Presentation of the establishment

Since January 1st 2020, Université Côte d'Azur is a new experimental university subsuming both the Nice Sophia Antipolis University created in 1965 and the Community of Universities and Establishments Université Côte d'Azur created in 2015. Université Côte d'Azur now brings together 17 major academic players around the historic university core to build one of the 10 major French universities that are intensive in research.

Winner of the Idex call for projects in 2016 (UCA\textsuperscript{EDI} - Joint Excellent and Dynamic Initiative), its ambition is to build a 21st century university whose excellence will allow " increase national and international visibility and attractiveness and ultimately be among the best universities in the world.

UCA\textsuperscript{EDI} is organized around five transdisciplinary academies of excellence (networks, information and digital society; complex systems; space, environment, risk and resilience; complexity and diversity of living things; people, ideas and environments) and three Centers of Reference which aims to ensure the effective connection and interactions between fundamental research and innovation around very high-level technological platforms in public-private partnership:
- Health, well-being and aging (Pasteur district)
- The intelligent territory, prevention and risk management (Nice Ecovallée)
- Digital challenges (Sophia Antipolis)

The mission of the Reference Centers is to stimulate partnership research actions, provide engineering support for the collaborations developed, create initial and professional training, promote expertise and innovation in the service of economic development.
Context of the job

Université Côte D'Azur, in connection with Inria Sophia Antipolis Méditerranée, is looking for a young researcher for post-doctoral research, on a collaborative regional funding supported by a PSPC project, called "ADAVEC" bringing together industrial partners in the automotive sector, including the companies Avisto, EpicnPoc and Renault Software Labs.

The ADAVEC project is a digital R&D project in the context of autonomous vehicles. Autonomous vehicles will circulate with conventional vehicles for a few years, a period during which the infrastructure will be equipped to be more and more communicative. The autonomy of vehicles will evolve to reach levels L3 and L4 (see SAE levels), resulting in different driver involvement. During this transition to high-level automation, the role of the driver during the same journey will be contextualized by the degree of autonomy of the vehicle at the given time.

The objective of the project is to build a prototype allowing an autonomous vehicle to continuously adapt its level of autonomy according to traffic and safety conditions. This prototype must automatically define the optimum level of autonomy by communicating with the environment (V2X, ADAS, etc.), but also by analyzing the driver’s ability to take over the vehicle. The prototype will be validated in a digital simulation environment and eventually embedded in a real robotic vehicle with autonomous driving.

Overall mission

The engineer will be in charge of setting up a digital simulation environment, and providing technical support for the engineering of the project. The engineer will also be involved in the design work of architecture and real-time embedded control software components, using formal model-based approaches (e.g. SCADE).

The workplace is in Sophia Antipolis, in the premises of the "Digital Challenges" Reference Center located at the Inria Sophia Antipolis Méditerranée site. The engineer may occasionally be required to travel to the sites of UCA and its partners, and the companies with which UCA and its partners collaborate.

The engineer will be a member of the UCA Reference Center engineering team, assigned to the ADAVEC project, in charge of the following activities:

- Implementation of a digital simulation software environment from a product marketed by a supplier partner of the project;
- Model-based design of architecture and software components using industrial tools (SCADE) offering automatic code generation;
- Setup of a formal verification environment for safety properties using the proof engines offered by the SCADE environment;
- Writing of documentation and deliverables;
- Support and maintenance of developed software.
Required Competencies

Experience and required education

Experience and required education
- Education in Computer science and experience in software engineering;
- Experience or education in model-based design;
- Experience or education in using a formal approach for the design and verification of embedded real-time software and system.

Software development skills
- Programming languages: C, C++, or Java. Scripting languages (e.g. Python).
- Model-based notation and design language: UML / SysML, Simulink, SCADE
- Multiplatform compilation and packaging techniques and tools, e.g. cmake.
- Development tools: version manager (decentralized if possible, e.g. Git), automatic documentation tools, automatic testing tools and continuous integration (e.g. Jenkins).
- Agile methodologies.
- Good reading and writing skills of scientific and technical documentation
- Autonomy, curiosity and taste for teamwork.

Position open to people with disabilities.

Informations complémentaires :

Position: Research & Development Software Engineer

Required education: Master in Computer Science (French level: Bac + 5)

Localization: Sophia Antipolis

Type of position: 3 years contract

Reporting: Director of « Digital Challenge » Reference Centre.

PROCEDURE

Applicants must send the following documents electronically, no later than 09/15/2020, to Amar.BOUALI@univ-cotedazur.fr with:
- Curriculum vitae, clearly specifying your skills
- Motivation lettre.