PhD Position (M/F) : Cooperative Caching and Transmission in 5G Networks

Research Topics	**Distributed Caching, Cooperative Transmission, 5G Networks**
Department	Communication Systems
Web Site	http://www.eurecom.fr/cm/
Starting Date	ASAP
Duration	Duration of the thesis
Description	This position is jointly funded by an excellence grant from the UCN@SOPHIA LABEX (https://ucnlab.eu/) and an ANR "Jeunes Chercheurs" (Young Investigator) grant. The selected candidate will be employed by EURECOM, but will be a member of both the NEO team at INRIA Sophia Antipolis – Méditerranée (http://www.inria.fr/en/teams/neo) and the Mobile Comm. department at EURECOM, Sophia-Antipolis (http://www.eurecom.fr/en). The goal of this thesis will be to jointly optimize cooperative caching and cooperative transmission in future 5G networks. A key goal will be to explore the tradeoff between edge caching that reduces backhaul traffic, and caching that improves radio access performance. At the center of this tradeoff lies the question of how caching algorithms can adapt to accommodate potential Coordinated Multi-Point (CoMP) transmission opportunities. A second key goal is to investigate distributed implementations of the proposed optimal solutions, in order to (a) deal with the high complexity of cooperative caching problems, and (b) significantly reduce the amount of additional (signaling) information transmitted over the already congested backhaul links.
Requirements	We are looking for candidates who are self-motivated and would like to conduct high quality research, and publish in top venues. Candidates should have a Master's Degree (or equivalent) in Electrical Engineering, Computer Science, or a closely related area, preferably with a focus on networking or communications. They are also expected to have very good analytical skills (Probability Theory, Optimization) and some background in the area of Wireless Networking. Good programming skills and experience in popular simulation environments is a plus. A good level of written and spoken English is mandatory (knowledge of French is not required). Finally, the selected candidate will be well organized and able to integrate and work well in groups. The position duration is normally 3 years, with a maximum duration of 4 years.
Application	Application evaluation will start immediately and will continue until position is filled. Interested individuals should submit: - 1-2 page summary of research interests. - Detailed CV including publications. - At least 2 recommendation letters. - Transcript of courses taken at graduate and undergraduate levels and their grades. Applications should be sent to secretariat@eurecom.fr, spyropou@eurecom.fr, giovanni.neglia@inria.fr mentioning the following reference in the title **5G-Cache PhD Position**

Contact	If you have questions or need more information about the position, we encourage you to visit the websites of the supervisors, or to contact them directly: - Thrasyvoulos Spyropoulos (http://www.eurecom.fr/~spyropou/) - Giovanni Neglia (http://www-sop.inria.fr/members/Giovanni.Neglia/)
Postal Address	EURECOM, Campus SophiaTech, 450 route des Chappes, 06410 BIOT, France
Web page	http://www.eurecom.fr/en/eurecom/eurecom-recrute

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.