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# Headline grabs for music: The development of an iPad score generator

Cat Hope

*Edith Cowan University, c.hope@ecu.edu.au*

Stuart James

*Edith Cowan University, s.james@ecu.edu.au*

Aaron Wyatt

*Edith Cowan University*

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# Headline grabs for music: The development of the iPad score generator for ‘Loaded (NSFW)’

Cat Hope  
Edith Cowan University  
Mt Lawley, Western Australia  
c.hope@ecu.edu.au

Stuart James  
Edith Cowan University  
Mt Lawley, Western Australia  
s.james@ecu.edu.au

Aaron Wyatt  
Edith Cowan University  
Mt Lawley, Western Australia  
music@psi-borg.org

## ABSTRACT

This paper-demonstration provides an overview of an generative music score adapted for the iPad by the Decibel new music ensemble. The original score “Loaded (NSFW)” (2015) is by Western Australian composer Laura Jane Lowther, and is scored for ensemble and electronics, commissioned for a performance in April 2015 at the Perth Institute of Contemporary Arts. It engages and develops the Decibel Score Player application, a score reader and generator for the iPad as a tool for displaying an interactive score that requires performers to react to news headlines through musical means [1]. The paper will introduce the concept for the player, how it was developed, and how it was used in the premiere performance. The associated demonstration shows how the score appears on the iPads.

## Author Keywords

Graphic Notation, iMaxMSP, iOS, twitter, iPad, multitouch.

## ACM Classification

D.2.6 [Programming Environments] Graphical Interfaces, F.1.2 [Modes of Computation] Interactive and reactive computation, Audio input/output, H.5.5 [Information Interfaces and Presentation] Sound and Music Computing.

## 1. INTRODUCTION

‘Loaded (NSFW)’ (2015) is a music composition that engages twitter headlines as an impetus for musical action [2]. Originally devised as a patch for MaxMSP by the composer, the work was adapted for the iPad by Decibel member Aaron Wyatt in discussion with Stuart James. The ensemble members each have a networked iPad to deliver the score, and a laptop computer that is used as an instrument (key typing sounds) and recorder. The score consists of an interface that shows news tweets and emoji’s. Twelve emoji ‘responses’ to the tweets link to ten unique music excerpts and other instructions. During performance, members of the ensemble have a single headline displayed synchronously within the Decibel ScorePlayer app on their own iPad. Each performer taps on the emoji that best describes their reaction to each headline. When a performer clicks on an emoji, a short musical excerpt is displayed, and the performer must perform this musical material on their instrument or computer keyboard, as instructed, until the next headline appears. The performer may also press a click bait icon that remotely cues a MaxMSP patch on a main central laptop, initiating recording of ensemble through the laptop microphones. This MaxMSP patch, designed by Decibel member Stuart James, is responsible for aggregating, processing, and replaying the recordings of musical responses over a quadrasonic system that surrounds the audience, to

create an immersive environment with the acoustic instruments of the ensemble in the middle. This patch also manages the network ensuring Open Source Control (OSC) messages are received to and from each iPad during performance [3]. The patch is also responsible for displaying the tweets via a projector, for the audience, on the wall behind the ensemble. The premiere performance featured clarinet, flute, cello, viola, percussion and keytar/electronics operator.

This work differs from other generative scores in the way it uses the performers quick and casual responses to often bizarre tweets [4]. Whilst the engagement of Twitter in music work is not new, the way it is used in Loaded (NSFW) is unique [5].

## 2. THE CONCEPT FOR THE WORK

Lowther describes her work in a program note:

The piece refers to the power of Internet media, specifically loaded headlines/articles that evoke a powerful for or against response in the readers. Many people read things quickly and only at face value on the internet. The response has been to shock and offend the reader with one quote often resulting in click bait headlines that are grossly exaggerated/misleading. [6]

The composer sources headline tweets a week before the performance. These sources are extremely varied and often bizarre in nature, and reflect a new trend in media reporting, where tweetable headlines to a full news story are desirable [7]. The emoji ‘responses’ describe reactions that include kissing, sad face, crying, crying with laughter, crying with frustration, puzzlement and satisfaction. When the performer clicks on the hand symbol beside the emoji they choose, the screen changes to a panel with six musical excerpts to choose from. These are displayed for twenty seconds, and include options to not play, or play the computer keyboard (recorded by the laptop computers internal microphone) or hit ‘record’ on or off. Lowther requests that players should choose an emoji response quickly, and not contemplate their reaction too long. This is intended as an attempt to ‘represent people on the internet’ [6].

