2018-00541 - Open Research & Development Post-doc / Engineer position available at INRIA (Chroma team) on planification and Control for Autonomous Vehicles in the Tornado project

Renewable contract: Oui
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 a French FUI project “Tornado”, in cooperation with several companies and laboratories. The objective of INRIA in the project is to develop, to experimentally validate and to demonstrate the capabilities of an Embedded Perception and Decision-making system in the context of Mobile Robotics and Autonomous Vehicles applications. 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 Tornado project. The objective is to develop an embedded perception and navigation system for autonomous mobile systems, with an emphasis on real world experiments performed using an automated Renault Zoé vehicle and some other industrial mobile robots.

Main activities
The recruited 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. His main work will be to use occupancy grids and HD map to do long term trajectory planning, then to implement the work of a PhD student on decision making for crossing intersections. The implementations and the experimental results will be performed using the ROS framework, Gazebo simulation and the experimental platform of the IRT nanoelec (which includes an automated Renault Zoé vehicle). The recruited engineer will also contribute to the improvement of the experimental platform, and he 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, Scene Understanding, and/or Decision-making for safe navigation.
- Good skills in C/C++, Python and Linux.

General Information
- Theme/Domain: Robotics and Smart environments
  - Software engineering (BAP E)
- Town/city: Montbonnot
- Inria Center: CRI Grenoble - Rhône-Alpes
- Starting date: 2018-04-01
- Duration of contract: 1 year
- Deadline to apply: 2018-06-30

Contacts
- Inria Team: CHROMA
- Recruiter: Laugier Christian / christian.laugier@inria.fr

The keys to success
The ideal candidate is highly autonomous, with a strong interest in the Autonomous Vehicle field and all associated technologies. Strong communication skills and teamwork abilities needed.

About Inria
Inria, the French National Institute for computer science and applied mathematics, promotes “scientific excellence for technology transfer and society”. Graduates from the world’s top universities, Inria’s 2,700 employees rise to the challenges of digital sciences. With its open, agile model, Inria is able to explore original approaches with its partners in industry and academia and provide an efficient response to the multidisciplinary and application challenges of the digital transformation. Inria is the source of many innovations that add value and create jobs.

Conditions for application
Defence Security:
This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorization to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

Recruitment Policy:
As part of its diversity policy, all Inria positions
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

Remuneration
Gross salary: 2650 Euros per month