Announcing the Final Examination of Ashraf Alhujailli for the degree of Doctor of Philosophy

Time & Location: March 22, 2018 at 12:00 PM in Engineering 2 312L
Title: A STUDY OF EEG SIGNATURES ASSOCIATED WITH EMOTIONAL AND STRESS RESPONSES DUE TO CYBERBULLYING

The human brain processes vital information regarding human feelings. Prior research has focused on the problems of underage bullying, workplace bullying, burnout, mobbing and, most recently, cyberbullying. Scholars have traditionally examined the adverse outcomes of cyberbullying using subjective measures of stress and emotion for decades. However, very few studies examined cyberbullying using objective measures like EEG. The main goal of this study was to explore the relationship between the brain's EEG, expressed by the power spectral density, and emotions and stress due to two types of cyberbullying, specifically: 1) social exclusion, and 2) verbal harassment. This research also examined how cyberbullying factors of social interaction and publicity affect the emotional and stress responses. EEG data were collected from twenty-nine undergraduate students, aged 18-22, using 10/5 EEG system with 64 channels. Each cyberbullying experimental condition was treated as an independent study. The first study investigated the effects of social exclusion on EEG activity and the related emotional and stress factors while playing a virtual ball-tossing game known as cyberball. EEG results showed significant differences in alpha and beta power in the right- posterior brain regions due to social exclusion. There were also significant differences in beta and gamma power in the left anterior brain regions due to social exclusion. The results suggest that EEG activity in the left anterior brain region may be important to identify social exclusion. The second study utilized a hypothetical scenario presented as impolite or complimentary online comments. EEG results showed marginally significant differences in gamma power at right- and left- anterior and midline brain regions due to verbal harassment. The results suggest that changes in gamma power at anterior brain regions might play an essential role in the processing of verbal harassment information. Self-reported measures confirmed that verbal harassment was more distressing than social exclusion.

Major: Industrial Engineering

Educational Career:
Bachelor’s of Computer Engineering, BS, 1999, King Fahd University of Petroleum and Minerals (KFUPM)
Master’s of Engineering Management, MS, 2010, University of Dayton

Committee in Charge:
Waldemar Karwowski, Chair, Industrial Engineering and Management Systems
Peter Hancock, Psychology and the Institute for Simulation and Training
Lauren Reinerman-Jones, Institute for Simulation and Training and Industrial Engineering and Management Systems
Thomas Wan, Health Management and Informatics

Approved for distribution by Waldemar Karwowski, Committee Chair, on March 1, 2018.

The public is welcome to attend.