The Software Technology (ST) group at the University of Nijmegen (prof. Plasmeijer) and the Architecture of Information Systems (AIS) group at Eindhoven University of Technology (prof. Van der Aalst) have the following job vacancies:

2 PhD Positions and 1 Position for a Scientific Programmer

These jobs are funded by the Dutch Technology Foundation STW who granted the research project:

"Controlling Dynamic Real Life Workflow Situations with Demand Driven Workflow Systems"

In the project we want to increase the expressive power of existing workflow management systems by merging principles from modern *functional programming languages and contemporary workflow management systems.*

Functional programming languages such as Haskell and Clean offer powerful concepts such as lazy evaluation, strong typing, abstraction, and support for generic programming. These concepts are expected to bring significant improvements in the workflow domain in terms of performance and expressiveness. Especially the description of data dependency between tasks and the dynamic creation of tasks will be improved. A proof of concept has recently been given at the ICFP 2007 conference where we introduced the iTask workflow system for the web. We also want to build on existing results obtained using Petri nets. These have been widely used in the workflow domain, as a language for end users (e.g., COSA and Protos), as an analysis tool (e.g., Woflan and ProM), and as a solid semantic basis (e.g., formalizations of BPMN and BPEL).

In this 4 years project PhD students and scientific programmer will each concentrate individually on the following themes (research strands):

1. The first PhD student will design and define a suitable ***demand driven workflow specification language***. It will be based on concepts that can be found in classic process modelling languages, lazy functional programming languages, and generic (poly-typical) programming languages. The principal location of this strand is the ST group in Nijmegen.
2. The second PhD student will investigate ***theoretical aspects*** of adding ideas from functional programming to process models and the ***practical integration*** in commercial systems. The different nature of our approach when compared to existing systems requires a thorough study of the underlying semantics of both systems. Their integration has many aspects both in theory as well as in practice. For example, "lazy Petri nets" will be investigated to see how demand-driven aspects can be added to classic process modelling languages. The principal location of this strand is the AIS group of the department of Mathematics and Computer Science in Eindhoven.
3. The scientific programmer will construct a ***prototype demand driven workflow system***. The prototype will be suitable for rapid prototyping of complicated workflows in a *distributed environment*. As it is a research vehicle, it will be constructed on top of existing systems, reusing many existing components. The principal location of this strand is the ST group in Nijmegen.

Although each activity is individual, we expect much interaction and mutual benefit between these activities, and we will actively stimulate interaction.

The PhD students and scientific programmer should have a University degree in Computer Science, excellent marks, theoretical and practical skills, and experience in functional programming, generic (type driven) programming, modern internet techniques (Ajax) and /or process modelling (e.g., Petri nets or other formal languages)..

The salaries start from approximately 2502 Euro's (bruto/month, exclusive 8% holiday and 3% end of year bonus).

E-mail your application with your CV to:
rinus@cs.ru.nl, Prof. dr. ir. M.J. Plasmeijer, Software Technology Group, Radboud University Nijmegen (strands 1 and 3).
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