Sonic Dog Tags

Expressive Algorithmic Composition from Parsed Department of Defense Casualty Notices

Jon Bellona
University of Oregon
1225 University of Oregon
Eugene, OR 97403
bellona@uoregon.edu

ABSTRACT

In this paper, I present a computer program and compositional tool, Sonic Dog Tags [1], that retrieves biographical information of fallen service members from the Department of Defense RSS feed and maps this information to create memorial music. The aim is to discuss the methods and compositional mapping strategies for creating individual, expressive, musical works. Both information retrieval and mapping strategies are discussed, while an integrative system for future compositions is proposed.

Keywords

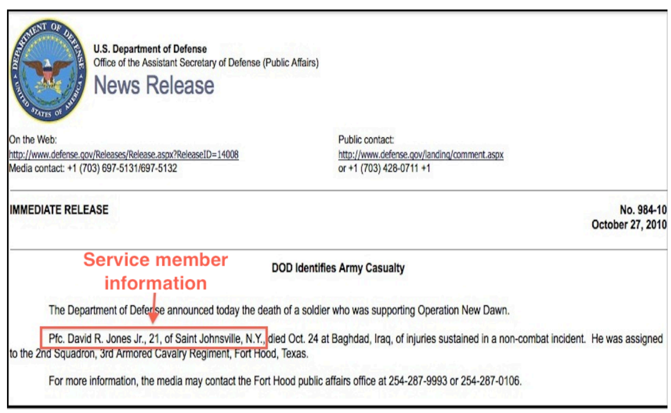
Python, Max/MSP/Jitter, Processing, RSS, Department of Defense, algorithmic composition, mapping

1. INTRODUCTION

RSS feeds are a type of web feed that publishes current updates from a blog or website, which are a relatively new media tool for online publishing [2]. The Department of Defenses publishes its own RSS feed [3], which is directly tied to its public news releases. Of the news releases published by the Department of Defense in the past few months, casualty notifications account for approximately twice the content [4]. Sonic Dog Tags was written as a way to sift through the influx of releases by the Department of Defense, capture the biographical information of service members fallen in Iraq and Afghanistan, and compose a work for each service member. Sonic Dog Tags offers a way to sonically identify each service member killed in action.

2. INFORMATION RETRIEVAL

In this section, I describe the process of searching for biographical information of fallen service members. I chose the Department of Defense RSS news feed [2] since the Department of Defense provides current, accurate, and primary source information of fallen service members. Existing methods for pattern recognition and pattern search [5] also helped to highlight the consistent structure of the Department of Defense RSS feed. The url of the Department of Defense RSS feed publishes formatted titles, and all released casualty notifications follow a standardized format: "Rank. Name, Age, Hometown, State." [6]



U.S. Department of Defense
Office of the Assistant Secretary of Defense (Public Affairs)
News Release

On the Web:
http://www.defense.gov/Releases/Release.aspx?ReleaseID=14008
Media contact: +1 (703) 697-5131/697-5132

Public contact:
http://www.defense.gov/landing/comment.aspx
or +1 (703) 428-0711 +1

IMMEDIATE RELEASE

No. 984-10
October 27, 2010

DOD Identifies Army Casualty

The Department of Defense announced today the death of a soldier who was supporting Operation New Dawn.

Pfc. David R. Jones Jr., 21, of Saint Johnsville, N.Y., died Oct. 24 at Baghdad, Iraq, of injuries sustained in a non-combat incident. He was assigned to the 2nd Squadron, 3rd Armored Cavalry Regiment, Fort Hood, Texas.

For more information, the media may contact the Fort Hood public affairs office at 254-287-9993 or 254-287-0106.

Figure 1: Department of Defense casualty notice.

2.1 Python string search

The Sonic Dog Tag parsing program, written in Python [7], follows three main procedural steps. First, the program searches the Department of Defense RSS xml document for titles containing the string literal "casualt." The straight-forward query approach ensures all single and multiple casualty notices will be returned. Each returned title contains a url link, which is subsequently appended into an array (*å*).

Next, each index of *å* is parsed for service member information. The initial string query searches for the <div> element class containing the service member's biographical information. Although the information changes between every Department of Defense release, the string construction of each release follows the same format (see above) [6]. Accounting for discrepancies in the HTML, each url is searched against a variety of <div> classes and IDs, including singletons found throughout the process, in order to correctly parse the service member's information.

The program writes the parsed biographical information of each service member into a text file. Multiple service member casualty notices were taken into account, and the parsing program appends a new line in the text file for each service member found in a given release. The text files are saved onto the hard drive, appearing in the same folder as the parsing program, and a reference list of all searched urls prints in the Python compiler. Text files create an informational record and serve as the compositional data set. Furthermore, text files can be read by various programming environments.

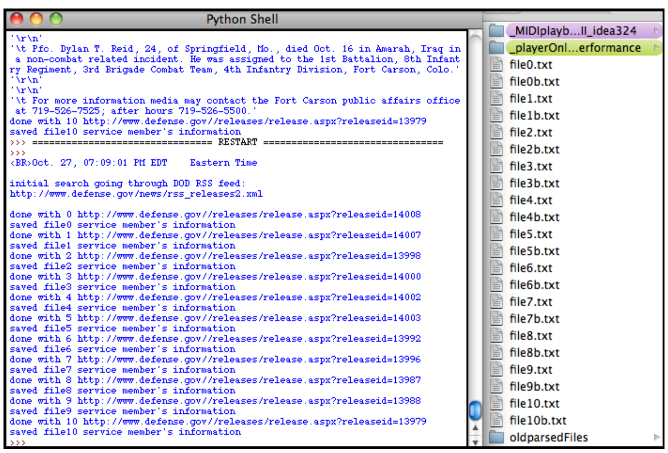


Figure 2: Parse taken on October 27th returned ten files. Printed urls are shown on the left and the corresponding text files are displayed in the Finder on the right.

