Open Dialogue on Pre-Commercial Procurement of Innovative HPC Technology

Human Brain Project

The Human Brain Project (HBP) [1] is an ambitious, European-led scientific collaborative project, which is supported since October 2013 by the European Commission through its FET Flagship Initiative [2]. The HBP aims to gather all existing knowledge about the human brain, build multi-scale models of the brain that integrate this knowledge and use these models to simulate the brain on supercomputers.

Large-scale, memory-intensive brain simulations running on the future pre-exascale and exascale versions of the HBP Supercomputer will need to be interactively visualised and controlled by experimenters, locally and from remote locations. "Interactive Supercomputing" capabilities should allow the supercomputer to be used like a scientific instrument, enabling in silico experiments on virtual human brains. These requirements will affect the whole system design, including the hardware architecture, run-time system, mode of operation, resource management and many other aspects.

While supercomputers with exascale capabilities will become available sooner or later without any HBP intervention, it is unlikely that these future systems will meet unique HBP requirements without additional research and development (R&D). JSC as the leader of the HBP's HPC Platform is therefore considering to carry out a Pre-Commercial Procurement (PCP) to drive R&D for innovative HPC technologies that meet the specific requirements of the HBP.

PCP is a relatively new model of public procurement, designed to procure R&D services, which is promoted by the European Commission (EC) [3]. It is organized as a competitive process comprising three phases: 1) solution exploration, leading to design concepts, 2) prototyping, 3) original development of limited volumes of first products. To select the supplier(s) best able to satisfy the goals of the PCP, the number of candidates is reduced at each phase after an evaluation of the respective results and the bids for the following phase. The risks and benefits of the PCP are shared between the procurer and the suppliers. For instance, the intellectual property rights (IPR) resulting from the PCP may remain with the suppliers if the procurer is granted a suitable license allowing the procurer to use the IPR.

An Open Dialogue event with interested potential suppliers was held by the HBP in Brussels on December 18, 2013 as part of a market exploration. Its goal was to present the HBP PCP framework and process, as well as a first version of the technical goals. The agenda included an overview of the HBP as a whole and the roadmap for building the HBP's HPC Platform. Discussion sessions offered potential suppliers opportunities to ask questions. The suppliers were encouraged to provide feedback, during the event and afterwards.

The event was attended by representatives of more than 25 different companies. While many of the questions raised during the event were aimed at getting a better understanding of the presented technical goals, the majority of the feedback concerned legal issues, in particular IPR regulations. The feedback received represents valuable information that is being taken into account in the drafting of the call for tender.

All slides presented during the meeting are available online [4].

Acknowledgements

References

[1] https://www.humanbrainproject.eu/

[2] http://cordis.europa.eu/fp7/ict/programme/fet/flagship/

[3] http://cordis.europa.eu/fp7/ict/pcp/

[4] http://www.fz-juelich.de/SharedDocs/Termine/IAS/JSC/EN/events/2013/hbp-od-pcp-2013.html

[5] http://dx.doi.org/10.1109/BioVis.2013.6664348

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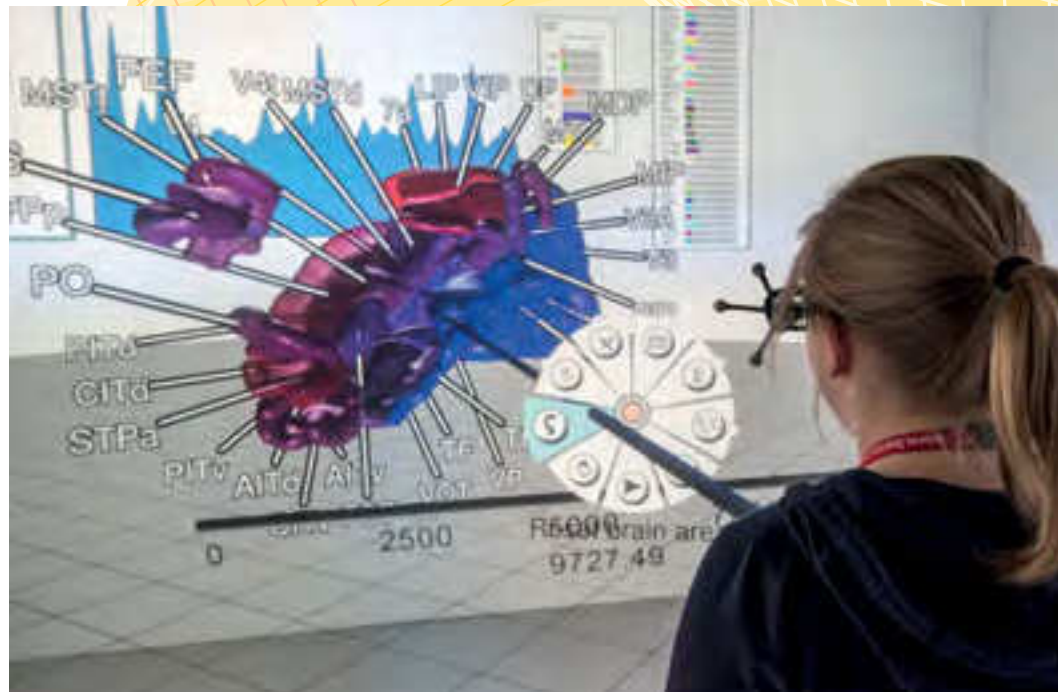Centre (JSC)

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Figure 1: The image shows VisNEST [5], an interactive analysis tool for neural activity data, being used in the aixCAVE at RWTH Aachen University (Source: Virtual Reality Group, RWTH Aachen University).