

Research Grants for PhD students from the China Scholarship Council

Information Form (please read the guidelines carefully on the website www-csc.utt.fr)

Supervisor's name : Given names :

Status (prof., assistant prof., ...) :

Laboratory : Website address :

Institution : Website address :

Scientific competence of the supervisor:

Fabio D'Andreagiovanni joined CNRS as CR1 in 2016. Previously, he was Head of the Research Group "Mathematics of Telecommunications" of Zuse Institute Berlin (Berlin, Germany) and Lecturer at Free University Berlin and Technical University Berlin. He received his Ph.D. in Operations Research (2010) from Sapienza University of Rome (Italy) and he was Research Scholar at Columbia University (New York, USA). His research on theory and applications of mathematical optimization has received many international awards and has been published in top journals and proceedings of top conferences. He serves in the TPC of many international conferences.

Two major publications in the field proposed for the PhD :

1.
2.

Website address of the personal page :

Supervisor's email :

Description of the research work proposed for a PhD **Topic # (see list) :**

Title :

Subject :

In the last decade, wireless telecommunications have hugely evolved and now provide very fast, ubiquitous and reliable services, like internet connectivity, that have become a fundamental part of our everyday life. However, people in rural and low-income regions still struggle to even get basic wireless connectivity, creating a technological gap with very high impact on their social and economical development. In this project, we will develop innovative robust optimization models and algorithms for supporting a cost-efficient deployment of the new 5th-Generation of wireless networks (5G) in rural and low-income regions, taking into account traffic generation uncertainty. We will exploit innovative features offered by 5G (e.g., so-called "superfluidity") for deploying low-cost networks integrating a system of various communicating devices, like large-coverage base stations, small wireless nodes and Unmanned Aerial Vehicles (UAVs). A distinctive feature of the low-cost 5G networks that we will consider is to realize the backbone network by UAVs connected by means of Free Space Optical communication technology.

Keywords :

Expected collaborations :

- 1) Prof. Luca Chiaraviglio, Department of Electronic Engineering, University of Rome Tor Vergata (Rome, Italy)
- 2) Prof. Raymond Choo, Department of Information Systems, University of Texas at San Antonio (San Antonio, USA)
- 3) Prof. Enrico Natalizio, Lorraine Research Laboratory in Computer Science and its Applications (LORIA, UMR 7503) and Université de Lorraine (Nancy, France)
- 3) Prof. Mohamed-Slim Alouini, Wireless CT Lab, King Abdullah University of Science and Technology (KAUST)

Background required from the applicant :

We look for applicants with a Master Degree (or equivalent) in Computer Science, Applied Mathematics, Industrial Engineering or any related discipline. Applicants should demonstrate in particular: 1) knowledge of mathematical optimization models and algorithms; 2) good programming skills (C++, Java or Python); 3) proficiency in English. Knowledge of computer communications and telecommunications is highly appreciated. The selected candidate will closely work with the Ph.D. Supervisors and be involved in their international research activities.

Existence of a PDF file detailing the proposal ("yes" or "no") :

(see guidelines on the website www-csc.utt.fr)