Memphis Electronic Music: Finding Soul in the Age of Lifeless Machines

MEMPHIS ELECTRONIC MUSIC

FINDING SOUL IN THE AGE OF LIFELESS MACHINES

MARCUS TATE

WHAT IS ELECTRONIC MUSIC?

- "Electronic Music is a medium of expression, not a specific type of music." – *Physics and the Sound of Music* (Rigden, 266)
- Electronic Music deals with tools used to make music.
- Many people have the misconception that electronic music is like EDM or dubstep.

ELECTRONICS AS TOOLS FOR MAKING ART

- There are some opposing opinions that electronics cannot be considered tools for making art, such as computers and electronics are not capable of making something as human as art.
- However, most of the tools for art that we already have come from things that originally made for art; someone invented ways to create art from it.
  - "…the saxophone as 'a piece of metal capable of making sounds'." – Andrew Raffo Dewar, performer at Memphis Concrete Festival (Richard Grooms, The Improvisor)

MEMPHIS AND ELECTRONIC MUSIC: RELIGION

- Within the Bible Belt, there are a significant amount of churches, all of which need music and an organ to play this music.
- Many churches couldn't afford a pipe organ or couldn't fit the size of the pipe organ. This demand for the pipe organ sound inspired the creation of electronic organs, which offer a similar sound to the pipe organ through circuitry at a much more affordable price and portable size.
- "The forerunner of the modern electronic organs was the Hammond organ introduced in 1935." -*The Musician's Guide to Acoustics* (Campbell 503)

MEMPHIS AND ELECTRONIC MUSIC: THE HAMMOND ORGAN

- "The Hammond was originally aimed at the churches that couldn't afford a pipe organ, so it found its way into blues, rock, and Motown by way of gospel music. That sound, which everyone recognizes… is vital to almost all modern music…[and] more viable than ever." – "Clonewheel Heaven" (Fortner)
- The Hammond B-3 became the most popular Hammond model organ during the 1960s and 1970s

Hammond B-3 Organ with Leslie Mod Speaker

MEMPHIS AND ELECTRONIC MUSIC: BOOKER T. JONES & STAX RECORDS

- "Booker was playing a used Hammond M-1 spinet organ… Booker's eventual organ of choice…[was] the Hammond B-3." – *Soulsville U.S.A.* (Bowman 38)
- Booker T. Jones used a Hammond M-1 for early recordings of "Green Onions", which would become "The Best Soul Instrumental of All Time", according to Oxford Music.
- He eventually moved to the B-3 for later recordings such as "Hip Hug-Her".

"Booker T Jones - Hammond Organ an *Exclusive* Interview for Quest" – Quest TV

MEMPHIS ELECTRONIC MUSIC: "MEMPHIS SOUL" OVERSEAS

- When Booker T. & the MG's and other Stax musicians performed their music in different countries, many people became inspired to recreate the "Memphis Soul" sound.
- Companies such as Korg and Roland were created to make synthesizers that would reproduce this type of sound.
  - Korg has put a special Funk/R&B sound preset called "Memphis Soul" in many of their synthesizers. Memphis is the only city that gets a personal sound preset in these synthesizers

OTHER MEMPHIS HAMMOND ORGAN MUSICIANS

- Marcus L. Malone
  - CEO of Total Experience School of Music
- Ralph T. Lofton Jr.
  - Organist for “Bobby Jones Gospel” on BET
- Jethro Pollard (Duke Jethro)
  - B.B. King’s pianist and organist

MEMPHIS CONCRETE FESTIVAL

- Experimental Electronic Music held at Crosstown Arts
- Three-day festival featuring many electronic musicians mostly from the Delta Region
- Live Movie Music Scoring using electronic music instruments

MEMPHIS CONCRETE FESTIVAL: NOTABLE MEMPHIS MUSICIANS

- Mike Doughty
- James Dukes (IMAKEMADBEATS)
- The Pop Ritual
- Robert Traxler
- Jack the Giant Killer

MEMPHIS CONCRETE FESTIVAL: "WHAT AM I WITHOUT MY GIMMICKS?"

- Overheard a conversation with George Clanton and some festival staff. One staff person asked Clanton why he does something as weird as electronic music, and he answers, "What am I without my gimmicks?".
- What are you without the things that make you special and unique?
- Apply this to Memphis: "Memphis Blues" – 1910s-1930s, "Memphis Soul" – 1960s-70s, "Memphis Rap" - 1990s-2000s
  - What makes Memphis special in 2018 now that these types of music have died down?

