Séminaire MEGA (LBMC, UMR_T9406 Univ Eiffel et UCBL, et LESCOT Univ Eiffel)

Jeudi 21 décembre 2023, 10h30

Human-AI Teaming: A Human Systems Integration Approach

Professor Guy André Boy

In this talk, we will examine the impact of Human-AI Teaming (HAT) on situational awareness (SA) and decision-making of people involved in performing life-critical tasks. Situational awareness refers to understanding the current state of the environment, including events, objects, and their interrelationships. Good situational awareness is essential for making correct decisions in dynamic and complex situations. AI can play a major role in providing more accurate information on patterns, anomalies, and trends humans cannot obtain. For example, AI can process gigantic amounts of data and provide meaningful information. However, AI can be extremely dangerous if taken for granted when different kinds of competing human experience and expertise are needed to ensure safety, efficiency, and comfort. Specifically, when a decision needs to be made, combining human intuition, experience, and critical thinking with AI's computing power and data processing capabilities must be mastered. We need to distinguish between two types of situations: those that are foreseen and those that are unexpected. Operational procedures and automation monitoring are generally used to manage the former. Problem-solving is needed to deal with the latter. Following a procedure, whether by a human being or a machine, and problem-solving are very different cognitive and socio-cognitive processes. The former is rigid within a limited context of procedural validity. The latter requires different skills, knowledge, and, above all, flexibility. This talk will address difficult cases of unexpected situations where HAT will likely face challenges and strongly require a human systems integration approach. Examples will be used from several sectors, such as aerospace, defense, oil & gas, and healthcare.

Short Bio: Professor Guy André Boy, FlexTech Chair Holder, Professor at CentraleSupélec (Paris Saclay University) and Chair of ESTIA Science Board, Fellow of the Air and Space Academy, Fellow of the International Academy of Astronautics, Chair of the Human-Systems Integration Working Group of International Council on Systems Engineering (INCOSE), and INCOSE Fellow. He is an Invited Scholar at ISAE-SUPAERO (The French Aerospace Institute of Technology). He was Chief Scientist for Human-Centered Design (HCD) at NASA Kennedy Space Center. He was a University Professor, Dean of the HCD Institute, and HCD Ph.D. & Master's Programs at the Florida Institute of Technology and a Senior Research Scientist at the Florida Institute for Human and Machine Cognition (IHMC). He was a member of the Scientific Committee of the SESAR program (Single European Sky for Air Traffic Management Research).