

A History Told in Grains

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1 PROGRAM NOTES

The Powder Toy [1] is a free, open source sandbox game. It features some of the most extensive systems out of all “falling sand” games, a genre in which players freely tinker with powder substances and observe their chaotic interactions.

These games notably lack sound. As an enthusiast of the genre, I took it upon myself to add audio to The Powder Toy by pairing clouds of powdered substances with clouds of tiny sounds. The result is not an objective or realistic solution to how these quirky games should sound, but rather an artistic exploration.

Using this solution, I present to you a history of the known universe told through grains of sand and grains of sound.

2 PROJECT DESCRIPTION

The “falling sand” genre of video games provide a unique “sandbox” experience to players, encouraging curiosity and creativity. Players experiment with a variety of powdered elements which are subjected to a detailed physics system and may react chemically with each other upon collision, such as the interaction shown in Figure 1. The lack of sound engines in these games led me to developing a system for artistically sonifying one of the most feature-rich “falling sand” games, The Powder Toy.

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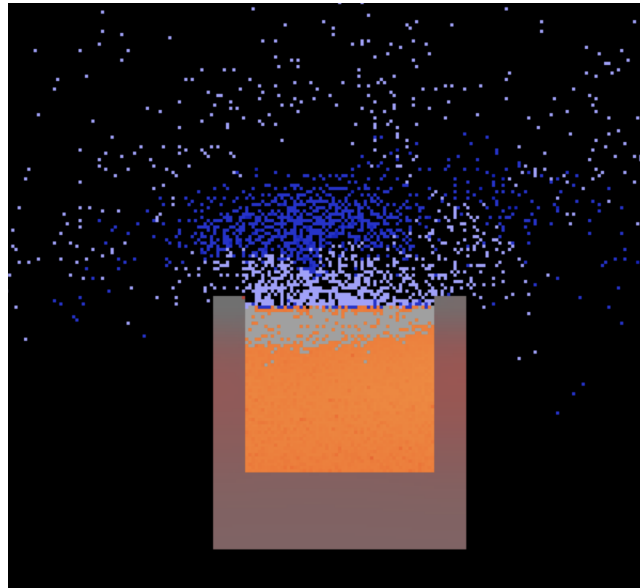


Fig. 1. The Powder Toy screenshot showing WATR interacting with LAVA, causing the former to evaporate and the latter to solidify

I used a multi-layer perceptron to map the distribution of game elements to clouds of frequency modulated sound grains created by my own MaxMSP external. This engine can enhance the sandbox experience of playing a falling sand game and provide a unique interface to manipulating granular synthesis textures.

Using The Powder Toy and my sound engine, I created an audiovisual piece for three networked laptop performers in which they reenact the history of the universe and Earth. At NIME, I will demonstrate an excerpt showing from the Big Bang up to the formation of early planets. It will last around 6 minutes.

3 PERFORMANCE NOTES

The venue will provide:

- A projector, large screen, and long HDMI cable
- A small table with three seats.
- A multichannel circular 4+ speaker array would be preferred, but a two channel system will suffice. The WFS system is not compatible.
- A Windows suitable interface, only if there are more than 4 speakers
- A wireless internet connection

I will provide:

- Three performers
- Three computers
- An interface, only if there are fewer than 4 speakers
- A wireless internet connection

The multichannel setup would be preferred, as the piece relies on clouds of sound orbiting the listener as powders move across the screen. Otherwise I have no preference for venue.

4 MEDIA LINKS

- Video: <https://streamable.com/x4nqi5>

ACKNOWLEDGMENTS

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REFERENCES

- [1] [n.d.]. The Powder Toy. <https://powdertoy.co.uk/>. Accessed: 2024-1-30.