

Opening

In the context of a KWR project in collaboration with Philips Healthcare, LaQuSo has an opening for a researcher in the area of remote software management.

At Philips Healthcare, Cardio Vascular systems C/V systems are complex medical machines consisting of thousands of replaceable parts and a multitude of different processing nodes (PC's and dedicated boards). Given the size and costs of such a system, there are different system configurations used in the field. Due to its inherent complexity the installed base of systems is regularly updated in the field. This leads to a large number of product variations in the field that are to be managed and supported. In order to guarantee safety for the patients, optimize the clinical outcome of procedures and reduce healthcare costs, it is essential to be able to update/upgrade systems in the field remotely from the Philips Healthcare Enterprise. Remote management of the system is difficult not only because of the high complexity of the machines, but also due to the required robustness of the update process. In the given application domain strict regulations prescribe that the manufacturer has to build up evidence that each and every system configuration in the field will function according to specifications.

This work shall address the difficulties discussed above and allow for efficient remote management of our installed base. This requires (a.o.): system configuration: The remote status and configuration details of all systems in the field (software versions, applied patches, installed options, serial numbers of critical components) to be available. This is referred to as a "system fingerprint"; update: The capability to remotely update the system software, to deliver new features or solve problems in a robust way. This means that the exact system configuration is to be known and checked against dependencies in the update; roll back: We must guarantee that we have a working system after the update. However, if it should fail, a guaranteed successful roll-back is required. The detection and roll back to the previous system state should be fully automated. New and updated techniques, tools, and infrastructure are needed to be able to effectively collect, store, maintain, analyze, and report the actual system configuration and use this information to enable robust and safe updates from the Philips Healthcare Enterprise.

Requirements

Candidates for this function should have a PDEng (in areas such as Software Technology) or a PhD degree (in areas such as Computer Science) and shall have broad software engineering/system engineering skills to develop a robust and safe solution for remote management. A team player is required since multiple people are working on this topic, and many different parties are involved in managing the installed base. Since the work will take place within an innovation department of Philips Healthcare, a "self supporting innovator" attitude is required.

Position

LaQuSo is offering a position as researcher (UFO category "Onderzoeker") at the Department of Mathematics and Computer Science of Eindhoven University of Technology for a period of 1 October 2009 until 31 December 2010. Employment and salary are in accordance with the Collective Labor Agreement of the Dutch Universities (CAO NU).

Information

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