UNIVERSITY OF SOUTH FLORIDA

Defense of a   Thesis

Pain Recognition Performance on a Single Board Computer
by
Iyonna L. Tynes

For the MSCP degree in Computer Engineering

Emotion recognition is a quickly growing field of study due to the increased interest in building systems which can classify and respond to emotions. Recent medical crises, such as the opioid overdose epidemic in the United States and the global COVID-19 pandemic has emphasized the importance of emotion recognition applications is areas like Telehealth services. Considering this, this thesis focuses specifically on pain recognition. The problem of pain recognition is approached from both a hardware and software perspective, as we propose a real-time pain recognition system, from facial images, that is deployed on an NVIDIA Jetson Nano single-board computer. We have conducted offline experiments using the BP4D dataset, where we investigate the impact of gender and data imbalance. This thesis proposes an affordable and easily accessible system which could perform pain recognition inferences. The results from this study found a balanced dataset, in terms of class and gender, results in the highest accuracies for pain recognition. We also detail the difficulties of pain recognition using facial images and propose some future work that can be investigated for this challenging problem.

Friday, March 19, 2021
Time 9:00 am
Online (MS Teams)
Please email for more information

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THE PUBLIC IS INVITED

<u>*Examining Committee*</u>

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, Ph.D.
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Robert Bishop, Ph.D.   *Dwayne Smith, Ph.D.*
Dean, College of Engineering   *Dean, Office of Graduate Studies*

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