When the record button is on, the instrumental performances and keyboard typing are recorded and looped in a Max patch, and played back through the quadrasonic speaker set up. The texture becomes denser throughout the piece as more loops are added, and is cut at the conclusion of the piece, the loudest point. The piece can be set to any desired length, but the Decibel ScorePlayer has a default setting of eight minutes. In the premiere performance, eighty-one headline tweets were used, each one lasting twenty seconds.

### 3. DEVELOPING iOS COMPONENT

'Loaded (NSFW)' was the first generative piece for the Decibel ScorePlayer that used the iPads touch interface to choose material. The Decibel ScorePlayer is an iPad application that enables network-synchronised scrolling of proportional colour music scores on multiple tablet computers [1]. The application is designed to facilitate the reading of scores featuring predominantly graphic notation in rehearsal and performance, and can be used in the creation of new works, as well as the interpretation of existing works [1].

While touch input has been used previously for Decibel's implementation of scores in the Decibel ScorePlayer, it was only used as means of setting one of the initial parameters of the score before the work began [8]. But this meant that the basic programming framework was in place, and could be expanded. The code to implement the functionality is split into two sections: the code contained within the main *PlayerViewController* module, which manages the user interface and network message routing used by all of the available score types, and the score specific code which handles the specific logic required for the piece, and any subsequent scores that are modelled on it [9]. The player view controller makes use of a *UITapGestureRecognizer* object, part of Apple's standard Cocoa Touch libraries [10]. This is created when the player interface is first loaded and is bound to the object used as the main display canvas. Whenever the screen is tapped, this causes the *[self tap]* function to be called which has two main tasks. Firstly, it makes sure that the location of the tap is within the main area of the display and not within the thin, lower control bar where the play and reset buttons are housed. Secondly, it checks of the current score module has code that supports tap gestures, and if it does it passes on the location of the tap so that the score module can perform any necessary logic. In the code, the *rendererDelegate* object is an instance of the specific class associated with the score type. It is to this instance that location data is passed.

In the case of the 'Loaded (NSFW)' rendering class, the location data is used to determine whether the side panel containing the emoticons has been touched, and if it has, which particular emoticon has been selected. To allow for the code to be as flexible as possible, the score file contains a number of required options contained within the preferences XML file relating to this. In it, you must specify the filename for the side panel image, as well as how many rows and columns it contains. For 'Loaded (NSFW)', this breaks the panel up into a 2x12 grid. The row determines which particular musical material is shown to the performer, while the column determines whether a message is sent to the Max external to start capturing the sound of keystrokes from the laptops used as a secondary instrument by each performer. If the emoticon itself is touched then no sampling takes place, but if it is selected then the Decibel ScorePlayer sends an OSC message to any registered external. The second address component notifies the Max patch which Decibel ScorePlayer is responsible for the message using an identifier that each performer provides when loading the score at the start of the performance. In this way, each performer's laptop microphone can be identified and used to trigger the sampling of any audio. A single iPad is designated as the server, and the player's clock function enables the changing of the tweets.

### 4. OUTCOMES AND CONCLUSION

Laura Lowther's composition 'Loaded (NSFW)' was originally provided to Decibel as a series Max patches for the performers

to load and used in conjunction with pieces of paper illustrating the musical examples. The group adapted these materials for the iPad environment, facilitating a simpler and more reliable system for performance, where the choices made by performers were easily communicated. The touch control in the Decibel ScorePlayer framework was developed as result of this adaptation, a function that will continue to provide new score possibilities for the App. The work creates a single, slow building crescendo, where the increasing density of the sampled instruments and keyboard typing creates an interesting audio analogy to the increasing amount of internet 'chatter' worldwide. The simple musical fragments are eventually sampled and regenerated, but also put into spatial movement in the quadrasonic speaker set up.

### 5. ACKNOWLEDGMENTS

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