

# Pioneer Riitta Smeds: New professorship for the degree programme for Information Networks

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Photograph: Jukka Uotila

**R**iitta Smeds is visibly happy about the degree programme finally having a specially appointed professor. So far, the degree programme has, for two years, been run more or less on a voluntary basis under the Telecommunications and Software Laboratory of the Department of Computer Science and Engineering.

In practice, professors of HUT Departments of Computer Science and Engineering, Industrial Engineering and Management, as well as Automation and Systems Technology have participated in the contents development in addition to their own assignments by trying to decide which majors and courses to include in the new multidisciplinary programme. In other words, it has mainly been a question of re-combining existing teaching.

"The professorship is a new opening for the entire discipline. The professor being a woman is a perfect match, as we are talking about a degree programme where about forty per cent of the students are girls, compared to less than ten per cent at the Department of Computer Science and Engineering in general."

According to Smeds, the exceptional gender distribution derives from the degree programme's multidisciplinary character, which provides an opportunity to pursue studies outside the traditional scope mainly based on mathematics and physics. Although the Information Networks Degree Programme is founded on information

Riitta Smeds, the first professor of the Information Networks Degree Programme, was appointed in May. At the same time, the very male-dominated HUT Department of Computer Science and Engineering was for the first time joined by a female professor.



technology, it is amended by components from industrial management, work psychology, and automation and systems technology as well as the new media and contents production.

## What, no more physics?

Smeds points out that physics is no longer a compulsory criteria for being accepted into the degree programme. This has brought about a change in the gender structure. Among the new

students, there are many girls who have followed the extensive course in mathematics in upper secondary school, but not in physics.

Furthermore, as the contents test also measures verbal skills – mainly the sense of verbal logic – the student intake has come to include people with a different kind of talent than that which has usually been the case in the Department of Computer Science and Engineering.

In Smeds' opinion, there are, however, enough students of computer sci-



ence as it is. She believes that it is about time to start thinking about cutting down, as the increase in the intake of new students has not been matched by an increasing number of teachers.

"At the same time, the industry has drained us of students. Now that the industry is for the first time cutting back on down its labour, these students will, hopefully, return in great numbers to finish their Master's theses. On the other hand, the Department of Computer Science and Engineering will be burdened for quite some time, as there the number of dropouts is really great.

### SimLab – analyses and modelling

Riitta Smeds has an office both in the Computer Science Building and in the Kvartti building in the Spektri complex a couple of kilometres away. That is the location of SimLab, a business operations simulation laboratory, which Smeds has headed since the very beginning. She describes how the SimLab started off as a project funded by the National Technology Agency TEKES, then grew almost as if to order like on commission into a research and teaching unit for business operations processes suited for the new professorship.

The computer equipment of SimLab consists of an Internet interface, a computer network including servers and audiovisual equipment. A major element is a roughly nine-metre long "virtual wall", on which four projectors project the currently simulated process map.

Work at SimLab is based on team discussions around a company's the business process of some company, for instance, its product development process. First, however, the laboratory researchers spend about three months for analysing and modelling the business process, on the basis of in-

terviews with the company's staff. The result is a computer-created model of the process.

The result of long-term work, the model is still just the tip of the iceberg. The most important stage is yet to come: now the laboratory invites those persons involved in the business process to come and discuss how the process, in fact, proceeded.

"They talk about it in the form of a discussion and we, the leaders of the simulation, intercept with our questions. The nine-metre wall map functions as a kind of manuscript and joint memory for the discussion," Smeds explains.

The discussion spawns new ideas. Sometimes they get side-tracked when solving some particular problem, but the process map helps to retain the main thread. The course of the process is investigated by finding out what went wrong and what worked, when decisions were made, which stage resulted in documentation and which constituted a milestone.

"People often meet for the first time at our laboratory, although they are employed by the same company and work within the same process," Smeds says and refers to the still existing separation between product development, production, marketing and sales.

An undisputed benefit of a joint discussion is that the information based on experience is for the first time distributed among all those concerned. Mostly, they communicate on paper or via email which never include everything.

"Here the so-called silent knowledge is made audible and, when shared, it spawns hundreds of new ideas for making things run better. The ideas are collected, processed and rated, after which they are used for creating a better process model, or mode of operation, in co-operation with the company employees."

When SimLab, as of May, became a

teaching and research unit linked to Smeds' professorship, the simulations also received new aspects much influenced by the fashionable e- and m-businesses.

### Inside and between businesses

"E-business is all about re-organising operations with the help of information technology. It enhances the role of co-operation networks between businesses. Within the field of product development, we have already investigated product development processes between businesses.

The e-business emphasises the development of business operations so that decentralised operations around the world can be linked to the same process. Such This kind of development requires the ability to first see the whole. Our simulations laboratory helps to understand the entire process, both within and between businesses."

During SimLab's roughly three years, the laboratory has been working with analysing and modelling the business processes of eight high-tech pilot companies.

According to Smeds, the laboratory is now negotiating with IBM about the Laboratory tackling IBM's customer cases. This would automatically include the e-business perspective, and the students and researchers of information networks would be offered a wealth of real-life cases to analyse and develop.

The achievements and results of the laboratory are already impressive. Or what else could be said when the researchers of SimLab and related projects have produced 55 scientific conference publications or articles, one engineer's diploma, six Master's theses (M.Sc.), theses, one Master's (MA) thesis (MA) and one licentiate. Furthermore, there are three doctoral dissertations forthcoming. ■