Abstract

Recognizing that all software, designed to perform (or support) an activity in the context of a real-world environment, needs to evolve, for the past 40 years the software-engineering community has been developing methodologies and tools to systematize and support software evolution. In general, software-evolution research has been focusing at four broad problems: (a) analyzing existing software (so that it can be consistently changed); (b) supporting the adaptation of software to new requirements (possibly through self-monitoring and self-adaptation); (c) maintaining the quality of the software in the face of continuous change (through refactoring); and (d) supporting the socio-technical activities involved in the post-deployment phase of the software lifecycle. These fundamental problems persist and manifest themselves in different variants as the technologies and architecture styles of our software systems evolve, from monolithic legacy systems, to object-oriented software, to client-server architectures, to service-oriented systems deployed on cloud-based virtual infrastructures. In this presentation, I will review some key contributions of our field and the challenges that our community will have to address in the future.

Biography

Eleni Stroulia is a Professor and NSERC/AITF Industrial Research Chair on Service Systems Management (w. support from IBM) with the Department of Computing Science at the University of Alberta. Her research addresses industrially relevant software-engineering problems with automated methods, based on artificial-intelligence techniques. Her team has produced automated methods for migrating legacy interfaces to web-based front ends, and for analyzing and supporting the design evolution of object-oriented software. She has more recently been working on the development, composition, run-time monitoring and adaptation of service-oriented applications, and on examining the role of web 2.0 tools and virtual worlds for innovative service delivery. Contact her at stroulia@cs.ualberta.ca.