Roberto Silveira Silva Filho

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EXPERTISE

Different areas of software engineering, including software architecture, model-driven development & testing, middleware, collaborative software development environments, workflow management systems and groupware.

EDUCATION

- 2003 2009. University of California, Irvine (UCI), CA, USA
 Ph.D. Information and Computer Sciences, GPA: 3.974/4.0 *Concentration area*: Software Engineering *Dissertation Title*: An Empirical Study of Publish/Subscribe Middleware Versatility
 2000 2003. University of California, Irvine (UCI), CA, USA
 M.Sc. in Information and Computer Sciences, GPA: 3.906/4.0 *Concentration area*: Software Engineering
 1998 2000. University of Campinas (UNICAMP), Brazil
 M.Sc. in Computer Science, GPA: 3.857/4.0 *Thesis Title*: Distributed Software Architectures for Large-scale Workflow using CORBA
- 1993 1998. University of Campinas (UNICAMP), Brazil B.S. in **Computer Engineering**, GPA: 0.748/1.0

EMPLOYMENT

- 2009 present. SIEMENS Corporate Technology (Soft. Architecture Analysis & Improvement), Princeton, NJ Software Engineering Researcher: Main Projects: Test Design Studio (tedeso/UML), a model-based testing platform. Web-based National Geothermal Data catalog (NGDS). Software quality assurance: code analysis and review, test automation. Development of flexible workflow management systems. *Technologies*: NGDS, Model-Driven Development and Testing, Aspect-Oriented Programming, Workflow/ERP.
- Summer 2004. **IBM T. J. Watson Research Center (Collaborative User Experience Group)**, Cambridge, MA **Research Intern:** Developed, benchmarked and compared different architectural approaches for the construction of contextual collaboration servers. The goal of the research was to investigate the performance trade-offs of integrating synchronous and asynchronous collaboration modes in a single contextual collaboration model. *Technologies*: Java, RMI, contextual collaboration servers, performance simulation and benchmarking.
- 2000 2009. University of California,, Irvine, CA (2002-2009): Graduate Research Assistant (2000-2002): Teaching Assistant
- 1996 1997. **PETROBRAS** (Brazilian Oil Prospecting Company), Campinas, Brazil **Software Engineer**: Designed & implemented a decision support system using MS-FoxPro and SQL.

SELECTED PROJECTS

2009 - current. SIEMENS Corporate Technology.

Summer 2009 – present. **Model-driven software engineering & testing**: Project manager & developer for tedeso, a model-based testing platform, used to model & automatically generate test scripts; integration with NI TestStand, HP Quality Center. Requirements-based testing, model diffing & merging, various code generators. *Role*: Research & development, and supervision of software engineering team. *Technologies* Java, Eclipse RCP, GEF, UML, model-based testing, Subversion, Ant, Cobertura.

Summer 2012 – present. **NGDS: National Geothermal Data System**: Requirements analysis, software design, development and testing of the next generation of the USGS national geothermal data catalog that will support the publication, indexing & search of geothermal data over a network of federated data provider nodes. *Role:* Software requirements analysis, design & development.

Technologies Java, Python, Web services & standards: CSW, WFS, WMS, Postgres-GIS, Apache Solr, CKAN.

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2010. **Flexible workflow management systems in large organizations.** Development of a flexible workflow management system for tracking non-conformance costs. Integration with existing ERP systems. *Technologies*: Web development with C#, ASP.NET, SQL Server, Hibernate, NUnit testing.

2010. Using Aspects to Document and Enforce Software Constraints. Employed Aspect-Oriented Programming (AOP) for documenting and enforcing different types of software constraints in the code, including architectural, platform, feature-specific and code-style rules. *Technologies*: Java and AspectJ.

- 2007 2009. UC, Irvine (UCI). **Analysis of Flexibility Trade-offs in Publish/Subscribe Infrastructures**: Developed benchmarks and conducted empirical quantitative and qualitative evaluation of different research and industrial publish/subscribe infrastructures, measuring and comparing their performance, maintainability, reusability, usability and flexibility. Derived different versatile software design principles and best practices. *Technologies*: Java and RMI, CORBA-NS, JMS, JavaSpaces, Siena, YANCEES, OO metrics and code analysis.
- 2003 2009. UC, Irvine (UCI). **YANCEES Yet Another Configurable and Extensible Event Service:** Developed a versatile publish/subscribe infrastructure used in support of different awareness and collaborative applications at UCI and IBM, including the SWIRL project described as follows. *Technologies:* XML, XMLSchema, component software, distributed programming with Java and RMI.
- 2004 2007. UC, Irvine (UCI). SWIRL Effective Security Through Visualizations: Developed software infrastructures, user interfaces and conducted user studies with Impromptu, an event-driven peer-to-peer file sharing workspace, which provides security awareness through visualizations. This project investigated the benefits of different security visualizations, running in different devices, in supporting ad-hoc collaboration. *Main Role:* software architect & developer. *Technologies:* WebDAV Servlets, multicast DNS (Zeroconf), notification servers, Java ME for PocketPC.
- 1998 2000. University of Campinas, São Paulo, Brazil (UNICAMP): WONDER Workflow on Distributed Environment: Developed and evaluated the scalability of a distributed architecture for large-scale workflow as part of my MSc Thesis. This work shows the scalability benefits of a peer-to-peer agent-based workflow management system and discusses extra security and management costs induced by the approach. *Technologies*: Java, JavaCC, CORBA, Workflow Management Systems, Mobile Agents, benchmarking.

TEACHING EXPERIENCE

- Fall 2001 Spring 2002 (total of 3 quarters). Introduction to Computer Science II. UC, Irvine (UCI) *Topics*: Data Structures, Software Complexity, Java and Scheme programming.
- Fall. 2000. Introduction to Software Engineering. UC, Irvine (UCI) *Topics*: Software Engineering fundamental principles, techniques and processes.

HONORS AND AWARDS

- 2007. Bren School Summer Dissertation Fellowship, UC, Irvine, CA.
- 2001. Best thesis award (second place): VIII CLEI-UNESCO Latin American M.Sc. Thesis Context.
- 1998 2000. Scholarship to support M.Sc. Studies from FAPESP (São Paulo State Science Foundation), Brazil.
- 1998. Scholarship to support M.Sc. Studies from CNPq (Brazilian National Science Foundation), Brazil.

SKILLS

Programming Languages: Java, C#, LISP, Pascal, x86 Assembly, Xbase, SQL, Basic, Prolog, C, C++, others.
 Technologies: Event-based middleware (JMS, CORBA-NS, Siena, others), Distributed Objects (RMI, CORBA), Java ME, Software Product Line Engineering, UML Modeling, Software Architecture and ADLs (xArch), Aspect-Oriented Programming, Database and Internet Programming, XML and XMLSchema, Eclipse RCP and GEF.
 Processes: Rational Unified Process and Object-Oriented design principles and metrics.

Operating Systems: Linux and Win32 administration.

Tools: Eclipse, Subversion, CVS, Git, Ant, Maven, Cobertura, Cruise Control, Jenkins, JUnit, others.

PUBLICATIONS

Available at the website: http://awareness.ics.uci.edu/~rsilvafi/publications.html