

AR Fantasia: An Augmented Reality Musical Experience

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Keywords— augmented reality, music, live performance

I. INTRODUCTION

In 1940, Walt Disney Pictures released their third full length animated feature film, the classic film *Fantasia*. The concept and challenge behind *Fantasia* was simple: To merge music and visuals, using the media of animation, to provide an integrated backdrop for, and interpretation of, classical music. The complete film consisted of eight such animated sequences, each providing a visual landscape as a setting for a classical musical piece (Granata 2002).

In this project we expand upon this idea, moving beyond the 2D screen, to present a visual experience in 3D by utilizing augmented reality (AR) devices and technology to display the 3D visuals. The AR Fantasia project will be realized as a live musical experience, with classical numbers performed by a set of string, woodwind, and brass ensembles. The musical-visual integration will be emphasized by including the musicians themselves as part of the visual scene (Fig 1). In addition, analysis of the music played will be used to control the motion of the visual effects and elements in real-time. The Computer Vision capabilities of the AR devices will be used to properly place the digital assets at the correct locations in the physical space.



Fig. 1. Musicians placing in front of a virtual campfire presented using augmented reality.

II. DEMONSTRATION

The system will be demonstrated as a mini concert presented in a chosen performance space at MAGIC Spell Studios (e.g. first floor lobby). Three separate ensembles will perform with each ensemble playing for approximately 5 minutes each. A number of augmented reality devices (Magic Leap One) will be made available for attendees (approximately 6 in total) to use in viewing the performance. As the spatial relationship between the performers and the audience member is important in the placement of the effects, carefully arranged seats will be positioned around the musicians from which attendees can view the performance. We are also planning to stream the performance (complete with AR effects) to one of the big screens in the MAGIC Lobby.

III. CREDITS

Musicians:

Cello: Maggie Griffiths
Flute: Neel Raj
Oboe: Jacob Yoon
Piano: William Phifer
Trumpets: Jack Hoffman, Brian Kiss, Nick Altier, Kyle Rogers, Troy Wolf
Viola: Isaac Chin
Violin: Juliana Lutzer

Technology:

AR Display Application: Divesh Badod, Shivang Bokolia, Pulkit Juneja, Victoria Parsonage Ueda

Particle Systems: Shivang Bokolia, Tejaswini Jagtap, Dhrushit Raval, Vama Shah

IV. REFERENCES

Granata, C. L. (2002). Disney, Stokowski, and the Genius of Fantasia. *The Cartoon Music Book*, 336.