

Full-day G-Active Workshop on:



Novel approaches to energy management and eco-driving

University of Southampton

11:00 – 17:00 on 14 November 2018

Register at: gactiveworkshop.eventbrite.co.uk

Scope of workshop:

“Novel approaches to energy management and eco-driving” aims at bringing together and encourages collaboration between communities and researchers interested in:

Novel, multidisciplinary approaches to fuel saving and emissions reduction of future connected vehicles including energy management control strategies, driver modelling, traffic modelling, user interface design, and beyond.

Both academic and industrial participants from several related fields, such as automotive engineering, traffic modelling, human factors, and control engineering are encouraged to attend. The workshop is organised by several members of the G-Active (Green Adaptive Control for Future Interconnected Vehicles) project (EPSRC grant no. EP/N022262/1), which is a multidisciplinary research project targeting fuel saving and emissions reduction involving researchers from the University of Southampton, Imperial College London and UCL. The workshop will include presentations by current project members as well as external speakers from academia and industry.

Organising committee:

Prof. Roberto Lot, *University of Southampton, UK*

Dr Simos Evangelou, *Imperial College London, UK*

Dr Bani Anvari, *University College London, UK*

Dr James Fleming, *University of Southampton, UK*

For more information about the workshop, contact:

Dr James Fleming - J.M.Fleming@soton.ac.uk

Register here:



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<http://g-active.uk>



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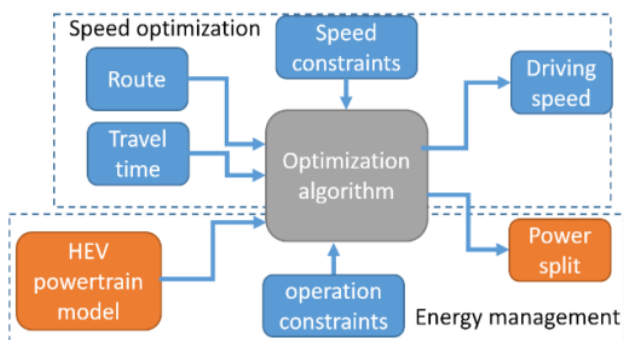
About the G-Active project:

The G-Active project targets a **reduction in fuel consumption** and **CO₂ emissions** in **road transport** by implementing energy management and driver assistance systems that are inclusive, predictive and adaptive. The ultimate goal is to reduce fuel consumption of road vehicles by more than 5%.

A key objective is to **maximise user acceptance** of these technologies by intelligent design of user interfaces and **by adapting to different driving styles** in real time, which is carried out using new models of driver behaviour. Further goals include incorporation of **traffic predictions from V2X technologies**.

G-Active success stories:

- Built a **low-cost** device to collect **naturalistic driving data**.
- Developed an **adaptive driver model** to represent real-world driver **speed and acceleration** choice.
- Developed a framework to trade-off **driver preferences, fuel consumption and emissions reduction**.



- Developed an **intelligent air conditioning controller** that saves **9% of A/C fuel usage** (1-2% of vehicle fuel usage).
- Proposed novel **heuristic control algorithms** for hybrid vehicle energy management which is **2-4% more fuel efficient than state-of-the-art** algorithms.
- **Defined implementable solutions** to intractable **joint optimization of energy management and vehicle speed profiles**.

- Developed a **driver assistance system** to recommend driver actions to assist **eco-driving**.
- Designed a smart **user-interface** using **cognitive work analysis**.
- Evaluated the proposed system through extensive **simulations at the University of Southampton**.



- Proposing a novel approach to **predict traffic flow in real time** using historical and **V2X traffic data**.
- Studying the integration of the **traffic prediction method** into **real-time optimisation** of vehicle speed profiles.



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