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TUD COST Action TU0702

Real-time Monitoring, Surveillance and Control of Road Networks under Adverse Weather Conditions

Descriptions are provided by the Actions directly via e-COST.

The main objective of the **Action** is to understand better the impacts of weather on freeways/motorways as well as on urban networks highway operations and to develop, promote and implement strategies and tools to mitigate those impacts.

Adverse weather conditions can have a significant impact on traffic operations and quality of traffic flow. The advanced technologies for collecting and archiving weather data can assist the development of intelligent weather-based traffic management strategies, monitoring and control systems. In view of the paramount importance of weather-responsive tools for real-time traffic surveillance, this project will focus on the development of strategies and techniques aimed at improving the road traffic management and safety. The main goal is to mitigate the negative impacts of adverse weather conditions to traffic flows and to predict the traffic flows under adverse weather conditions. The term of 'adverse weather conditions' refers to the meteorological conditions that decrease the visibility and worsen the pavement conditions. This project will bring together researchers actively working on road networks related issues. It will concentrate on mutually complementary methodologies for modelling, estimation and control that will improve the safety of traffic networks. Traffic flows are highly dependent on weather conditions and researches on this issue are very limited in the literature. Next, traffic flow prediction by reliable algorithms will be addressed in tight connection with the traffic sensor network. This project will address also many issues related to efficient, reliable and quick exchange of information and data over sensor networks for vehicular traffic. The data are received only at boundaries between some segments and averaged within possibly irregular time intervals. Additionally, there are missing data and sensor failures that need to be taken into account. Further, with the developed models and estimators, advanced control strategies will be developed dealing with appropriate fusion of the multiple sensor data.

Keywords: Traffic flow modelling, weather impact on the traffic, weather impact on the pavements, vehicular traffic, theory of possibility, Dempster-Shafer, Bayesian methods, particle filters, extended Kalman filter, road networks, weather conditions, stochastic systems, multiple models, missing data, fault detection, estimation, predictive control.

Transport and Urban Development COST Action TU0702

- ▶ **Description**
- ▶ Parties
- ▶ Management Committee



General Information*

- Chair of the Action:**
[Prof. Nour-Eddin EL FAOUZI](#) (FR)
- Vice Chair of the Action:**
[Mr Bernhard HEILMANN](#) (AT)
- DC Rapporteurs:**
[Prof. Mate SRSEN](#) (HR)
- Science officer of the Action:**
[Dr Thierry GOGER](#)
- Administrative officer of the Action:**
[Ms Carmencita MALIMBAN](#)

Downloads*

- Action Fact Sheet**
[Download AFS as .RTF](#)
- Memorandum of Understanding**
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- Annual Progress Conference Report**
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- Progress Report**
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Websites*

- Domain website:**
<http://www.cost.eu/tud>

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Publications

- ▶ Real-Time Monitoring Surveillance and Control of Road Networks Under Adverse Weather Conditions. Effects of weather on traffic and pavement: State of the art and best practices

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