

METRANS SEMINAR SERIES

Dr. Per-Olof Gutman

Dynamic Pricing for Toll Lanes

DATE Mon. June 27th

TIME Noon-1:30 pm

LOCATION Lewis Hall(RGL)
Rm. 308

RSVP* Shawn Gong,
TGong@usc.edu
by noon,
Friday. June 24th

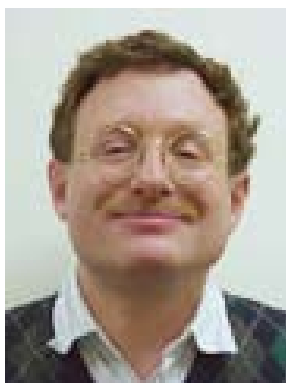
**Lunch will be provided for RSVPs.*

ABSTRACT:

Prompted by the preparations for the recently opened Fast Lane, i.e. the additional toll lane on the part of the Jerusalem-Tel Aviv auto-route/autostrada/Autobahn Highway 1 that runs westwards between the Ben Gurion Airport and Tel Aviv, a dynamic toll fee control algorithm was developed, analyzed, and simulated. It was found that cascaded feedback control is suitable. Feed-forward from the measured traffic flow from the east is feasible only if a good model for the willingness to pay ("Value of time") is available. While this author advised the franchise holder how the cascaded dynamic toll fee algorithm could be constructed, the franchise holder initially chose a fuzzy solution, but in the end turned to the cascaded feedback concept. Measured morning rush hour data for the toll lane under manual and automatic control are presented.

SPEAKER BIO:

Per-Olof Gutman, B.Sc. 1973 (Lund, Sweden); M.Sc. 1977 (UCLA); Ph.D. 1982 (Lund), has a broad experience in automation and control. His research interests include robust and adaptive control, control of complex non-linear systems, computer aided design, vehicle control, and traffic control. His scholar



work have addressed many traffic and vehicular applications such as control of an unmanned motorcycle, sensor fusion of GPS with omni-directional image registration for off-road autonomous vehicle path tracking, steering and stability control of off-road autonomous vehicles, roll-over avoidance control for vehicles, navigation and guidance of a man-tracking vehicle, adaptive suspension system of a high mobility track vehicle, and optimal control for isolated signalized intersections. Gutman served as a consultant for Volvo

Construction Equipment Ltd, Sweden, and for government agencies concerning the toll fee control algorithm for the Fast HOT lane along Israel Highway One. His work has been published in 6 books, more than 70 papers in reviewed international journals and co-authored Qsyn - THE Toolbox for Robust Control Systems Design for use with Matlab. He served as an associate editor of Automatica, and as an EU evaluator of research proposals.