**2018-00529 - Phd : Smart Technology for Smart Society**

**Level of qualifications required :** Graduate degree or equivalent  
**Fonction :** PhD Position

**About the research centre or Inria department**

Located at the heart of the main national research and higher education cluster, member of the Université Paris Saclay, a major actor in the French Investments for the Future Programme (Idex, LabEx, IRT, Equipex) and partner of the main establishments present on the plateau, the centre is particularly active in three major areas: data and knowledge; safety, security and reliability; modelling, simulation and optimisation (with priority given to energy).

The 450 researchers and engineers from Inria and its partners who work in the research centre’s 31 teams, the 100 research support staff members, the high-level equipment at their disposal (image walls, high-performance computing clusters, sensor networks), and the privileged relationships with prestigious industrial partners, all make Inria Saclay Île-de-France a key research centre in the local landscape and one that is oriented towards Europe and the world.

**Context**

Today’s smart handheld devices allow heterogeneous free data gathering of human surrounding environment and networking usage patterns anytime and anywhere. Hence, an unprecedentedly large amount of human sensory data (i.e., the Big Data Era) can be collected and processed: opening ways to connect people, technology, and business. This big data implies advanced knowledge of humans’ behaviour and interactions at a planetary scale and can help tackle networking challenges when used correctly.

As our lives become more dependent on connectivity, it is easier to see that people have become eager to engage with mobile applications and connected services 1,4. As a consequence, smartphones have turned from a means of communication to a tool with high potential impact on the social integration of individuals in contemporary societies. They have changed the cultural norms and behavior of individuals, bringing positive (e.g., by simplifying information access all the time, with potential of facilitating better education systems in developing countries; by shortening geographical distances, social bonds are kept active, reducing stress while promising social support 3,5) and negative impact (e.g., by enabling people to create their own micro-cultures and engage into activities considered dangerous of society 2,5; by having a highly negative and destabilizing influence on ongoing face-to-face interactions 2.5).

**Assignment**

Thus, while examples of benefits of their usage can be easily found, smartphones are not a guarantee of social integration but an enabler whose impact depends on how it is being used. To understand how smartphones enable and constrain social integration, we need to understand (1) how, where and for what they are used, (2) how the uses of smartphones vary, as well as (3) how the psycho-social behavior of smartphone usage operate. The PhD thesis aims will be to expand our knowledge of smartphone usage; to connect that knowledge to the impact on social integration; and to provide policy recommendations on infrastructure and technological design development to improve and expand the social integration of individuals.

Current knowledge is fragmented because of the tendency of previous research to focus on: i) the study of specific behavior of smartphone use (ignoring thus complex

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**General Information**

- **Theme/Domain :** Networks and Telecommunications  
- **Town/city :** PALAISEAU  
- **Inria Center :** CRI Saclay - Île-de-France  
- **Starting date :** 2018-10-01  
- **Duration of contract :** 3 years  
- **Deadline to apply :** 2018-05-11

**Contacts**

- **Inria Team :** INFINE-POST  
- **Recruiter :** Carneiro Viana Aline / aline.viana@inria.fr

**Conditions for application**

Applications including a CV, a motivation letter, and recommendation letters of two referees shall be sent by email to aline.viana@inria.fr. Applications will be evaluated until the position is filled.

**Defence Security :**

This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

**Recruitment Policy :**

As part of its diversity policy, all Inria positions are accessible to people with disabilities.

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**Warning :** you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.
interactions between behaviors), ii) small-N data on specific features of smartphone use, and iii) disciplinary-specific perspectives. Building on that knowledge, this PhD thesis aims to contribute a uniquely comprehensive account that improves on each of the above limitations. This is possible with the help of an original and extensive smartphone usage dataset that we plan to analyze. This thesis will thus involve tasks related to dataset processing, enrichment and modeling as well as data analysis and knowledge extraction.

**Main activities**
The outcome of the thesis would be to build on the acquired human knowledge and technology usability to provide policy recommendations on infrastructure and technological design development to improve and expand the social integration of individuals.

**Skills**
Candidates must have a Master of Science or equivalent degree in Computer Science or Electrical Engineering. The ideal candidate has a strong background on machine learning, protocol design, scripting, statistics, and data mining. Knowledge of social networking, or complex networks is a plus. Candidates must be fluent in written and spoken English.

**Benefits package**
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours
- Sports facilities

**Remuneration**
1.982 euros brut/month for 2 first year, then 2.085 euros brut/month for the 3rd year