## Model-Driven Development of Reliable Services

Manfred Broy TU München, Germany

Today, in view of distributed systems based on global networks, embedded systems and dedicated human machine interfaces, interaction is a first class concept in the development of information processing systems. This requires adequate development paradigms for their specification, design, and implementation taking specifically the concept of interaction into account. Systems are nowadays distributed, running highly concurrently and interacting. A particular interesting approach are service oriented system models and architectures, where services are connected in flexible ways to provide composed services. Such an approach needs adequate structuring techniques for services including their composition and their decomposition into service architectures and their structuring of services into hierarchy of sub-services.

A key issue therefore is service specification based on a concept of service interface.

## References

- M. Broy, I. Krüger, M. Meisinger. A Formal Model of Services. "ACM Trans. Software Engineering Methodology", Vol. 16, No. 1; ACM Press New York; 2007.
- 2. M. Broy. The "Grand Challenge" in Informatics: Engineering Software-Intensive Systems. IE-EE Computer; pp. 72-80; 2006
- M. Broy. Interaction and Realizability. J. van Leeuwen, G. F. Italiona, W. van der Hoek, Ch. Meinel, H. Sack, F. Plasil (eds.); Theory and Practice of Computer Science (SOFSEM 2007); LNCS 4362; Springer; pp. 29-50; 2007.
- 4. M. Broy. A Theory for Requirements Specification and Architecture Design of Multi-Functional Software Systems. Series on Component-Based Software Development, Vol. 2; MATHEMATICAL FRAMEWORKS FOR COMPONENT SOFTWARE – Models for Analysis and Synthesis; pp. 119-154; 2006.
- M. Broy. Two Sides of Structuring Multi-Functional Software Systems: Function Hierarchy and Component Architecture. H-K. Kim, J. Tanaka, B. Malloy, R. Lee, C. Wu, D-K. Baik (eds.); Procs. 5th ACIS International Conference on Software Engineeering Research, Management & Applications (SERA2007); IEEE Computer Society Order Number P2867; pp. 3-10; 2007.
- M. Broy. Relating Time and Causality in Interactive Distributed Systems. M. Broy, W. Sitou, T. Hoare (eds.); Engineering Methods and Tools for Software Safety and Security; IOS Press; pp. 75-130; 2009.
- M. Broy. Seamless Model Driven Systems Engineering Based on Formal Models. K. Breitman, A. Cavalcanti (eds.); Formal Methods and Software Engineering; Procs. 11th International Conf. on Formal Engineering Methods (ICFEM 2009); LNCS 5885; Springer; pp. 1-19; 2009.