

## UBIVERTEX - Letter of Intention

Institute/Company

Name: Université Bordeaux 1

Country: France

Activity domain: University

Number of employees: ☐ <50 ☐ <250 ☒ > 500

Name of the department/research team: LaBRI

Scientific contact

Name: Serge CHAUMETTE

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Challenge descriptions:

The MUSE (Mobility, Ubiquity, Security) research sub-group of the LSR (Languages, Systems and Networks) research group at LaBRI works on secured fleets of mobile autonomous communicating terminals. We have currently deployed fleets of mobiles phones, robots and drones (SCUAL, Swarm of Communicating Uavs At LaBRI). The underlying model is based on dynamic graphs and dynamicity aware graph relabeling systems that enable to describe the evolution of the interconnection networks established between the fleet members, which is *de facto* highly volatile. The different kinds of fleets give rise to different categories of graphs, for which specific possibility or impossibility results can be proven. Real implementations are achieved.

Among the algorithms/applications that we study are those the goal of which is to maintain a global structure, for instance an overlay network, by relying only on peer-to-peer broadcast based communication, even though the underlying network is highly volatile.

We will contribute to Urbivirtex: we will work on studying services for the Urbivirtex platform that could for instance make it possible to present the user with a virtually connected network (over an underlying physical volatile network). Urbivirtex will contribute to our work: it will provide us with a platform to test our algorithms; to achieve this goal we will set up a control layer that could for instance make it possible to degrade (in a controlled manner) the connectivity of the real network so as to observe at a large scale how our algorithms behave.

Number of persons involved in these challenges: 2

Signature of  
Scientific Contact:

Serge Chaumette

Date: 1 september 2011



Signature of the  
Legal Representative:  
Le Président

Alain BOUDOU

Date: 13 SEP. 2011