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Pressemitteilung

Fraunhofer-Institut für Rechnerarchitektur und Softwaretechnik FIRST

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MEDICA 2008: Optimal Appointment and Resource Planning

In everyday medical practice, both nursing staff and technical equipment must be deployed optimally in order to ensure the best possible treatment for patients. This requires effective and flexible planning. At the Medica 2008 fair (Hall 10, Stand F05), researchers from Fraunhofer FIRST will be demonstrating how intelligent software can be used to successfully carry out such planning, focusing on appointment and resource planning for dialysis patients.

Appointment and resource planning for dialysis patients constitutes a complex planning problem: chronically sick patients have to be treated several times a weeks for several hours at a time. To make the treatment as pleasant as possible, the patients' wishes regarding appointment times should be taken into consideration and they should be assigned the same member of the nursing staff for all appointments. At the same time, the dialysis centre must operate efficiently, deploying nursing staff and equipment as effectively as possible. The nearly infinite number of possible combinations make it extremely difficult to draw up an optimal plan manually. Researchers at Fraunhofer FIRST have developed planning software that takes less than five seconds to generate a consistent one-day plan for a dialysis centre covering 60 pieces of equipment and 150 patients, for example. If a specific member of the nursing staff or a particular piece of equipment is not available, the plan is quickly and interactively updated. The patients benefit from the time saved.

You are cordially invited to attend a demonstration:

Time: November 19 to 22, 2008
Place: MEDICA, Düsseldorf, Fraunhofer joint stand (Hall 10, Stand F05)

The software is suitable not only for use in dialysis centres. It can be used anywhere where appointments, staff, equipment and/or processes have to be optimally coordinated. The planning tool developed by Fraunhofer FIRST can be also used, for example, to optimize treatment schedules at medical institutions. To this end, criteria such as patient risks and the effort required for pre- and post-treatment are taken into account, as well as the effort involved in setting up the equipment used. In addition, the software is suitable for use in other application sectors, e.g. coordinating product flows, generating timetables and schedules, organizing maintenance times and ensuring optimal deployment of communication, computing and memory resources for IT services.

The researchers at Fraunhofer FIRST are developing the planning software using constraint-based methods. This means that all the constraints of complex planning tasks are taken into account before the actual plan is generated. By avoiding conflicts from the start rather than troubleshooting after the event, it is possible to use a targeted search to make the solution process much more flexible and efficient. This also helps reduce the size of the source code and thus the probability of errors. To achieve this, first a precise object-oriented model of the respective application case is developed, which is then mapped to a mathematical boundary value problem. This provides a sound basis for consistent resource planning.

At the Fraunhofer joint stand, FIRST will be presenting not only its planning software but also the project "Vital Software Quality", which conducted quality assurance measures for the controller software used in artificial blood pumps on behalf of the Berlin Heart GmbH. For more detailed information, visit: http://www.first.fraunhofer.de/veranstaltung/medica08

We will be happy to provide you with graphical material on request. Further information is available from:

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