PhD Position (M/F): Joint Optimization of Content Recommendation and Caching for MEC-enabled Future Wireless Networks

Research Topics	**Cooperative Caching, Recommendation Systems, 5G Networks**
Department	Communication Systems
Web Site	http://www.eurecom.fr/cm/
Starting Date	ASAP
Duration	Duration of the thesis
Description	This position is funded by an ANR "Jeunes Chercheurs" (Young Investigator) grant at the Comm. Systems department at EURECOM, Sophia-Antipolis (http://www.eurecom.fr/en). The goal of this thesis will be to bring together the theories of Cooperative Caching and Recommendation Systems. The main two novel aspects to exploit, currently ignored in most systems, will be to make sure that: (i) Caching algorithms take advantage of how users select the contents they consume, which is increasingly driven by sophisticated recommendation systems (e.g. Netflix, YouTube, Spotify, etc.) as well as social network influences (Facebook, Twitter, etc.); (ii) Recommendation algorithms of key applications become aware of how the recommended content gets delivered to the user, and "bias" their recommendation to improve performance for both the user and the network operator. The selected student will be expected to develop an expertise on: (i) state-of-the-art caching and recommendation algorithms, (ii) modern optimization theory and machine learning aspects, and (iii) 5G and beyond system evolutions like cloud-computing and MEC (mobile-edge computing).
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.
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 mentioning the following reference: **CacheREC PhD Position.**

Contact	If you have questions or need more information about the position, we encourage you to look at our web page or contact us directly: http://www.eurecom.fr/~spyropou/

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.