PhD Position (M/F)
(Reference: CS_JH_PHD_5G_V2X_071220)

Research topics	**Deterministic 5G-V2X Communication for future Connected Robotics**
Department	Communication Systems
Publication date	07/12/2020
Start date	ASAP
Duration	Duration of the Thesis
Description	EURECOM's Communication System Department invites applications for a PhD position (M/F) in the area of deterministic 5G-V2X technology in the context of futures connected robotics.

Future connected robotics, such as automated vehicles, UAVs or trains require deterministic communications supporting strong delay and capacity guaranties from the future 5G-V2X network. The current specification for LTE-V2X however relies on best effort without any QoS guarantee, and has so far only been tested on a reduced set of applications.

The objective of this position is to analyze the problematic of deterministic scheduling and resource allocations on the 5G-V2X standard, and propose and evaluate disruptive approaches supporting ultra-reliable and low latency guarantees.

This work will be carried out in the context of a large EU-wide next generation IoT project called IntelIoT (http://www.intelliot.eu/), including major European stakeholders in IoT and 5G technologies, the candidate will have the occasion to interact with them. This work will also be conducted in cooperation with 3GPP.

Specifically, the focus of this position will be around the topics of: (i) abstraction, modelling and analysis of deterministic 5G V2X schedulers, (ii) methodology to extend the deterministic scheduler to support multi-hop ad-hoc relaying, (iii) integrating and evaluate the potential of Machine Learning/AI mechanisms to provide ultra-reliability to the 5G V2X schedulers.

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 degree or equivalent

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

Technologies: A very good background in Wireless and/or Wired Networks (LTE/5G, IP). Very good analytical skills is highly appreciated.

Languages / systems: Experience in C or C++ programming. Knowledge in simulators (ns-3, Omnet++) is highly appreciated.

Other skills / specialties: C-ITS or 3GPP standard knowledge

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_PHD_5G_V2X_071220

About EURECOM

EURECOM is a graduate school and a research center in communication systems located in Sophia Antipolis, a vibrant science park on the French Riviera. EURECOM is ranked among the world's top universities in the QS World University Rankings® 2019, considered one of the world's strongest universities in Computer Science & Information Systems and ranked 551/600 worldwide.

Organized as an Economic Interest Group (kind of consortium), EURECOM brings together in its consortiumprestigious universities such as the schools from the Institut Mines Télécom group (Télécom Paris, Imt Atlantique,Télécom SudParis, etc.), Aalto University (Helsinki), Politecnico di Torino, Technische Universität München (TUM), Norwegian University of Science and Technology (NTNU), Chalmers University of Technology (Sweden), and Czech Technical University in Prague (CTU), ITMO University (St Petersburg), as well as industry members such as BMW Group, IABG, Orange, SAP, NortonLifeLock and the Principality of Monaco as an institutional member.

EURECOM has developed 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, in which its industrial members actively participate, is widely recognized in Europe and contributes largely to its budget. It's strong links with various industries has enabled EURECOM, with the Institut Mines Télécom, to obtain the Carnot label, a label granted to research organizations which put partnership research at the heart of their strategy.

EURECOM specifically encourages women to apply with a view towards increasing the proportion of female researchers.

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