

## **Electroacoustic Barn Dance**

Paper 2, Phillips Fine Arts Building 220

Friday, November 16th, 3:00pm

### *Sonifying Reflected Light Through Machine Learning and Sound Synthesis*

Maxwell Tfirm

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**Abstract** Sonification takes data and turns it into something musical. The data can come from anywhere, however, what the composer does with the data greatly affects the outcome and process of the music. Using a reflected light sensor that senses 18 different bands of visible light, I have made a controller and Max/MSP patches to use during performance. The data given by the sensor is used for sound synthesis as well as fed into a machine learning algorithm that predicts new spectra and maps the information into musical staves. The goal of this research is to use scientific equipment and measurements in musical ways and expand upon how a performer can interact with the music. In addition this research looks at AI producing musical information as a composers assistant with the hopes of bringing new patterns, notation and spectral creativity to the composition process.

**Maxwell Tfirm** is composer and performer based in Newport News, Virginia, where he holds the position Director of Composition and Creative Studies at Christopher Newport University. He holds a Ph.D. and M.A. from the University of Virginia, an MA in Music Composition from Wesleyan University, and a BM in Music Education as well as a performance certificate in percussion from the University of Florida. He also performs live improvised noise music using digital and analog electronics. Outside of his music, Maxwell creates digital glitch photography that uses audio concepts and synthesis as a means of image manipulation in Supercollider. Maxwell has had works performed at ICMC, SEAMUS, Electro Acoustic Barn Dance, Society of Composers, FEAST Festival, Technosonics, N\_SEME, and Subtropics Music festival and was a featured composer for Share and more. His music has also been performed by Jack Quartet, Loadbang, MehanPerkins, Dither, Ekmeles, The New Thread Quartet, percussionists I-Jen Fang, pianist Seung-Hye Kim and Kenneth Broadway. He has studied with Judith Shatin, Anthony Braxton, Ted Coffey, Matthew Burtner, Paula Matthusen, James Sain and Ronald Kuivila.