

Call for Participation – 2013 TRB Annual Meeting Workshop

TRANSPortation Data FORecasting Competition (TRANSFOR)

Sponsoring Committee: ABJ70 Artificial Intelligence and Advanced Computing Applications

Co-Sponsoring Committees: ABJ00 Data Section

ABJ80 Statistical Methodology

ABJ20 Statewide Transportation Data and Information Systems

ABJ50 Information Systems and Technology

Organized by: Artificial Intelligence and Advanced Computing Applications Committee

Call Description: Successfully estimating the future conditions– in both short and longer horizons - is a prerequisite for designing, implementing and operating efficient transportation systems and infrastructure. As a result, transportation forecasting has attracted considerable attention by both the transportation academia and practice, with efforts ranging from classical statistics to a vast array of computational intelligence (CI) techniques.

In an era of rapid technological and scientific advances, the transportation community experiences an increase in data collection and availability, along with powerful analytical tools. Nevertheless, transportation data often pose considerable challenges to researchers and practitioners: differences in data measurement techniques and frequencies, seasonality, local trends, structural breaks, outliers, zero and missing values, and so on. Further, transportation needs increase and services become more complex and demanding; for example, real time control and ITS often require short-term predictions of transportation conditions based on existing data. The above imply that developing accurate and efficient forecasting algorithms for transportation applications becomes even more important and promising as a task.

In this context, the Transportation Research Board is pleased to announce the 2013 TRANSPortation Data FORecasting Competition (TRANSFOR) workshop, which will be held at the 92nd TRB Annual meeting. The scope of the competition is to evaluate the accuracy of various data analytic methodologies – be they statistics, CI and so on - in transportation data forecasting. Particular attention is given to missing and incomplete data, using two data sets in different areas of transportation. The objective is to determine progress in modelling statistics and CI for forecasting and to disseminate knowledge on “best practices” in transportation data modeling. The following two data sets will be the basis for this competition: 1) a traffic information data-set, in which short-term traffic flow prediction will be requested, and 2) an incomplete transit O-D table which is to be completed. The focus of both analyses will be to obtain predictions as close as possible to the real data.

The prediction competition is open to all methods of statistics, econometrics and computational intelligence, including neural networks, fuzzy predictors, evolutionary and genetic algorithms, decision and regression trees, support vector regression, hybrid approaches and so on. Researchers, as individuals or groups may participate using only one or both of the data sets. Participants will present their results at a 92nd TRB annual meeting workshop, devoted to the TRANSFOR competition. Awards will be given to researchers and

researcher teams based on: 1) accuracy of predictions; 2) completeness of a short paper detailing the approach used, advantages and disadvantages and results (papers should be a maximum of 12 double-spaced pages including Tables, Figures and References).

For more information and for obtaining the data sets please contact Matthew G. Karlaftis at mgk@mail.ntua.gr.

Subject Areas: Planning and Forecasting, Statistics, Computational Intelligence

Organizer: Matthew G. Karlaftis, National Technical University of Athens (mgk@mail.ntua.gr);

Panel Members: Shinya Kikuchi (Virginia Tech), Nicolas Saunier (University of Montreal), Linda Boyle (University of Washington), Guohui Zhang (University of New Mexico), Eleni Vlahogianni (National Technical University of Athens)

Time line:

August 15th, 2012 – Data availability to interested parties, please request by e-mail.

November 30th, 2012 – Deadline for submission of results and short papers by e-mail.

December 15th, 2012 - Notification to the “winners,” and/or presenters at the Sunday workshop

January 13th, 2012 - Workshop (13:30-16:30), Hilton Washington DC.