Collaborative Animation Production from Students' Perspective

Creating short 3D CG films through international team-work.

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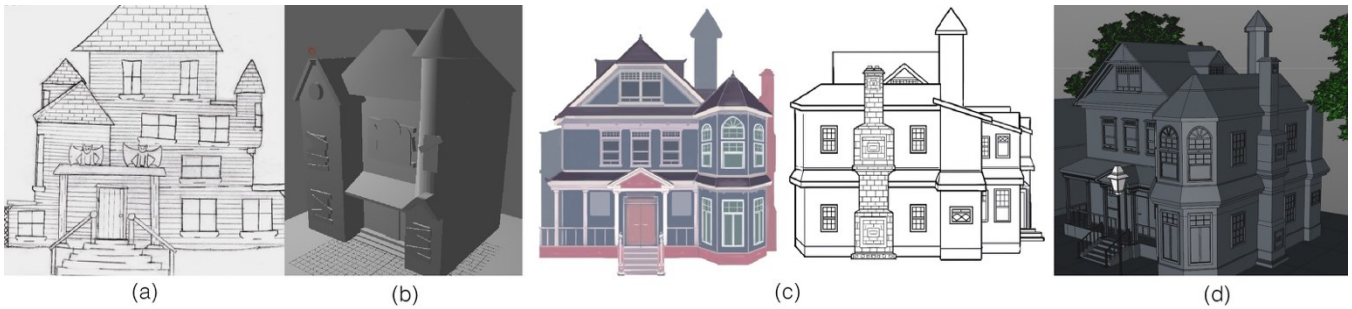

Figure 1: (a) Ghost house concept art by students of Johannes DeYoung, Yale University. (b) Ghost house 3D pre-visualization model students of Miho Aoki, University of Alaska Fairbanks. (c) Finalized concept art for ghost house, front and left side view by students of Miho Aoki, University of Alaska Fairbanks. (d) Finalized 3D production model by students of Jongnam Sohn of WooSong University, South Korea.

ABSTRACT

Massive Collaborative Animation Projects (MCAP) was founded in 2016 by Dr. William Joel (Western Connecticut State University) to test students' collaborative abilities and provide experience that will allow them to grow professionally and academically. The MCAP 1 production is a children's ghost story designed to test the massive collaborative structure. The goal of MCAP 2 is to create an animation for use in planetariums worldwide. Currently, there are nearly one hundred student contributors from universities in Alaska, California, Colorado, Connecticut, Japan, Michigan, South Korea, and Taiwan.

CCS CONCEPTS

• **Applied computing → Collaborative learning**

KEYWORDS

Animation Production, Education, Student Research

ACM Reference format:

Buck Barbieri, Naomi Hutchens, and Kayleigh Harrison, 2018. Collaborative Animation Production from Students' Perspective. In Proceedings of SIGGRAPH '18 Posters, August 12-16, 2018, Vancouver, BC, Canada, 2 pages.
https://doi.org/10.1145/3230744.3230756

SIGGRAPH '18 Posters, August 12-16, 2018, Vancouver, BC, Canada
ACM 978-1-4503-5817-0/18/08.
https://doi.org/10.1145/3230744.3230756

1 PROBLEM

Universities with limited digital arts and animation programs offer students few opportunities for real-world production experience. As stated by Miho Aoki (University of Alaska Fairbanks) et al [2005] these departments often face challenges such as limited financial resources, lack of a diverse and qualified faculty, and inadequate facilities. Professional animation projects can have hundreds of people working simultaneously, each person expected to work collaboratively across time zones and language barriers. ACM SIGGRAPH Education Computer Graphics Knowledgebase Report states that new tools and applications are creating demand for new courses and programs [Alley et al. 2006]. While MCAP is not a formal class with a defined curriculum, it is an ongoing project to develop interest and provide students with hands-on experience.

2 RELATED WORK

Major influences for the direction of MCAP were found in the work done by graduate students of Dr. Wei-Chung Chang's in 2015 (National Taiwan University of the Arts). Their short film was used to inform the pre-vis team of what could be accomplished with 3D modeling and gave direction to the MCAP 1 animation style. The film also relied heavily on visual and audio cues with no spoken language, allowing it to easily be understood by a wider audience. Their animation project took about two years to complete with 5 students working varying hours, sometimes as many as 10-12 hours per day. The MCAP projects have over 90 students contributing an average of about 8 hours per week, the 3D previsualization phase of MCAP 1 taking roughly 7 months to complete.

