPY> [Accessed 10 May 2017].

FXGuide, 2015. *The Tech of the Art of the Peanuts Movie* [online]. Available from: <https://www.fxguide.com/featured/the-tech-of-the-art-of-the-peanuts-movie/> [Accessed 9 May 2017].

*Klaus*, 2015. [trailer, online]. Directed by Sergio Pablos. Madrid: SPA Studios. Available from: <https://vimeo.com/126287950> [Accessed 10 May 2017].

*Paperman*, 2012. [animated short film, online]. Directed by John Kahrs. Burbank: Walt Disney Animation Studios. Available from: [http://www.dailymotion.com/video/xzt3vb\\_paperman\\_shortfilms](http://www.dailymotion.com/video/xzt3vb_paperman_shortfilms) [Accessed 1 May 2017].

*The Peanuts Movie*, 2015. [film, DVD]. Directed by Steve Martino. USA: Blue Sky Studios.

The Telegraph, 2016. *From Disney to Studio Ghibli: Why the Pen is Mightier than the Pixel* [online]. UK: Telegraph Media Group. Available from: <http://www.telegraph.co.uk/films/0/tale-princess-kaguya-disneys-paperman-pen-mightier-pixel/> [Accessed 12 May 2017].