CPSC 490
Read the Room

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1 Abstract

This project aims to create a home-assistant system that guides the user in music genre selection based on the mood of the room and how many people occupy within. Mood is determined by an analysis of the soundscape of the room. More specifically, by two different major components: speaker diarization (the number of different unique speakers), and speech emotion analysis through a wave-form feature trained regression. I've created a program using a multi-class probabilistic SVM classifier that takes in a waveform file and analyzes it for key components. I've used existing emotional sound data to train the SVM to classify the emotional content of the soundscape and create a schema for determining the mood of a room as a function of valence and arousal levels. In combination with knowing how many people are in the room and the emotional affect of the words that are being said, I'm then able to make a statement about the general mood of the room. From there I've created a logical schema to match a genre of music to the space, and effectively "Read the Room." To pull everything together I've used Amazon Web Service to create a queue that both the Amazon Alexa skill I've created and my computer can communicate with. Having made this connection I can trigger the process of recording, analyzing, and genre determining all by asking Alexa to "Read the Room."