FAU REU 2017 SUMMER PROJECT

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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