TECHNISCHE UNIVERSITÄT DRESDEN

Colloquium

Within the seminar of the Research Focus, the Ph.D. programme "Specification of discrete processes and systems of processes by operational models and logics" presents a talk by

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about

"The B-Method and Its Mathematical Foundation"

Abstract: B is a formal method, introduced by Jean-Raymond Abrial, for specifying, designing, and coding provably correct software systems. In this method, the construction of a program and its proof of correctness go hand in hand. But the process is simple enough for industrial uses. Each of the steps in the process involves writing mathematical proofs in order to justify its results. The collection of such proofs makes one convinced that the resulted software system is indeed correct.

At the University of Indonesia, this method is being employed to reconstruct a trustworthy software system for data processing and candidates selection of the national university entrance test, taken by about 400000 students annually.

Central to this method are the view of a program as a mathematical object, the concept of non-determinism, the concept of pre- and post-condition, the concept of weakest precondition, the concept of layered architecture, the concept of refinement and the concept of proof obligations. Recently, this method has been extended to include the notion of event.

A software system conceived with this method is composed of several abstract machines, each of which contains some data and offers some operations. The data are specified by means of mathematical concepts such as sets, relations, functions, sequences and trees. The static laws that the data must fulfill are defined by means of invariants, which are preserved by the operations.

Complete software tools to support this method are commercially available.

Date:	11.01.2005
Place and time:	Department of Computer Science, Room: 151, 1.15 pm

All interested persons are invited to attend!

Prof. Dr.-Ing. habil. Heiko Vogler