

UNIVERSITY OF SOUTH FLORIDA

Defense of a Master's Thesis

Toward Culturally-Relevant Emotion Detection Using Physiological
Signals

By

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For the MSCP degree in Computer Engineering

We explore differences in emotion across different racial groups using physiological signals. We employ the DBSCAN clustering algorithm to analyze the density of the feature space for all physiological measurements. We also classify emotion, subject ID, gender, race, and combinations of these labels using Random Forests and Support Vector Machines. Significant findings show that blood pressure and respiration rate yield improved clustering results for gender, emotion, and ethnicity. Results also show that feeling sad or startled were typically classified correctly (99% and 94%, respectively), while surprise and skepticism were most often mistaken for each other (25% of the time). Both the clustering and classification results suggest an overlap in physiological emotional responses across individuals of different ethnic groups.

Tuesday, March 10th, 2020

2:00 PM

ENB 313

THE PUBLIC IS INVITED

Examining Committee

Tempestt Neal, Ph.D., Major Professor

Shaun Canavan, Ph.D.

Lawrence Hall, Ph.D.

Robert Bishop, Ph.D.

Dean, College of Engineering

Dwayne Smith, Ph.D.

Dean, Office of Graduate Studies

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