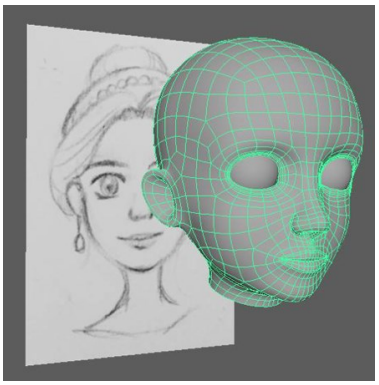

Figure 2: Character design by Olen Seim of University of Alaska Fairbanks, 3D modeling by Ting Chu of National Taiwan University of Arts

3 PROCESS AND SOLUTION

MCAP connects undergraduate students from institutions around the world through online file sharing, instant messaging platforms, and video conference meetings. This opportunity for teamwork is most important in schools with a limited student body. While there are some graduate level students involved, the aim of the project is primarily focused on the undergraduate level because of their relative inexperience and heightened time constraints. The creation of an animation is a highly collaborative effort that utilizes multiple, interconnected teams. The collaborative nature of MCAP 2 is depicted in Fig. 3 where a testing demonstration of images created by University of Alaska Students are on display at Ferris State University, using Unreal Engine rendering animation for dome projection. Professional media and advertising industries need personnel familiar with the intricacies involved in team projects, both in communication and in technical know-how. By creating a platform for schools to share their resources and expertise, MCAP provides a mechanism to enrich students' educational experiences and further develop their talents and skills.

Figure 3: MCAP 2 planetarium projection test rig on display at Ferris State University, projected image by Raven Shaw and Arisa Sasaki, University of Alaska Fairbanks.

MCAP serves to form these small classes and individuals into teams so that students can work in areas they are most interested in. Concept art, 2D prop painting, 3D modeling, and character animation are a few examples. Fig. 2 shows the crossover of creating a 3D character model from a 2D concept image. Team members communicate during class time when applicable, through an online messaging platform to communicate, with team members from around the world, and during periodic visual meetings as shown in Fig. 4. Video Conferencing is a necessary tool for sharing ideas, comments, feedback and support.

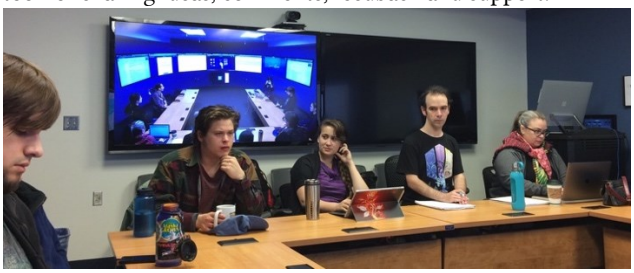

Figure 4: Pre-visualization team video conference involving students and faculty from Alaska, California, and Connecticut

5 CURRENT STATUS

The 3D previsualization phase of the first MCAP production began in October of 2017 and was completed in May 2018. The team was responsible for the creation of a short, rough draft animation demonstrating key elements and concepts of the story. The production team will then take the work accomplished in 3D previsualization and refine it further, building finished models and sets, and ironing out any remaining kinks in the story plot. The second MCAP production is still in preproduction, and has completed its initial story development with four finished images depicting four diverse locations. As the project develops further, more images will be created for projection onto domed surfaces. The MCAP 2 team has also built a test rig to check the accuracy of planetarium projections. Fig. 3 shows the dome shape suspended from a metal frame meant to simulate the conditions of a curved planetarium screen, with images being projected from below. More information on the MCAP productions can be found online at https://mcaprojectsnet.wordpress.com

ACKNOWLEDGMENTS

We would like to thank Dr. William Joel, Miho Aoki, Johannes DeYoung, Jacob Pollak, Dr. Wei-Chung Chang, Claudia Davis, Rebecca Yuqi Huang, Agnes Lawson, Philip Glowa, and all participating faculty members and students of MCAP.

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