Fully Funded PhD Position on the Data System and Processing side of Dynamic Data Physicalisation and Interaction, VUB, Brussels

The SOFT research lab at the Vrije Universiteit Brussel (Brussels, Belgium) is looking for a highly motivated candidate for a fully funded PhD scholarship under the supervision of Prof. Bas Ketsman (https://basketsman.com).

RESEARCH

The PhD candidate will be one of two PhD students working on our recently funded project on "Real-Time Cross-Media Data Exploration and Analysis for Next-Generation Knowledge Workers". While the candidate applying for this PhD scholarship will mainly work on the project's data processing aspects, a second PhD student (under the supervision of Prof. Dr. Beat Signer: https://beatsigner.com) will deal with the project's HCI aspects.

ABSTRACT OF RESEARCH PROJECT

With the ever-growing amount of data produced by humans as well as embedded sensors, there is a strong need for tools to analyse these large datasets forming part of the Big Data era. There has been a lot of research on how to efficiently batch process large datasets and create some static reports for the analysis of the underlying dataset, but recently there is an increasing interest in real-time processing and query adaptation in Big Data environments, enabling so-called human-in-the-loop data exploration. While the majority of user interfaces for data exploration and analysis are based on traditional screen-based visualisation, the emerging field of data physicalisation offers new opportunities since data can no longer only be explored visually, but also by making use of other senses such as touch. This new form of cross-media interfaces further enables the multi-user and real-time interaction and exploration of datasets since there is no longer a single user in control of the interface via keyboard and mouse. Dynamic data physicalisation also enables innovative forms of higher-dimensional data representation where various physical properties, such as temperature or tactile feedback, can be used in combination with a 3D data visualisation. The proposed research agenda will address a number of challenges on the data processing side, such as special types of dynamic index structures, as well as on the data physicalisation side (e.g. design guidelines for the use of physical variables or multi-user interaction) to realise real-time cross-media data exploration and analysis for next-generation knowledge workers. Further, an algebra defining the supported operators will serve as an interface between data processing and data physicalisation. More information can be found at https://wise.vub.ac.be/project/real-time-cross-media-data-exploration-and-analysis-next-generation-knowledge-workers

TEACHING

In addition to the research carried out in the SOFT lab, the candidate will have the possibility to improve their teaching skills by assisting labs and projects for courses in the computer science and applied informatics programs. There is further the possibility to supervise Master's thesis students.

REQUIREMENTS

The candidate is expected to have a Master in Computer Science or a related field. The candidate is further expected to have sound knowledge of the English language.

APPLICATION

Your application should be sent to bas.ketsman@vub.be and should include the following documents:

- a CV listing all relevant aspects such as academic achievements etc.
- a motivation letter also mentioning the candidate's research interests
- diplomas

For more information you can always contact Prof. Dr. Bas Ketsman (bas.ketsman@vub.be).
The position is available now and will remain open until filled.