Good afternoon,
You are invited to attend our weekly ECE Graduate Seminar.

Old Dominion University
College of Engineering and Technology
Department of Electrical and Computer Engineering

All lectures to be held at 3:00pm on Fridays online at
ODU DL: ECE 731 831 Grad Seminar
For more information, contact Dr. Chung Hao Chen at (757) 683-3475 or email cxchen@odu.edu.

Friday, September 24, 2021 Seminar Topic:

HUMAN IDENTIFICATION USING LIDAR BASED SKELETON EXTRACTION by Alexander Glandon, Ph.D. Candidate in the Department of Electrical & Computer Engineering at Old Dominion University

Abstract:
This research is the continuation of an effort by the Vision Lab to understand human gait and motion using special-purpose imaging sensors and novel computer vision algorithms. Motion Capture (MoCap) was initially used to measure 3D human skeleton information in real-time for gender recognition. This work is continued using a flash Lidar sensor. The lidar sensor scans the surface of objects and gives a 3D depth map of the object in real-time. An algorithm is developed to estimate a human skeleton similar to MoCap from lidar videos. The Lidar-based algorithm is modularized with different input and output for each component and the extracted data modalities are combined to build the final skeleton. The estimated skeletons are used to perform human identification. The lidar sensor enables far field 3D surface scanning. However, several challenges arise as the data is low resolution, exhibits several kinds of noise, and has a small number of samples to feed the classification model.

Bio:
Alex Glandon is currently a research assistant at Old Dominion University Vision Lab. He is pursuing a PhD in Electrical and Computer Engineering at ODU, where he also received his M.S. in Electrical and Computer Engineering and B.S. in Computer Engineering. His research is a collaboration with the Army using state-of-the art imaging sensors. He works on human identification and action recognition using image processing and novel algorithms. He is also interested in machine learning and statistics for computer vision problems.