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AI + Object Making & Creative Content

Kio ZHU and William NICKLEY
The Ohio State University

Abstract. Research in AI inspired instrument making and content creation. This study explores the integration of Artificial Intelligence (AI) in the creation of artistic and musical objects, employing hybrid human-machine processes. AI technologies, including text generation, text-to-picture, and the innovative text-to-3D, are rapidly evolving and becoming more accessible to artists and designers. Our project investigates the potential of these technologies to enhance creative processes in the arts and design.

Keywords. Hybrid human/machine process, object design, instrument, virtual content creation

1. Introduction

The project is an investigation into what it means culturally for AI to make creative contents, which is fundamentally human centered. How would AI interpret abstract concepts? How do we as humans assign meaning to AI generated contents?

The inception of our project was inspired by Dream-field, a text-to-3D model developed by researchers at UC Berkeley and Google Research, including Ajay Jain, Ben Mildenhall, Jonathan T. Barron, Pieter Abbeel, and Ben Poole. Since then, the field has advanced with the introduction of several models, including Stable-Dreamfusion, which is based on Google's Dreamfusion and incorporates Stable-Diffusion techniques. Our work has led to the creation of physical objects that embody the sonic characteristics of various musical artists, through a complex, collaborative, hybrid human-machine process. This process involves generating descriptive prompts with ChatGPT, creating virtual 3D objects with Stable-Dreamfusion, and transforming these into tactile, interactive objects using virtual reality and 3D modeling technologies.

2. Research

Our methodology involves multiple stages: conducting interviews with musicians, generating textual descriptions of their sound, creating 3D models of these descriptions, manually refining the models, prototyping through 3D printing, and ultimately producing real-scale, interactive musical instruments with sonic, physical, and visual components.

An initial focus has been the production of both physical and virtual representations of sound artists' work, incorporating feedback from local, underground music scenes to enrich our creative process. Collaborations with local bands such as Catchwords and Abel have been instrumental in this endeavor. Future phases will focus on refining our outputs to fully functional musical instruments suited for live performances, and

exploring the development of new AI-driven 3D modeling techniques that go beyond textual inputs.

Our project also brings into focus cultural implications of AI in creative content generation, questioning how AI interprets abstract concepts and how humans attribute meaning to AI-generated content. This exploration is crucial in understanding the broader impact of AI on creative industries associated with art and design.

3. Presentation and showcase

Imagine being drawn by intriguing sounds to a corner where a dazzling display awaits. You see individuals skillfully manipulating beautiful, strange objects, almost dancing in sync with the captivating music they control. Nearby, another object invites you to join this symphony. This isn't just a demonstration—it's an invitation to engage directly with our AI-inspired creations, where technology meets human expression. Come explore how these objects transform sounds and visuals in real-time, inviting you to be part of the artistry.

During the workshop, we aim to demonstrate our streamlined process for creating AI-inspired musical objects and allow participants to engage with this process firsthand. Additionally, we are constructing an interactive installation where attendees can interact with musical object prototypes, triggering AI-generated sounds and visuals. This immersive experience is designed to engage participants directly with the outcomes of our research and explore the intersection of AI and human creativity.

4. Link to video demo

https://youtu.be/Hv9k4VJr_mA

5. Special Thanks

Grace Gerber as 3D-modeler, a human in our hybrid process.
Catchwords (band) and Abel (band) as musician collaborators, humans in our process.

6. AI models used

OpenAI. (2023). ChatGPT [Large language model].
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