Combining 2D and 3D Animation

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ABSTRACT

1 INTRODUCTION

Motivation: Interested in (1) formalizing a design space around motivations and artifacts for work in this domain and (2) learning what modalities are most effective for authoring work that includes both 2D and 3D animation.

- Novices in animation
- Investigating creative practice that involves combining 2D and 3D animations

Research Questions

- What workflows and software tools do animators rely on when they combine 2D and 3D animation?
- How might we develop better tools to support this process?
- What modalities are most effective for authoring 2D / 3D animations? Each one separately or combined? (Direct manipulation, animation with code)
- What is the interplay between the usage of 2D and 3D within the animation?
- What motivates using both 2D / 3D? How does combining 2D / 3D contribute to visual impact?
- How do you choose what's 2D / 3D? Is there a general practice?

2 BACKGROUND

- Pixar Documentary
- Spiderman: Into the Spider-Verse Animators Commentary
- 12 principles of animation
- Some survey papers looking at animation tools
- Some HCI papers on animation systems

3 METHODS

Aim: engage in a process of co-production.

Target Community:

- Reach experts with significant experience in animation. Knowledgeable about the efforts in combining these spaces.
- People who have produced animations that combine 2D / 3D and are interested in continuing to develop that practice.

Sent out a Google Forms survey to people people we knew in animation, email groups, school groups, Facebook/LinkedIn groups.

Piloted & revised survey. 4 iterations.

Will explain motivation for each question / section.

The questionnaire asked background experience within Animation and explicitly combining 2D and 3D animation in their works.

It followed with how the 12 fundamental principles of animation (from character animation) are involved in their work in regards to their separate works of both 2D and 3D animation.

Then our questionnaire specifically goes into asking about 2 different tools they use and learning about their practices in regards to each tool.

After asking about the specific tools they use, we ask some open ended questions, such as "What would you change about these tools?"

Finally, we wrap up by asking final overview questions and ask if they would like to participate in follow-up interview.

4 RESULTS

Our results will be presented in a series of visualizations. Creative Practice

- How many elements in your work have 2D or 3D animation vs. What percentage of your training (informal or formal) involving animation focused on creating 2D animations and 3D animations?

Animation Principles

- Comparing 2D and 3D to each animation principle

Tools. Mapping tools based on the following:

- (Expressivity) Limited to specific style → Can express any idea
- (Tinkering) Requires abstract thinking → Involves experimentation.
- (Learnability)Easy to Learn → Hard to Learn.

We will also share compelling insights from our open ended questions. E.g. "I only use 2D as a tool to explore ideas for 3D animation"

5 DISCUSSION

Explore what cohesive themes emerge, if any, for motivating work in 2D / 3D / Both.

Explore a design space around artifacts created / interest in how to use 2D / 3D (this might be a visualization too).

Share surprising results / observations from the questions and explain our results in detail.

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*Both authors contributed equally to this research.

6 FUTURE DIRECTIONS

Share small number of questions which would be useful for in depth follow-up.

Share what possible lines of inquiry emerge to continue understanding this domain.

7 CONCLUSION

Summary of our ideas and takeaways.

SUPPLEMENTARY

Survey

Our survey can be found here: http://bit.ly/mat594x2d3d