2018-00607 - Open Research & Development Post-doc/Engineer position available at INRIA (Chroma team) on advanced perception for Autonomous Vehicles, EU Enable-S3 project

Level of qualifications required: Graduate degree or equivalent
Fonction: Post-Doctoral Research Visit

About the research centre or Inria department
Grenoble Rhône-Alpes Research Center groups together a few less than 800 people in 35 research teams and 9 research support departments.

Staff is localized on 5 campuses in Grenoble and Lyon, in close collaboration with labs, research and higher education institutions in Grenoble and Lyon, but also with the economic players in these areas.

Present in the fields of software, high-performance computing, Internet of things, image and data, but also simulation in oceanography and biology, it participates at the best level of international scientific achievements and collaborations in both Europe and the rest of the world.

Context
The Inria research team Chroma is involved in several academic and industrial projects in the field of Autonomous Vehicles. The proposed R&D work has to be performed in the scope of "Enable-S3", a European research project, in cooperation with several companies and laboratories. The objective of the project is to find alternatives to today's cost-intensive verification & validation efforts by more advanced and efficient methods to pave the way for the commercialization of highly automated cyber physical systems (ACPS).
Several well published and patented results have already been obtained in the scope of this project.

Assignment
A one year (re-newable) Research & Development Post-doc or Engineer position is available at Inria Grenoble Rhône-Alpes, in the scope of the Enable-S3 project. The objective is to build on the team's use of simulation platforms (based on Gazebo) to propose verification and validation approaches relying on the automated generation of tests scenarios, the choice of appropriate "Key Performance Indicators" (KPIs) and the statistical analysis of the tested scenarios. Both the team's patented embedded perception framework and decision-making approaches have to be validated using this approach. The validation approach is based on the use of a co-simulation paradigm, combining real world data and simulation results.

Main activities
The recruited Post-doc / engineer will work within a team of 4 engineers already working on different projects, with occasional interactions with some PhD students and researchers of the Chroma team. The main task will be to understand the team's perception algorithms and to propose new approaches of test and validation methods or any subject related to the understanding of the scene for autonomous vehicle in a city. A Gazebo simulation will have to be built for the project, including bus and area where the project will be tested in real life. The implementations and the experimentations will be performed using the ROS framework, Gazebo simulation and multiple experimental platforms. The recruited engineer will also contribute to the improvement of the experimental platform of the team, and he/she will participate to some scientific publications, industrial conferences or various demonstrations.

Skills
- Engineer with R&D experience or PhD in Computer Science, Robotics or closely related fields.
- Good theoretical and practical background in one of the following domains: Robotics, Multi-sensors perception or Scene Understanding.
- Good skills in C/C++, Python and Linux.

The following qualifications would be an advantage:
- Experience using the Robotics library ROS
- Familiarity with CUDA and Boost libraries
- Theoretical knowledge of Bayesian models
- Ability to work as a teammate with other researchers
- Reasonable English skills (written and spoken)

Benefits package
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours
- Sports facilities