Post-Doctoral position in the Control of Hybrid Vehicles at Institut Pascal / IMobS3 (Clermont-Ferrand, France)

The MACCS (http://maccs.univ-bpclermont.fr/) team at Institut Pascal / IMobS3 (http://ip.univ-bpclermont.fr/, http://www.imobs3.univ-bpclermont.fr/ (Clermont-Ferrand, France) is seeking applications for 1 post-doctoral fellow position in the field of the **Control of Hybrid Vehicles**.

Keywords: Tri-actuated bus (Electric, Hydraulic and Thermic); Optimal Powertrain Control; Online and offline optimal control; Artificial Intelligence (Dynamic programming, MDP, Fuzzy logic, etc.).

Context: The opened post-doctoral position will be in the context of BUSINOVA Evolution project, funded by ADEME agency ("Investissements d'Avenir") of French government. This project aims to enhance the energetic performance of an urban bus (called BUSINOVA) while optimizing the powertrain control strategy to deal with its three possible modes of actuation (Tri-Hybrid: Electric, Hydraulic and Thermic). While working in the MACCS team, the successful candidate will have the chance to work with close collaboration with Safra (Albi, France), the company which designed and produced the BUSINOVA (http://www.businova.com/).

Main objectives (in short): Proposition of optimal control strategies/laws in order to optimize the energy consumption of the Tri-actuated bus. The research aims to find the most efficient way to switch/merge between the different actuations modes to cope notably with the power-peak demand during the bus starting phase and to store the high power flow during the stop phase. The performance of the bus must be also optimized in terms of battery autonomy, passengers comfort, time to the stations, etc.

Simulation and experimental platforms: The modelling and the control of the overall system will be done first using MATLAB/Simulink and while using dedicated simulator as TruckMaker. Thereafter, effective implementation in C++ will be done on the actual system in Safra Company at Albi.

Candidacy and contacts: Applicants should have a PhD Degree in Electrical Engineering (Automatic control or Robotics) or in Computer science. Candidates with a strong background in the control of Hybrid Electric Vehicles, Optimal control and/or artificial Intelligence methodologies (Dynamic programming, MDP, Fuzzy logic, Neural network, etc.) are particularly encouraged to apply. Good skills in C++ and/or MATLAB/Simulink will be appreciated.

The initial term of appointment is for **12 months**, with the possibility of renewal (**until 24 months**) based on satisfactory performance. Potential start date: **February 1, 2016**. Competitive salary is offered.

The candidates should e-mail ASAP a single pdf file to Lounis.Adouane@univ-bpclermont.fr, including: a Cover Letter describing background and motivation, CV, letters of recommendation and 2 to 3 most relevant publications. Please put "Control of Hybrid Vehicles Postdoc" in the subject line.