

## Short Paper Session

Session Chair:

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In this session five contributions are presented which describe approaches for improving software development and system organization processes.

The first paper, by T. Berling and M. Höst, investigates the important characteristics of verification and validation activities in the software development process. This is mainly done by presenting a case study, carried out at the radar division of Ericsson Microwave Systems. A number of research questions were formulated and posed. The planning and carrying out of such research interviews is discussed, and an analysis of the gained results and their validity is given.

The second paper, by O. Demirors, C. Gencel, and A. Tarhan, discusses the problem of systematically gathering, processing and tracking user needs to establish the requirements which should govern a subsequent system acquisition. An approach is presented how to organize the life cycle of this requirements elicitation. As an example case study, the application of the approach for an project is described that dealt with requirements elicitation for a software-intensive system to be implemented for an innovative military application.

The third paper by R. Land, I. Crnkovic, and C. Wallin addresses the problem of integrating different software components to form a new system. This is mainly exemplified by a case study dealing with such approaches at a large North-American enterprise with thousands of employees that acquired a smaller European company in the same non-software related business area. In this

enterprise, software is mainly used for simulations and management of simulation data, i.e. as tools for development and production of other products. The software of the formerly independent company parts was found to be overlapping in its functionality, and three of the software systems which formerly were used independent from each other, were identified as candidates for merging them to an integrated system. The phases of the integration attempt are described, and the experiences that were gained are discussed.

The fourth Paper, by A. Derezinska, deals with the method of mutation testing. This methodology utilizes the artificial insertion of software errors into code, as a means to evaluate the quality of test strategies, i.e. the ability to distinguish the behaviour of the changed program code from the original, is measured. A number of mutation operators for object-oriented code is described, and experimental results with regard to the coverage of tests for object-oriented mutations as well as standard mutations are presented.

Finally, the fifth paper, by C. Patlak, A.B. Bener, and H. Bingöl, addresses aspects of organising web services for real business applications. This is mainly exemplified by the area of financial services, and here, as a use case, credit card payment authorization services are considered. A scenario for organizing a corresponding payment authorization web service is depicted. Finally, some tools and languages for orchestration of web services are sketched.