Service Orientation as a Paradigm of Computing

Keynote Talk

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Abstract. Typical University curricula teach computable functions over symbol chains as the central topic of Theoretical Computer Science. This is motivated by the idea that the essentials of any kind of computation processes can be abstracted to computable functions. We challenge this idea, motivated by the observation that modern ICT embedding systems are reactive, communicating, and non-terminating. Neither do they compute functions, nor do they always process symbol chains. An obvious example are service-oriented architectures with their "always on" principle. An adequate, unique theory for such (and many other) architectures is missing; instead we witness a lot of different approaches and modeling techniques.
This talk surveys published proposals that attack the above problem. We try to discriminate fundamental notions and concepts such as refinement and composition, concurrency, and locality, as they prevail in different modeling techniques for service-oriented and other architectures. Those ideas lead to a fresh look at some aspects of education, research, and Industrial Applications of ICT.

Keywords. Theory of Informatics, paradigms of informatics, modeling techniques, Service-oriented Computing, associative composition
Key Terms. ICT Infrastructure, WebService, Process

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