3. TEXTUAL DATA SETS

Using parsed textual information for the creation of individualized sonic compositions raised issues of mapping. From mapping strategies and problems discussed in [8], I implemented a one-to-many mapping approach. Since each composition utilized similarly constructed data sets (strings containing a limited number of characters), it became necessary to control several parameters reusing the same set of values.

3.1 Max/MSP/Jitter

Because Max/MSP/Jitter [9] offered the ability to modify and map text files written by the parsing program in various ways; I chose the environment to execute the one-to-many mapping strategy. For mapping the text to musical parameters, each file was converted and stored into tables of ASCII values. The numbers of the ASCII values created similar patterns and sets of numeric values. Over a two week span in October 2010 (eighteen service member casualty notifications), the ASCII 32 (' ') appeared six–nine times for each service member, ASCII 44 (',') appeared three times, ASCII 46 ('.') appeared one–four times, ASCII values between 65–90 ('A-Z') appeared six–nine times, ASCII values 48-57 ('0-9') always appeared twice, and the ASCII values 97–122 ('a-z') appeared eighteen–forty-one times [7]. Mapping variance with similar data sets into each composition proved challenging. There is not enough space to highlight all modifications researched and implemented; however, attention will be paid to a select few.

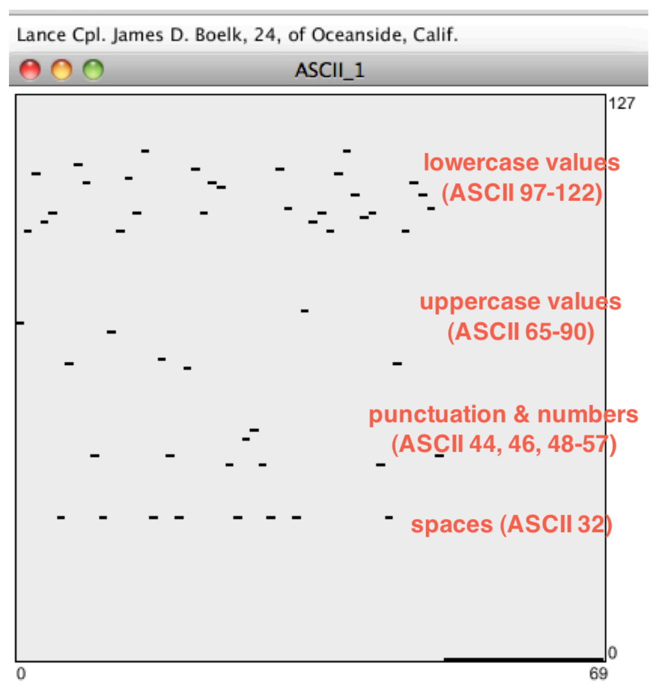


Figure 3: Text file and ASCII value table for Lance Cpl. James D. Boelk.

3.2 Mapping Musical Parameters

Each data set underwent several modifications and was mapped to control one or more of the five characteristics of sound: pitch, amplitude, timbre, and duration, [10] and location.

A pitch class set (mod 12) was generated based upon the capital letters (ASCII 65-90) of the casualty notice. Simultaneously, chords were built upon the corresponding MIDI nn values of the ASCII values. Chords included service member initials and age. Mapping ASCII values 65-90 directly to MIDI nn produced a musical range from e’ to f#’’’, and ASCII values 48-57 produced a range from cº to aº. [1]

Max/MSP read the ASCII value table sequentially in time, providing a durational framework for each work and a literal reading of service member’s information. The full ASCII value range (32–122) was scaled to control note durations, with every ASCII value determining the duration of the following adjacent note. The prominence of ASCII 32 (space bar) was mapped to accent the piece with rests and articulated dynamics.

Amplitudes were linked to ASCII values controlling pitch, and timbres for each work were controlled by keeping compositions to a single instrument. While each work was recorded in stereo, no mappings to control pan were implemented.

3.3 Processing

Processing, a programming language and environment for creating and manipulating images [11], was used to visually integrate the service member’s information with the sonic composition. Max/MSP sent function calls to Processing in order to visually render the casualty notice from the Department of Defense RSS feed. While not part of the original composition idea, displaying the casualty notice visually reinforced the sonic composition.

4. CONCLUSIONS

Due to the stylized format of the data sets, one mapping strategy alone did not solve the issue of sonic expressivity between service members. Mapping textual characters to several different musical parameters (i.e. pitch, duration, and amplitude) helped increase the individualism of each composition. In order to help further define each work sonically, reusing values from the dataset for mapping to other parameters is necessary. Additional integration of mapping values to complementary musical parameters is planned, especially to expand timbres and locations within the stereo field. Future compositions will also include casualty notices containing several service members.

Today, memorial music exists in many different forms. A year after 9/11, the Seattle Symphony organized “Rolling Requiem” [13], a collective performance of Mozart’s Requiem where every hour on the hour in every time zone around the world, choirs performed the Requiem as part of the memorial. Memorial sound installations, like “Sound Memorial for the Veterans of the Vietnam War,” [14] also redefines how listener’s can engage with remembrance by individualizing the names of those killed. Through technology, “Sonic Dog Tags” synthesizes various programming languages and mapping strategies in order to shape new memorial compositions and processes of remembrance.

5. REFERENCES

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[1] The maximum interval range for age can only be eight, a minor 6th. The age combinations ’09’ and ’90’ will never occur, yet ’19’ is a common age, representing 5.23% of Coalition service members killed in Iraq and Afghanistan [12].