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Coordination Paulo Pinho, Edition Vítor Oliveira



RESEARCH CENTRE FOR TERRITORY TRANSPORTS AND ENVIRONMENT

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RECENT PUBLICATIONS

Bastos Silva A, Cunha, J, Silva J (2014), Estimation of pedestrian walking speeds on footways, *Proceedings of the ICE - Municipal Engineer* 167, 32-43.

Bastos Silva A, Santos S, Vasconcelos A, Seco Á, Silva J (forthcoming) Driver behavior characterization in roundabout crossings, *Transportation Research Procedia*.

Cunto F, Sobreira L, Ferreira S (forthcoming) Assessing the transferability of the highway safety manual predictive method for urban roads in Fortaleza city, Brazil, *Journal of Transportation Engineering*.

Figueiredo M, Seco A, Bastos Silva A (forthcoming) Calibration of microsimulation models - the effect of calibration parameters errors in the models' performance, *Transportation Research Procedia*.

Lobo A, Rodrigues C, Couto A (2014), Estimating percentile speeds from maximum operating speed frontier, *Transportation Research Record: Journal of the Transportation Research Board* 2404, 1-8.

Piccinini G, Rodrigues C, Leitão M, Simões A (2014) Drivers' behavioral adaptation to Adaptive Cruise Control (ACC): the case of speed and time headway, *Journal of Safety Research* 49, 77-84.

Piccinini G, Rodrigues C, Leitão M, Simões A (2014) Reaction to a critical situation during driving with adaptive cruise control for users and non-users of the system, *Safety Science* 72, 116-26.

Paulo Pinho elected as Secretary General of AESOP (2015-2019)

We are very pleased to announce that the Director of our Centre, Prof. Paulo Pinho, was recently elected as Secretary General of AESOP, the Association of European Schools of Planning. The elections for this four-year position, 2015-2019, took place in Utrecht, last July, during the Annual AESOP Congress. The Association of European Schools of Planning is one of the largest and most prestigious associations worldwide, focusing on the promotion of planning education and planning research.

Vítor Oliveira

EDITORIAL

Dear Reader,

At the time of writing this editorial - last week of October - a first balance can already be made of the two international conferences in which CITTA was actively involved this year as the main organizing institution. I am very pleased to acknowledge that both conferences, the ISUF2014 held at FEUP (3-6 July) and the Joint Conference coupling our 7th CITTA Annual Conference with the Final Conference of the EU COST Action TU1002, also held at FEUP (23-24 October) were two truly successful scientific events. Not only the number of communications and the number of participants, particularly from abroad, far exceeded our best expectations in both cases, but also the quality of the individual presentations and the level of participation in the debates were quite remarkable. If I had already warmly thank Vítor Oliveira in the last issue of this newsletter for his excellent work as chair of the ISUF conference, I should now thank Cecília Silva for her equally excellent and invaluable work, as chair of this last joint conference.

Most readers are surely aware of the on-going FCT evaluation process of the complex universe of Portuguese research centres. In some scientific areas this process is already involved in some controversy, attracting the attention of the media and of the general public, whereas in other areas the results so far known have been fairly well accepted with no major complaints or criticisms by the respective research communities.

Our Centre, a pluridisciplinary medium size centre by FCT standards, with over one hundred researchers, evenly split 50/50 between senior and junior researchers, has successfully passed to the second and final phase of this process. I shall recall that only 50% of the existing centres were able to pass to this second phase. We are now waiting for the visit of the international evaluation panel.

In many respects CITTA constitutes a unique case in the Portuguese landscape of research centres dealing with spatial planning, environmental policy and transport planning and management. Indeed, the majority of our colleague researchers working elsewhere in these or similar fields have chosen the umbrella of larger centres organized around well-established scientific areas such as geography, economics, architecture or civil engineering.

On the other hand, I should also emphasise that the present configuration of our Centre did not come about as a direct reaction or ingenious adaptation to the present FCT evaluation policies, rules and demands. Instead, it was the result of a long and reflexive process in which two research centres based in two different universities - Oporto and Coimbra - with obvious complementarities and synergies in terms of research fields, capacities and resources, decided, back in 2011, to come together, creating a larger, independent and more ambitious research centre in line with some other counterparts elsewhere in Europe and in the US.

Given the quality and relevance of the research carried out in CITTA, our expectations about the outcome of this evaluation exercise are justifiably high. Let's cross our fingers!

Paulo Pinho



TEM Research Area 1 - An integrated performance-based approach considering the global behaviour of the ground foundation and the road or rail infrastructure.

PROPOSALS/RECENT CONTRACTS

COST Action - Air Transport and Regional Development.

LIVE - Tools to Injury Prevention (MOVE/C4/SUB/2011-294/SI2.625804); Funding: European Commission (2012-2015).

