



OLD DOMINION UNIVERSITY

Center for Coastal Physical Oceanography

Spring 2023 Virtual Seminar Series

Title “Recurrent Flooding on Roadways: Image-Based Assessment, Driver Behavior, and Impacts on Traffic Flow”
Speaker Mecit Cetin, Old Dominion University
Date Monday, January 23, 2023
Time 3:30 PM EST

Zoom Info [Link](#)
Meeting ID: 992 6679 5296
Passcode: 433517

Abstract The frequency of recurrent flooding around the world, particularly on the U.S. east coast, is accelerating and disrupting the well-being of communities. Frequently flooded streets and roads impede the mobility of people and goods and pose safety hazards. For managing the transportation network and informing the traveling public effectively about inundated roads, public agencies need scalable solutions to detect the depth and extent of floodwater on roadways. In this talk, we will explore how computer vision-based approaches could be employed to extract useful information from image and video data. To this end, we show the effectiveness of various machine learning methods in detecting floodwater on roadways. We also present a new method for estimating floodwater depth using vehicles and their tires as reference objects. In addition, based on video footage collected during a flood event on Hampton Boulevard in Norfolk, VA, we analyze the impacts of floodwater on traffic flow and road capacity. Peculiar behaviors of drivers navigating the partially inundated segments of Hampton Blvd. are also captured, and their implications for safety and traffic operations will be discussed.

Biography Dr. Cetin is a Professor and Batten Chair in Transportation Systems at Old Dominion University (ODU). He has been serving as the Director of Transportation Research Institute (TRI) at ODU since 2013. His main expertise and interests are in the areas of intelligent transportation systems, applications of machine learning in transportation systems, connected and automated vehicles, and modeling and simulation of traffic operations. He holds a Ph.D. degree in Transportation Engineering from Rensselaer Polytechnic Institute (RPI), Troy, NY.