Post-Doctoral Position (M/F)
(Reference: CS_JH_PostDoc_GeoServ_070119)

Research topics: Multi-Sensor Hazard Detection for Future Automated Vehicles

Department: Communication Systems

Publication date: 01/07/2019

Start date: ASAP

Duration: Fixed Term Contract 18 months

Description:
EURECOM’s Communication System Department invites applications for a full-time, 18-month research engineering or post-doctoral position (M/F) to work on multi-sensor fusion applied to road hazard detection in the context of future Connected Automated Vehicles (CAV).

At high speed, stand-alone sensing systems (i.e., radars, cameras, lidars) will not have sufficient and safe means to detect and localize dangerous events on the road in all situations and with a sufficient level of anticipation. Through cooperation between vehicles and connectivity to a ‘5G Geo-server’ located either in the cloud or in a MEC, anticipated cooperative collision avoidance will become possible. Such ‘5G Geo-server’ aims at gathering data from connected objects and applying intelligence to provide geo-referenced services, such as hazard detection.

The objective of this position is to design such intelligence. It shall be based on the various sensor data, contextual knowledge and HD maps. The challenge is to define the most appropriate and efficient mechanisms (data fusion, machine learning, neural networks, else..) to extract normal from abnormal behaviors or outliers, confirm early danger through side channels and either discard or confirm the danger. This would lead to prototype tests on a test site in Barcelona in Spain and Montlery in France.

This work will be carried out in the context of a large EU-wide 5G Public Partnership Project 5G-CROCO (https://5gcroco.eu/), including leading automotive and telecommunication industries. The candidate will have occasions to interact with them.

Specifically, the focus of this position will be in the topic around: (i) abstraction, modelling and analysis of heterogeneous multi-sensor data fusion, (ii) methodology for reaching decision on hazard situations (Belief functions, Neural or Bayesian networks,…), (iii) context identification for vehicles and vulnerable road users involved in such hazard situation.

EURECOM is an English-speaking school that enjoys a special status within the group of French Ivy League schools, or “Grandes Ecoles”, as it is the only engineering school in France with a full English language curriculum. Besides teaching at the MSc and PhD levels, EURECOM’s activities mainly revolve around research in the domains of networking, computer security, data-science and mobile communications. It has some 150 employees, including 125 scientists.

Requirements:

Education Level / Degree: Master-level or PhD-level degree or equivalent

Field / specialty: Computer Science, Electrical or Telecommunication Engineering.

Technologies: A very good background in Data Fusion applied to Wireless and/or Sensor Networks. Knowledge in Machine Learning or Artificial Intelligence is highly appreciated.

Languages / systems: Good experience in Matlab is required. Knowledge in C or C++ programming is appreciated.

Other skills / specialties: IoT and C-ITS standard knowledge is appreciated.

Other important elements: Strong communication skills and keen to operate in a multidisciplinary team. Fluent in English (speaking, writing), French not required.
Application

The application must include (I, II and III):

- I-Curriculum Vitae
- II-Motivation letter of two pages also presenting the perspectives of research and education
- III-Names and addresses of three references

Applications should be submitted by e-mail to secretariat@eurecom.fr with the reference: CS_JH_PostDoc_GeoServ_070119

Postal address

CS 50193 - 06904 Sophia Antipolis, France

Contact

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Fax number

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EURECOM is a French graduate school and a research center in digital sciences based in the international science park of Sophia Antipolis, which brings together renowned universities such as Télécom ParisTech, Aalto University (Helsinki), Politecnico di Torino, Technische Universität München (TUM), Norwegian University of Science and Technology (NTNU), Chalmers University (Sweden) and Czech Technical University in Prague (CTU). The Principality of Monaco is a new institutional member. The Institut Mines-Télécom is EURECOM's founding member.

EURECOM benefits from a strong interaction with the industry through its specific administrative structure: Economic Interest Group (kind of consortium), which brings together international companies such as: Orange, BMW Group Research & Technology, Symantec, Monaco Telecom, SAP, IABG.

EURECOM deploys its expertise around three major fields: Digital Security, Data Science and Communication Systems. EURECOM is particularly active in research in its areas of excellence while also training a large number of doctoral candidates. Its contractual research is recognized across Europe and contributes largely to its budget.

Thanks to its strong ties set up with the industry, EURECOM was awarded the “Institut Carnot” label jointly with the Institut Telecom right from 2006. The Carnot Label was designed to develop and professionalize cooperative research. It encourages the realization of research projects in public research centers that work together with socioeconomic actors, especially companies.