COMMUNICATIONS IN CONGRESSES

Amorim M, Ferreira S, Couto A (2014) A conceptual algorithm to link police and hospital records based on occurrence of values, *17th Meeting of the EURO Working Group on Transportation*, 2-4 July, Seville.

Bryce J, Santos J, Flintsch G, Katicha S, McGhee K, Ferreira A (2014) Analysis of rolling resistance models to analyze vehicle fuel consumption as a function of pavement properties, *3rd International Symposium on Asphalt Pavements and Environment*, 1-5 June, Raleigh.

Ferreira A, Meneses S, Paiva C (2014) Pavement maintenance programming considering three objectives: maintenance and rehabilitation costs, user costs, and the residual value of pavements, *3rd International Conference on Road and Rail Infrastructure*, 28-30 April, Split.

Garrido R, Bastos Silva A, Almeida A, Elvas J (2014) Prediction of road accident severity using the ordered probit model, *17th Meeting of the EURO Working Group on Transportation*, 2-4 July, Seville.

Kubo P, Paiva C, Ferreira A (2014) Influence of tire pressure on the vertical dynamic load applied on the pavement by a truck's front suspension, *3rd International Conference on Road and Rail Infrastructure*, 28-30 April, Split.

Meneses S, Ferreira A (2014) Pavement maintenance programming considering two objectives: maintenance costs and residual value of pavements, *3rd International Conference on Transport Infrastructure*, 22-25 April, Pisa.

Micaelo R, Quaresma L, Ferreira A (2014) TRACC-EXPERT: tool for the selection of paving techniques adapted to climate change, *3rd International Conference on Transport Infrastructure*, 22-25 April, Pisa.

Santos J, Ferreira A, Flintsch G (2014) Development and application of a life-cycle assessment model for pavement management, *Transport Research Arena*, 14-17 April, Paris.

Vasconcelos L, Bastos Silva A, Seco Á, Abreu T (2014) Microscopic calibration of the Gipps car-following model, *1st International Conference on Engineering and Applied Sciences Optimization*, 4-6 June, Kos Island.

RESEARCH UNIT 4

The CITTA's Transport Engineering and Management group consists of 10 PhD researchers and 17 PhD students almost evenly distributed across FEUP and FCTUC. The group has been recently formed and thus its basic structure has already been established for the medium term, with the efforts in the last few months directed at implementing its 2015-17 strategic plan, concentrating on consolidating and developing its basic research areas, and taking full advantage of the potential synergies resulting from a full integration of the two original research units, the Coimbra and the Oporto ones. The growth of this research group production has been anchored on the deepening of national and international research collaborations, namely on European research funds, and on the enrolment of PhD students, taking advantage of the dynamics of the Doctoral Programme in Transport Systems.

The research topics and priorities are centred over three main research subjects: transport infrastructure design and management; road users' behaviour and safety analyses; optimum design and operation of road elements and networks. It should also be noticed that these subjects are not totally separate and that, especially between the second and the third, there are significant interconnections, which need to be addressed when new research initiatives are designed and pursued.

In the first research area one aims to develop an integrated performance-based approach which considers the global behaviour of the ground foundation and the road or rail infrastructure. Research on pavement mechanics is being focused on the study of new pavement materials performance using numerical modelling and applying laboratory and field tests. Another research topic focus on the definition of improved road design principles to minimize infrastructure damage caused by longer and heavier freight trucks using simulation. Finally, research in transport infrastructure management is focused on the development of a new Life-Cycle Assessment (LCA) system for pavement management considering quality, comfort, safety and environment, based on an optimization model. Our second research area continues focused on the development of improved accident analysis and prevention instruments and models and on detailed road and pedestrian traffic flow modelling. The safety related work is being focused on the development of a new data system resulting from a full linkage of medical information and police accident reports, as well on the use of micro simulation in the estimation of safety conflicts in alternative to more classical approaches, and, finally, on the analysis of vulnerable road user groups risk factors and risk mitigation measures and on the development of a new risk management approach to improve road safety in complex urban environments. The traffic flow modelling is directed at the estimation of critical headways and headway distributions at intersections for capacity microscopic studies, at the development of new vehicles' operating speed models at segments and corridors, and at the detailed calibration of microscopic car-following and lane-changing models' parameters and on the study of overtaking manoeuvres.

The group's third research area is directed to the design and evaluation of innovative infrastructural solutions, both relating with new elements, as is the case of turbo roundabouts, and with integrated solutions as in the fields of speed management and area wide traffic calming solutions, with operational, safety and environmental impacts joint consideration. The ITS area research is focused on the development of new traffic signal control solutions, in order to optimize pedestrian and vehicle, namely priority ones, traffic conditions when moving in partially or fully mixed traffic conditions. Research is also focused in the definition of new algorithms that take into account large amount of data that can be taken with current and new traffic monitoring equipment, such as GPS or cellular phone positioning.

Álvaro Seco



TEM Research Area 2 - Accident analysis, prevention instruments and models, road and pedestrian traffic flow modelling.