

## **Open PhD position**

PhD project title: **Personalized Exposure Meter: Computational Approach towards Evaluating Cognitive Load on HCI-Related Tasks**

### **General description:**

The development of modern multimedia content and communication networks, including social networks, introduced provider-active information filtering and notification to the end user. Despite clear benefits in terms of mitigating the problem of information overload, the active information feed may cause additional overflow due to the increase of available notifications. These could be disruptive to the end user's personal time management, and may increase the task-load related stress and thus reduce their effectiveness.

The objective of this PhD study is to design an automated personalized exposure meter based on estimation of user's cognitive load. In collaboration of research team, this will be achieved by: 1.) creating an ambient data collection in line with the design of user experiments, including relevant data sources and the test user selection (supported by the lab and the financing company), 2.) developing simple personal exposure metrics based on cognitive load, 3.) designing and implementing the pilot version of personalized exposure meter based on user's cognitive load, 4.) evaluating the proposed solution based on real data.

The PhD position will involve: (1) research on physiological measurements of user responses in regard to cognitive load (social and bio signals), (2) research using statistical and machine learning methods to model these responses, and (3) the ability to design and implement the pilot version of the developed models. Personalization aspects need also be taken into account by applying selected deep-learning approach.

The project will be financed by Nielsen Corporation. Nielsen will support the candidate offering test environment to verify and validate the meter. In addition the candidate will be involved into other similar media measurement projects for the remaining of time. At the end of the PhD study a job position will be opened for the candidate at Nielsen.

### **Requirements:**

Prospective PhD students should have:

- a MSc degree completed
- creativity and motivation
- a basic knowledge in user modeling and machine learning is beneficial, although not required.

### **Application procedure:**

Prospective PhD students must apply for the position by sending their CV to [andrej.kosir@lucami.fe.uni-lj.si](mailto:andrej.kosir@lucami.fe.uni-lj.si). The position includes full employment for 3.5 years.

Prospective PhD students must apply for the doctoral program in Electrical Engineering at the Faculty of Electrical Engineering (FE), University of Ljubljana, <http://www.fe.uni-lj.si/en/>.

Contact: Prof. Andrej Košir, [andrej.kosir@lucami.fe.uni-lj.si](mailto:andrej.kosir@lucami.fe.uni-lj.si)  
Jože Arh, [joze.arh@nielsen.com](mailto:joze.arh@nielsen.com)