Announcing the Final Examination of Chandre Butler for the degree of Doctor of Philosophy

Time & Location: April 29, 2010 at 3:30 PM in ENGR 288
Title: THE DEVELOPMENT OF A HUMAN-CENTRIC FUZZY MATHEMATICAL MEASURE OF HUMAN ENGAGEMENT IN
INTERACTIVE MULTIMEDIA SYSTEMS AND APPLICATIONS

The utilization of fuzzy mathematical modeling for the quantification of the quality of training and educational delivery is
an innovative approach within Interactive Multimedia applications (mainly video-based PC games designed to entertain
or train participants on intended topics of interest) that can result in measurable and repeatable results. These results
can then be used to generate quality standards within the industry. This research is designed to apply proven
quantification techniques and Industrial/Systems Engineering methodologies to nontraditional environments such as
Interactive Multimedia. The outcomes of this research will provide the foundation, initial steps and preliminary validation
for the development of a systematic fuzzy theoretical model to be applied for the quantification of human engagement
measures within Interactive Multimedia applications.

Why is there a need for Interactive Multimedia applications in commercial and educational environments including K-20
educational systems and industry? The debate over education reform has drawn from referenced areas within the
Industrial Engineering community including quality, continuous improvement, benchmarking and metrics development,
data analysis, and scientific/systemic justification requirements. In spite of these applications, the literature does not
reflect a consistent and broad application of these techniques in addressing the evaluation and quantification of
human-centric performance measures in Interactive Multimedia. It is strongly believed that until administrative based
human-centric performance standards are created and accepted, the benefits of Interactive Multimedia may not be fully
realized within education and industry.

This body of work will identify human-centric performance factors that address the level of engagement of humans in
Interactive Multimedia systems and factor degrees of existence necessary to quantify and measure engagement
changes. Finally, the research will quantify the inputs and produce a model that provides a numeric value that
represents the condition/evaluated state of the Interactive Multimedia application and system.

Major: Industrial Engineering and Management Systems

Educational Career:
Bachelor's of Industrial Engineering and Management Systems, BS, 2000, UCF
Master's of Industrial Engineering and Management Systems, MS, 2005, UCF

Committee in Charge:
Dr. Pamela McCauley-Bush, Chair, IEMS
Dr. Luis Rabelo, IEMS
Dr. Kent Williams, IEMS
Dr. Lesia Crumpton-Young, IEMS
Dr. Randall Shumaker, IST
Dr. Eduardo Salas, IST

Approved for distribution by Dr. Pamela McCauley-Bush, Committee Chair, on April 12, 2010.

The public is welcome to attend.