

Reply comments to the reviewer

Paper ID: T-ITS-16-02-0086

Paper title: Energy Consumption Evaluation based on Personalized Driver-Vehicle Model

Thank you for your careful review of the manuscript and for giving us many important comments. We have made revisions to answer your comments. **A version of the revised manuscript with red colored modifications is embedded to the submission.** Detailed answers of the reviewer's comments are listed below.

Reviewer: 1

This paper presents a new approach to evaluate personalized energy consumption by using a probability weighted autoregressive model. The manuscript is well structured and well organized. I recommend this paper for publication when the following issues are revised.

Remark 1: The authors should further specify the operation environment of their considered problem. Is this model suitable for a single vehicle or a sequence of vehicles? This should be clearly stated at the beginning of Section III.

Answer to R1: Thank you very much for your remark. Some explanation sentences have been added to the first paragraph of Section III to explain clearly the operation environment of the considered problem. The considered modeling problem is focused on a single following vehicle. Showing the ability of the model to reproduce the behavior of a string of vehicles would require a different paper approach, focused on vehicles dynamics propagation over the vehicle flow.

Remark 2: As the energy-efficient operation is a significant topic in the field of transportation planning. The authors should make a comprehensive literature review of energy efficient operations for different operation modes, such as road and railway systems. The following are some closely relevant studies:

Howlett, P.G. , Pudney, P.J. , 1995. Energy-efficient train control. Springer-Verlag, Berlin.

Howlett, P.G. , Pudney, P.J. , Vu, X. , 2009. Local energy minimization in optimal train control. *Automatica* 45 (11), 2692–2698 .

Y. Huang, L. Yang, T. Tang, F. Cao, Z. Gao, "Saving energy and improving service quality: bicriteria train scheduling in urban rail transit systems". *IEEE Trans. Intell. Transp. Syst.* In press, <http://dx.doi.org/10.1109/TITS.2016.2549282>, 2016

J. Yin, T. Tang, L. Yang, Z. Gao, B. Ran, "Energy-Efficient Metro Train Rescheduling with Uncertain Time-Variant Passenger Demands: An Approximated Dynamic Programming Approach",

Transportation Research Part B, Vol.91, 178-210, 2016.

Answer to R2: Thank you very much for your remark. It is true that the energy optimization problem does not only concern road vehicles, but is also heavily studied in other transportation fields. As mentioned by the reviewer, railway transportation systems' energy optimization has been extensively studied, and with the increase of electric vehicles and vehicle automation, is becoming totally relevant in the road vehicles field. Thus the paragraph dedicated to energy optimization in the introduction section of our paper has been modified to include railways transportation systems energy optimization methods references.

The purpose of this paragraph is to show the differences between classic vehicles' dynamics modelling, by pure energy loss functions, and our vehicles' dynamics modelling approach, that includes personal characteristics of each driver.