FAU REU 2017 SUMMER PROJECT

JACOB BELGA

EMMANUEL DAMOUR

INTRODUCTION: JACOB BELGA

- Currently enrolled at FAU High

- Pursuing a degree in Computer Science

- Working with Dr. Hallstrom this Summer

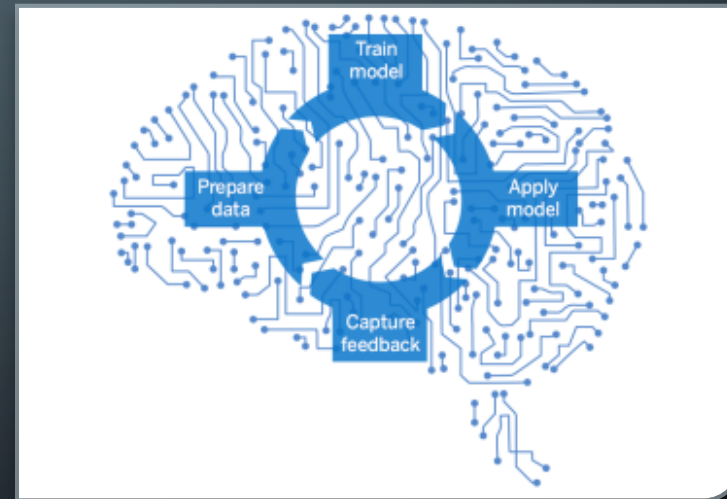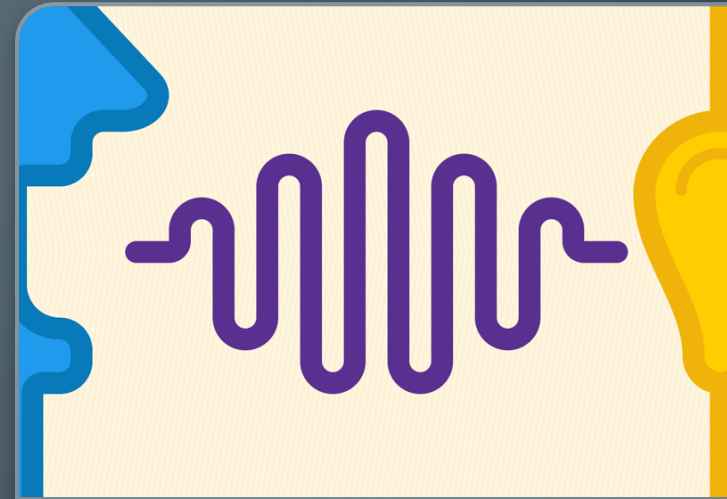# INTRODUCTION: EMMANUEL DAMOUR

- Currently Enrolled at Georgia State University

- Born in New York

- Raised in Philadelphia

PROJECT: EMOTION RECOGNITION

- Speech Analysis
  - Sentiment Analysis
  - Tonal Feature Analysis
- Machine Learning
  - Multi-layer Perceptron
  - Training Data Set

