Dumitru Roman

November 25, 2008

Dumitru Roman works as a senior researcher at the Semantic Technology Institute (STI) / University of Innsbruck, Innsbruck, Austria. In 2008 he received a PhD in Computer Science from University of Innsbruck, Austria, with a thesis on "Modeling Semantic Web Services and Reasoning about Service Behavior", and in 2003 a Diploma Engineer degree in Computer Science from Technical University of Cluj-Napoca, Romania, with a thesis on "Semantic Web Services Composition using SHOP2 in the Open Agent Architecture".

Dumitru's general research background and interests lay at the border between knowledge representation and reasoning, and large scale, dynamically distributed systems. Most of his research work so far has been in the context of Semantic and Service-oriented Computing—emerging paradigms for developing solutions to distributed applications and e-business processing. His PhD research made contributions to the areas of *service modeling* (key enabler for any service-related tasks, such as service modeling, discovery, selection, negotiation, contracting, composition, mediation, enactment, monitoring, and invocation) and *service contracting*. Specifically, he significantly contributed to the design and development of the Web Service Modeling Ontology (WSMO)—a core conceptual model for services on the Web that serves now as the foundation for many research projects in the area of semantic Web services. Furthermore, he proposed a very expressive language (combining declarative and procedural elements) for specifying service contracts (service choreographies, policies, and client contract requirements), and developed a logic-based technique for automated service contracting.

As of end 2008, Dumitru has performed research on broad topics related to semantic and service-oriented technologies. He has co-authored over 50 publications in books, journals, conferences, and workshops, on complementary topics such as ontologies and the semantic Web, mobile services, Grid computing, service discovery and selection, service non-functional properties, geospatial decision making and geotagging, business process management and workflows, service choreography, and service policies.

During the last five years Dumitru has been involved in eight large European Union and national funded research projects (SWING, MUSING, SHAPE, SUPER, ASG, DIP, SWWS, SWF). The goal of these projects has been the development of semantic and service-oriented frameworks and technologies for solving interoperability problems in various areas such as business processes, financial domain, geospatial decision making, Grid computing, and model-driven engineering. His tasks in these projects varied from pure scientific to management responsibilities. Starting as a junior researcher in these projects, he became leader of various work components, and eventually became technical coordinator of one of the projects (SWING: applying semantics in the geospatial domain to enable decision making).

Dumitru has been active in various professional activities. He likes to organize things that bring together people from various communities and enable knowledge sharing for the purpose of problem-solving. He

has served as general co-chair, program co-chair, or program committee member of international conferences, workshops, and symposiums (more than 70 events overall, on topics including artificial intelligence, Web technologies, business process management, knowledge management, or mobile computing), and editor of journals on ontologies and Web services topics. He co-initiated and co-organized over 15 workshops on issues that combine topics such as services, ontologies, mobile environments, model-driven engineering, and semantic technologies. He was co-organizer and co-presenter in over 12 conference tutorials on topics such as semantic business process management and semantic Web services, and participated in standardization activities (e.g. W3C WSMO Submission, OMG UPMS-HA Submission) and various working groups (e.g. CMS, WSMO/L/X). He was a visiting researcher at 5 universities in Asia (Asian Institute of Technology in Thailand, NUST School of Electrical Engineering and Computer Science in Pakistan, and Seoul National University in South Korea), Europe (National University of Ireland Galway in Ireland), and US (Stanford University), and invited lecturer at several other institutions and events.

Dumitru's research vision is that of an advanced knowledge infrastructure that potentially enables individuals, organizations, and humanity as a whole to socialize, access services, and solve problems much more effectively than we are able to do today. His research directions point to novel methods for developing such an advanced knowledge infrastructure. There are many topics in these areas that he would be interested in pursuing, especially developing new techniques and technologies for enabling non-standard approaches to knowledge representation and reasoning on the semantic Web, ontological foundations of service-orientation, governance in service-oriented environments, and mobile and location-based services. Last but no least, it is worth noting that semantic and service sciences are transdisciplinary in nature. However, existing research efforts try to apply semantic technologies and service-orientation to a single domain or technology in isolation. He strongly believes that to bring semantic and service-orientation to their full potential, a transdisciplinary approach is needed. The relationships between semantics and service-orientation and other sciences such as biology, medicine, physics, philosophy, or cognitive sciences are widely open. In his future research he intends to address this gap and bring a new research component based on transdisciplinarity.