



**AUTONOMOUS
CONTROL &
INFO TECH**

TECHLAV

TOPIC	Cloud-based control and Cooperative Mapping
ORGANIZERS	Student Leadership Council and Faculty of ACIT Institute and TECHLAV Center
AREA	Simultaneous Localization and Mapping(SLAM), vSLAM, Cooperative and Cloud-based Robotic Control
SPEAKER	Berat Alper Erol, ACE Labs UTSA
DATE	Friday February 5 th , 2016
TIME	3-4PM (EST)
VENUE	Fort IRC 410, North Carolina A&T State University, UTSA and SIPI will be joining through video-conferencing
FEES	No Charge

SYNOPSIS

Localization is a problem for any robotic system performing autonomous operations, such as: navigation in an unknown environment, finding objects, automation operations, etc. This problem requires a system to understand the work environment, obstacles around the system, and memory to map the environment. Simultaneous Localization and Mapping (SLAM) is one of the most widely popular and applied methods designed for more accurate localization and navigation operations. Our experiments showed that vision based mapping helps agents navigate in unknown environments, using feature based mapping and localization. Instead of using a classical monocular camera as a vision source, we have decided to use RGB-D (Red, Green, Blue, Depth) cameras for better feature detection, 3D mapping, and localization. This is due to the fact that the RGB-D camera returns depth data as well as the normal RGB data. Moreover, we have applied this method on multiple robots using the concept of cooperative SLAM. This talk illustrates our current research findings, and proposes a new architecture based on gathered data from RGB-D cameras, which are the Microsoft Kinect and the ASUS Xtion Pro for 3D mapping and localization.

ABOUT THE SPEAKER



Berat Alper Erol holds a BSc degree in Mathematics from Kocaeli University, Turkey. Prior to his degree, he had been with Turkish Air Force Academy as a cadet and studied Aeronautical Engineering for three years. While studying his master's degree in Applied Mathematics and working in Izmir Institute of Technology, he was awarded a scholarship by the Turkish government for graduate education in the US. He holds MSc degree in Software Engineering from St. Mary's University, and is pursuing his PhD in ACE Labs, at the University of Texas at San Antonio. His research interests mainly focus on Human-Robot Interaction, Human-Computer Interaction, Simultaneous Localization and Mapping (SLAM), Visual SLAM, Cloud-based robotic control, Cloud Computing, Machine Learning and 3D printing and prototyping.