SENTIMENT ANALYSIS

- Analyzes words individually

- Compare words with respect to one another

- Outputs relative positivity, negativity, and neutrality

EXAMPLES OF SENTIMENT ANALYSIS

```
Shut up that's stupid


compound:-0.5267,neg:0.531,neu:0.469,pos:0.0,
```

```
Shut up that's awesome


compound:0.6249,neg:0.0,neu:0.423,pos:0.577,
```

```
Good job idiot


compound:-0.1027,neg:0.458,neu:0.139,pos:0.403,
```
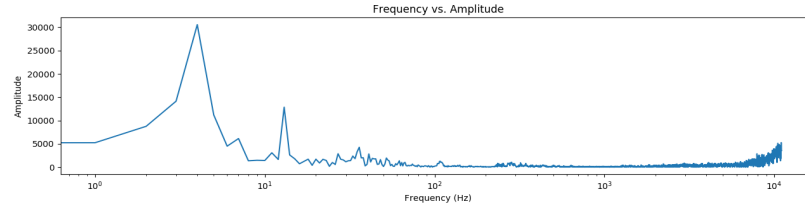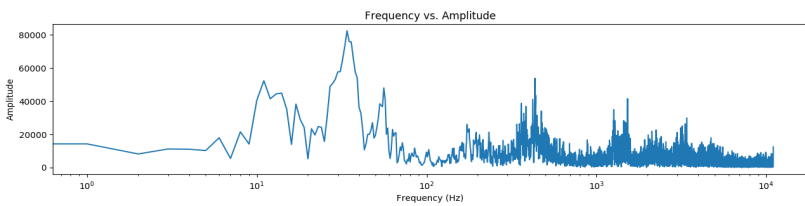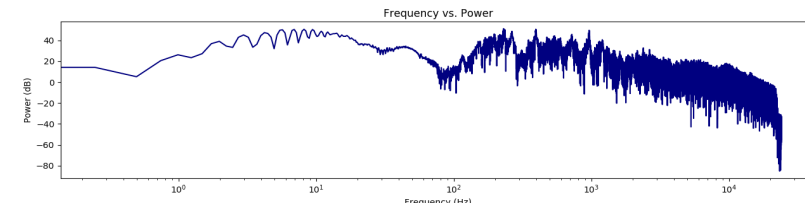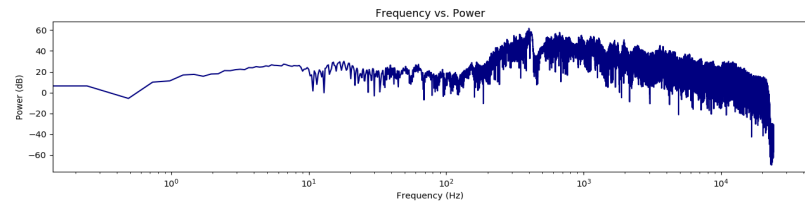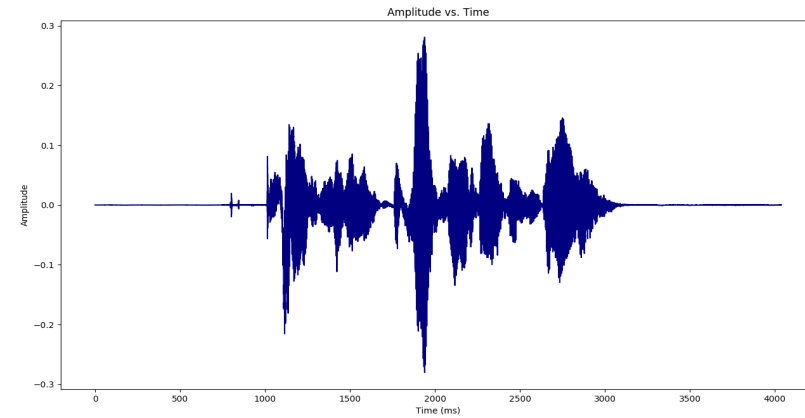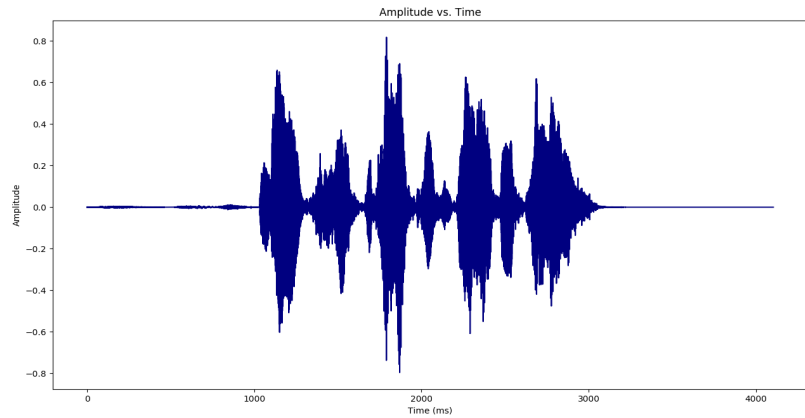
```
Good job John


compound:0.4404,neg:0.0,neu:0.408,pos:0.592,
```
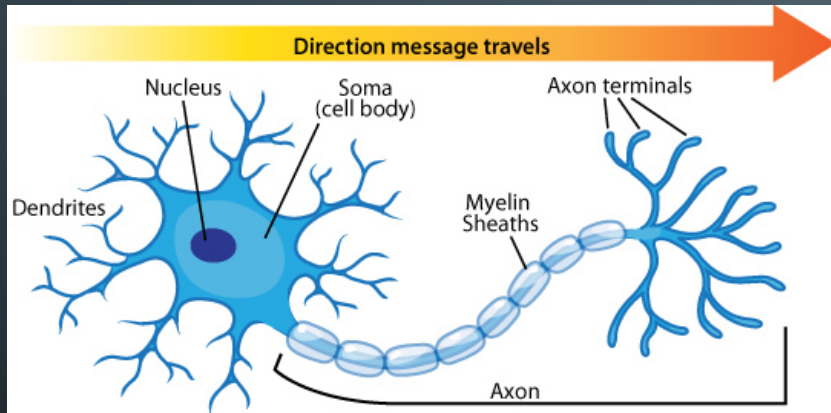
TONAL FEATURE ANALYSIS

- Analyzes tonal qualities of speech

- Utilizes Fast Fourier Transform (FFT)

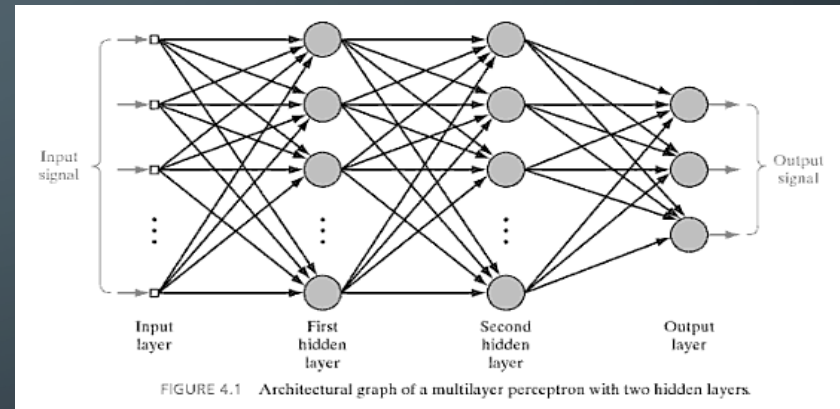- Outputs array data of amplitude, power, and frequency

EXAMPLES OF TONAL ANALYSIS

MULTI-LAYER PERCEPTRON

Biology

To

Technology

TRAINING DATA SET

- Ryerson University Speech/Song data set
- Focusing on four emotion types:
  - Happy
  - Sad
  - Angry
  - Calm

FUTURE WORK

1

Train the multi-layer perceptron on first half of data set

2

Test the multi-layer perceptron on second half of data set

3

Combine both analysis outputs to define emotion from new input