

Good Morning,
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

https://vs.prod.odu.edu/kvs/interface_webex/?cid=202020_ECE731ECE831VS_94044

For more information, contact Dr. Chung Hao Chen at (757) 683-3475 or email cxchen@odu.edu.

Friday, April 16, 2021 Seminar Topic:

REAL-TIME CORRIDOR DETECTION FOR MOBILE ROBOT NAVIGATION WITH HOUGH TRANSFORM USING A DEPTH CAMERA by Ahmet Saglam, Ph.D. Candidate in the Department of Computational Modeling and Simulation Engineering at Old Dominion University

Abstract:

The ability to detect corridor-like structures is essential for autonomous mobile robot navigation in indoor environments. In this paper, we present a novel method for real-time corridor detection using a single depth camera. Our aim is to find a corridor just by looking at walls, even if there are some objects inside, such as a trash can or a chair. Once the corridor has been determined, the robot can be moved smoothly along the hallway semi-autonomously with simple commands without hitting the walls. The proposed work combines layers of occupancy maps extracted from Point Cloud into one final occupancy grid map, where 2D Hough Transform is applied to extract the lines corresponding to the corridor walls. The method has been tested on a real robot using Mynt-eye depth camera. The experimental results show the reliability and efficiency of the proposed technique for navigation tasks in corridor-like unknown environments.



Bio:

Ahmet Saglam is a Ph.D. candidate in the department of Computational Modeling and Simulation Engineering at Old Dominion University. He received a BS degree in Systems Engineering from the Turkish Military Academy in 2008. After an MS study in Modeling, Virtual Environments, and Simulation at Naval Postgraduate School, he transferred to ODU. Mr. Saglam performs research and development in robotics, primarily in the simulation of autonomous and semi/autonomous robots, SLAM, and teleoperated robots. His email address and LinkedIn profile are asagl001@odu.edu and <https://www.linkedin.com/in/ahmetsaglam/>, respectively.