"WHAT AM I WITHOUT MY GIMMICKS?": REWRITING NARRATIVES

- Without the things that make you unique, you become a blank slate. At that point, anybody can come in and write a new narrative about you: true or false.
  - "Memphis" (2013) – Justin Bieber, Big Sean, and Diplo
  - Memphis Pyramid converted to a Bass Pro Shop

"Memphis Blues" – ULUA Productions

BUILDING A SYNTHESIZER: INSPIRATION

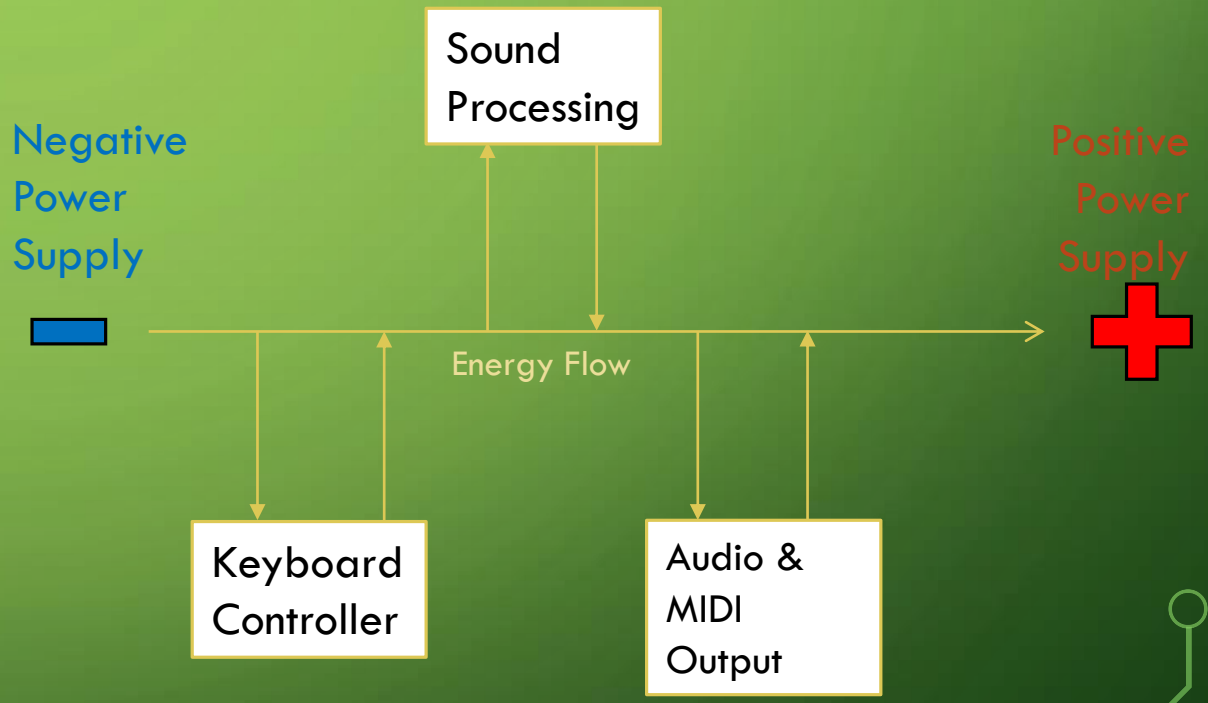
- Loved music and technology from a very young age
- Wanted to play music instrument but could not afford the instrument or the lessons
- After researching, I found out that you can make your own instruments without spending a lot of money or being a genius.

BUILDING A SYNTHESIZER: WHY A SYNTHESIZER IN PARTICULAR?

- In the tech industry, there is one common train of thought: *Replace instead of enhance*. There's a strong demand to replace old things with new instead of improving what we already have.
  - Apple makes new tech, but all it really does is replace the previous version.
  - Memphis buys a new bike system but doesn't improve existing transportation.
- I wanted to build a synthesizer using the Lodge piano so that I can improve it to express more sounds than before, as opposed to creating a robot that replaces something real.

BUILDING A SYNTHESIZER: HOW IT'S MADE?

