



TOPIC	Driver Behavior Modeling near Intersections Using Support Vector Machines based on Statistical Feature Extraction
AREA	Data mining, Autonomous Vehicles, Driver Behavior Modeling , Intelligent Transportation
SPEAKER	Seifemichael Amsalu, PhD students, ACIT Center, North Carolina A&T State University
DATE	20 November 2014, Thursday
TIME	11:00 AM to 11:30 AM
VENUE	ACIT Center, Room 342, Fort IRC Bldg, North Carolina A&T State University, 1601 East Market Street, Greensboro, NC 27411
FEES	No Charge

SYNOPSIS

The capability to estimate driver's intention leads to the development of advanced driver assistance systems that assist drivers in complex situations. Due to the large number of accidents at road intersections, developing driver behavior models near intersections is important. In this study, driver behavior modeling near a road intersection is done using support vector machines (SVMs) based on the hybrid-state system (HSS) framework. In the HSS framework, the decisions of the driver are represented as a discrete-state system and the dynamics of the vehicle are represented as a continuous-state system. The proposed modeling technique uses the continuous observations from the vehicle and estimates the driver's intention at each time step using multi-class SVM. Statistical methods are used to extract features from continuous observations. This allows for the use of history in determining the current state estimate. The developed algorithm is trained and tested successfully using naturalistic driving data collected from a sensor-fitted vehicle operated around the streets of Columbus, OH and provided by the Ohio State University. The driver's intention, when approaching an intersection, is estimated with a high accuracy of above 97% using the proposed technique.

ABOUT THE SPEAKER

Seifemichael Amsalu is a 2nd year PhD student at North Carolina A&T State University working in ACIT Center under Dr. Abdollah Homaifar. Currently, he is working on driver behavior modelling for both human and autonomous vehicles with different sensing technologies and near-crash activity.

REMARKS, IF ANY