

SEMINAR: Traffic and Networks Research Laboratory Driver Behavior: Modeling particles or Modeling Behavior?

Location:

Virginia Campus, Ashburn
Research Building 1
Room 410

Date:

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12:45 pm - 2 pm

Presenter:

Dr. Dixit Vinayak
Associate Director of Research
Gulf Coast Research Center for
Evacuation and Transportation
Resiliency



THE GEORGE
WASHINGTON
UNIVERSITY
WASHINGTON DC

CONTACT INFORMATION

20101 Academic Way, # 205
Ashburn, VA 20147-2604
USA

Phone: 703-726-8273

Fax: 703-726-3530

E-mail: hamdar@gwu.edu



ABSTRACT:

The two-fluid model that was derived from physics of particle at low temperature is utilized to characterize the quality of urban traffic. Early experiments have also indicated that driving behavior has significant effects on the parameters of the two-fluid model. Therefore, these parameters can also be used to characterize driving behavior (aggressive/conservative). This presentation describes two studies undertaken by the author and results indicating aggressive behavior during the mornings and on arterial roads having high crash rates. Motivated by these studies, the two-fluid model is derived from expected utility. To validate the relationships that were observed in the derivation, data of two-fluid model from the various cities in 1990-91 in America was used. Interesting conclusions can be drawn regarding the regimes under which the two-fluid model is valid and the average perception of drivers. The parameters of the utility model can be utilized to evaluate training and educational programs for new drivers, to ensure that crashes do not occur due to skewed perception, and help improve safety. The utility model has the potential of being used to engineer human driving behavior.

BIOGRAPHY:

Dr. Vinayak Dixit is the Associate Director of Research of the United States Department of Transportation sponsored Gulf Coast Research Center for Evacuation and Transportation Resiliency, at Louisiana State University. His interest lies in utilizing traffic engineering and tools from economics to develop and maintain sustainable infrastructure systems. His research has covered areas in Evacuation and Emergency Management, Minimization of Road Renewal Impacts, Traffic Flow Theory, Transportation Financing and Experimental Economics. His research is being funded by the National Science Foundation, Exploratory Advanced Research Program in Federal highway Administrations, and the Strategic Highway Research Program.