- Electronics is like a huge, complex game of connect the dots.
- Energy from electrons flows from the negative power to positive power because the negatively-charged electrons are attracted to the positive power.
- When a battery "dies", all the electrons have been transferred to the positive supply. They cannot flow backwards because they are repelled by the negative supply
- With a synthesizer, many parts are powered by adding them to the energy flow line.
- A microprocessor (Arduino Mega) acts as the brain that handles the signals of information between the parts.



BUILDING A SYNTHESIZER: UNDERGROUND CODE

SETUP CODE

```
void setup() {
    Serial.begin(9600);
    //Serial.begin(31250); //Midi Serial Rate

    for(int x=0; x<row1Count; x++) {
        pinMode(row1[x], INPUT_PULLUP);
    }
    for(int x=0; x<row2Count; x++) {
        pinMode(row2[x], INPUT_PULLUP);
    }

    for (int x=0; x<colCount; x++) {
        pinMode(cols[x], OUTPUT);
    }

    pinMode(12, OUTPUT);

    for (int i = 0; i < 10; i++) {
      for (int j = 0; j < 8; j++) {
        noteMatrix1[i][j] = notesCol1[i] + notesRow1[j];
      }
    }

    for (int k = 0; k < 10; k++) {
      for (int l = 0; l < 10; l++) {
        noteMatrix2[k][l] = notesCol2[k] + notesRow2[l];
      }
    }
}
```

KEY PRESS & SOUND PROCESSING

```
void readMatrix() {
   // iterate the columns
   for (int colIndex=0; colIndex < colCount; colIndex++) {
      // col: set to output to low
      int curCol = cols[colIndex];
      digitalWrite(curCol, LOW);

      // row: interate through the rows
      for (int rowIndex=0; rowIndex < row1Count; rowIndex++) {
         int rowCol = row1[rowIndex];
         keys1[colIndex][rowIndex] = digitalRead(rowCol);
         int key = noteMatrix1[colIndex][rowIndex];
         if (digitalRead(rowCol) == LOW) {
           string = String(colIndex) + " " + String(rowIndex) + " " + String(key) + " " + String(pitchEqu(key));
           Serial.println(string);
           string = "";
           tone(12, pitchEqu(key));
           noteOn(key);
           noteOff(key);

         }
         else {

         }
      }
      for (int row2Index=0; row2Index < 10; row2Index++) {
         int rowCol2 = row2[row2Index];
         keys2[colIndex][row2Index] = digitalRead(rowCol2);
         int key2 = noteMatrix2[colIndex][row2Index];
         if (digitalRead(rowCol2) == LOW) {
           string = String(colIndex) + " " + String(row2Index) + " " + String(rowCol2) + " " + String(key2) + " " + String(pitchEqu(key2));
           Serial.println(string);
           string = "";
           tone(soundPin, pitchEqu(key));
           noteOn(key);
           noteOff(key);

         }
         else {
           //noNewTone(soundPin);
           //noteOff(key);
         }
      }
      // disable the column
      digitalWrite(curCol, HIGH);
   }
```

PITCH FREQUENCY & MIDI PROCESSING

```
double pitchEqu (int key) {
  double total = 0;
  double ex = ((key-49.0)/12.0);
  total = pow(2.0, ex) * 440.0;
  return total;
}


void noteOn(int key)
{
  Serial.write(NOTE_ON_CMD);
  Serial.write(key + 20);
  Serial.write(NOTE_VELOCITY);
}

void noteOff(int key)
{

  Serial.write(NOTE_OFF_CMD);
  Serial.write(key + 20);
  Serial.write(NOTE_VELOCITY);
}
void loop() {
    readMatrix();

}
```

WORKING WITH THE CURB INSTITUTE & RIRS

- A Space to Create
  - Harris Lodge is one of the few places on campus where you safely create without disturbance. I would have to waste so much time packing and unpacking if I did this project anywhere else
- A Opportunity for Experimental and Creative Learning
  - Being a Computer Science and Music Double Major, research papers aren't suitable for the work that I do in both of these fields. However, working this project in the RIRS Program allows me to learn in a different way that fits better with my majors and future career plans.
- Looking at Memphis from Different Perspectives
  - Despite being a native Memphian, working in the RIRS Program expanded my view on Memphis and allowed me to think of my project from different angles, even if some topics don't relate directly.

THANK YOU

THE END