TOPIC	Optimization of humans' integration of visual and auditory information in categorization tasks
ORGANIZERS	Student Leadership Council and Faculty of ACIT Institute and TECHLAV Center
AREA	Human Factors, Human-Computer Interaction, Situation Awareness
SPEAKER	Joseph Stephens, Associate Professor, Psychology
DATE	Friday, June 24, 2016
TIME	3:00 – 4:00 PM (EDT)
VENUE	McNair Lecture Room 2, North Carolina A&T State University, UTSA and SIPI will be joining through video-conferencing
FEES	No Charge

SYNOPSIS

In large-scale systems of autonomous vehicles, the role of the human operator will depend heavily on the operator's ability to form accurate mental representations of the elements of the environment in which the autonomous vehicles are engaged (i.e., Situation Awareness). This will require operators to synthesize multiple streams of information being provided by the system, some or all of which may be uncertain or unreliable. Ideally, the human operator's perception of the environment would be based on a statistically optimal combination of these information streams. In this presentation I will review some instances of human perception in which humans are known to combine information sources in a statistically optimal manner. I will then describe my own past research looking at sub-optimal integration of auditory information with a newly-learned source of visual information, as well as a simple neural network model that provides a bridge between sub-optimal and optimal integration, and makes predictions about how optimal integration of newly-learned information sources might be achieved. Finally, I will provide a brief overview of upcoming experiments that I will be using to test some predictions of the model.

ABOUT THE SPEAKER

Joseph Stephens earned his B.A. in Germanic Studies from Indiana University in 2000, and his Ph.D. in Cognitive Psychology from Carnegie Mellon University in 2006. Dr. Stephens's main research interests are in the human perceptual categorization of speech sounds, and in theories of how humans integrate perceptual information across sensory modalities (e.g. auditory and visual). He has also conducted research projects in human memory and decision making.