



<b>TOPIC</b>	<b>Heterogeneous Robotic and Team Autonomy R&amp;D</b>
<b>ORGANIZERS</b>	Student Leadership Council and Faculty of ACIT Institute and TECHLAV Center
<b>AREA</b>	Unmanned Autonomous Vehicles and Robotics
<b>SPEAKER</b>	Dr. Edward Tunstel, Johns Hopkins Applied Physics Laboratory
<b>DATE</b>	Friday January 22 <sup>nd</sup> , 2016
<b>TIME</b>	3-4PM (EST)
<b>VENUE</b>	Fort IRC 410, North Carolina A&T State University, UTSA and SIPI will be joining through video-conferencing
<b>FEES</b>	No Charge

## SYNOPSIS

The Johns Hopkins Applied Physics Laboratory (APL) continues to be active and R&D focused on autonomous unmanned vehicles and robotics. Its R&D activities are strongly related to the technical scope of TECHLAV. This seminar provides an overview of past, recent, and ongoing work at APL in this area, offering TECHLAV researchers a sense of familiarity with the potential overlaps in research interest areas that may foster future interaction, technical exchanges, or collaboration. Topics to be covered include R&D associated with the following: bimanual dexterous robotic systems that cooperate to perform complex tasks such as casualty extraction; nested marsupial robotic systems of ground and aerial robots of different sizes and capability for accessing increasingly constrained spaces; modular open systems that apply to heterogeneous vehicles sharing a common open architecture; intelligence, surveillance, and reconnaissance using large heterogeneous teams of ground, aerial, and maritime vehicles in coordination with unattended ground sensors and humans; and safe testing and critical test selection for autonomous vehicles in complex environments within the context of test ranges.

## ABOUT THE SPEAKER



Dr. Edward Tunstel is a Sr. Roboticist in the Research & Exploratory Development Department at APL where he also served as space robotics & autonomous control lead. He joined APL in 2007 after 18 years at NASA JPL, where he was a group leader of its Advanced Robotic Controls Group. He earned B.S. and M.E. degrees in mechanical engineering from Howard University and his Ph.D. in electrical engineering from the University of New Mexico. Dr. Tunstel maintains expertise in robotics and intelligent systems with current research interests in mobile robot navigation, autonomous control, cooperative robotics, robotic systems engineering, and soft computing applications to autonomous systems. He authored over 140 technical publications and co-edited four books in these areas. He worked on the NASA Mars Exploration Rovers mission as a flight systems engineer responsible for autonomous navigation and as an engineering team lead for rover mobility & robotic arm subsystems. He is now engaged in modular open systems development for next generation, advanced EOD robotic systems as well as robotics autonomy research for future national security and space applications. Dr. Tunstel is an IEEE Fellow, member of AIAA and NSBE Professionals, and chair of the TECHLAV Scientific and Industrial Advisory Board.