Modeling and Optimization of Joint Caching and Recommendation Algorithms at the Mobile Edge

Mots clés :

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- Unité de recherche : Laboratoire de recherche d'EURECOM
- École doctorale : École Doctorale Informatique, Télécommunications, Électronique de Paris
- Domaine scientifique principal: Sciences et technologies de l'information et de la communication

Résumé du projet de recherche (Langue 1)

This position is funded by an ANR “Jeunes Chercheurs” (Young Investigator) grant. 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 PhD candidate will develop an expertise on: (i) state-of-the-art caching and recommendation algorithms, (ii) modern optimization theory and machine learning aspects. She will contribute on the topic of jointly optimizing hierarchical caching networks with communication constraints, and network friendly recommendations. She will also consider objectives related to both the network operator, as well as user QoE.