

# Laura Zavala

## *Curriculum Vitae*

University of Maryland Baltimore County  
Department of Computer Science  
1000 Hilltop Circle, Baltimore MD, 21250

Office: (410)455-8775 | Mobile: (803)447-6298  
Email: [zavala.usc@gmail.com](mailto:zavala.usc@gmail.com)  
Homepage: <http://www.cs.umbc.edu/~rzavala>

## **Research Interests**

Artificial intelligence, semantic Web, ontologies, information retrieval, multiagent systems, knowledge bases and knowledge engineering.

## **Education**

### **PhD in Computer Science and Engineering**

University of South Carolina, December 2008

Dissertation: "A Multiagent-Based Synergistic Approach to Software Fault Tolerance"  
(advisor: Michael Huhns)

### **MSc. in Artificial Intelligence**

University of Veracruz - LANIA, August 2001

Dissertation: "An Augmented Transition Networks-Based Model for Representing Agent Actions and Interactions" (advisor: Christian Lemaitre)  
*Summa Cum Laude*

### **B.S. in Computer Science**

University of Veracruz, August 1998

*Summa Cum Laude*

## **Research and Teaching Experience**

### **Research Associate**

2010, *University of Maryland Baltimore County, Department of Computer Science, USA*

Research on semantic Web and context-aware computing at the Intelligent Systems and Semantic Web Lab ([ebiquity Lab](#), [Platys Project](#)), and online reputation systems at the Multi-agent Planning and Learning Lab ([MAPLE Lab](#)).

### **Research Assistant / Web Services Developer**

2004 - 2005, *Oak Ridge National Laboratory / University of South Carolina, USA*

"DARPA Virtual Soldier Project": developed APIs, synchronous and asynchronous Web services, Web service clients, and anatomical and physiological ontologies to connect applications and components from different parties.

### **Research Assistant**

2003 - 2008, *Computer Science and Engineering Department, University of South Carolina, USA*

Participated in different research projects involving logical and probabilistic (Bayesian) reasoning for knowledge discovery, multiagent systems and team-oriented programming, design of ontologies and implementation of different ontology tools (parsers, converters, Web services access points, etc), ontology matching, Web services, and automatic extraction of causal relations from text.

**Lab Instructor** (CSCE 145: Algorithmic Design I)

*2006, Computer Science and Engineering Department, University of South Carolina, USA*

**Instructor** (Operating Systems and Systems Programming)

*2001, Statistics and Informatics Department, University of Veracruz, Mexico*

**Research Fellow**

*2000 - 2001, National Laboratory of Advanced Computer Science, Mexico*

Project “*Multiagent Organizations*”: proposed an Augmented Transition Networks-based model for representing agents’ actions and interactions and developed a FIPA-OS-based multiagent systems development toolkit that allows the implementation of agents using the proposed model.

## Industry Experience

**Research Engineer**

*2009, Execue, Inc., Stamford, CT, USA*

Developed semantic Web and ontologies solutions and applications.

Implemented a semantic Web application to access DBpedia knowledge base through natural language queries.

Implemented an SPARQL automatic query generator.

**Software Engineer /Systems Analyst**

*2001-2002, The Institute of Ecology, Mexico*

Analyzed, designed, and implemented a Web-based travel expense system. Connected the system to the project budgeting and the accounting systems to allow for the necessary workflow.

**Software Architect /Systems Analyst**

*1998 - 2000, Artificial Intelligence Department, University of Veracruz, Mexico*

Developed an application for skills assessment and personalized learning plan generation that undergraduate applicants to the university used as part of their preparation for the admission test.

Developed software for curricula and learning management, and automated assessment creation. Created training plans and imparted training workshops.

*The software was successfully commercialized (and is still being sold), having thousands of customers, and generating big revenues.*

## Publications

Journal Papers

- “*Research Directions for Service-Oriented Multiagent Systems*,” (with Huhns et al.), IEEE Internet Computing. Volume 9, Number 6, November/December 2005, pp. 65-70.
- “*Automated Design of Combinational Logic Circuits using the Ant System*,” (with C. Coello, B. Mendoza, and A. Aguirre), in Engineering Optimization, Vol. 34, No. 2, March 2002, pp. 109-127.

#### Book Chapters

- “*Multiagent-Based Fault Tolerance Management for Robustness*,” (with Michael N. Huhns), in Robust Intelligent Systems, Alfons Schuster, editor, Springer London Ltd, 2008.
- “*Reconciling Agent Ontologies for Web Service Applications*,” (with Huang, J., Mendoza, B., and Huhns, M.), in Multiagent System Technologies: Third German Conference, MATES 2005. Torsten Eymann, Franziska Klugl, Winfried Lamersdorf, Matthias Klusch, and Michael N. Huhns, editors, Springer Verlag, Vol. LNAI 3550, Berlin, Germany, 2005, pp. 106-117.
- “*On Building Robust Web Service-Based Applications*,” (with Michael N. Huhns), in Extending Web Services Technologies: The Use of Multi-Agent Approaches, Lawrence Cavedon, Zakaria Maamar, David Martin, and Boualem Benatallah, Kluwer Academic Publishing, New York, Ch 14, pp. 293-310, 2004.
- “*Achieving Software Robustness Via Large-Scale Multiagent Systems*,” (with Holderfield and Huhns), in Software Engineering for Large-Scale Multi-Agent Systems, Alessandro Garcia, et al., eds, Springer Verlag, Lecture Notes in Computer Science, Volume 2603, Berlin, pp. 199-215, 2003.

#### Conferences and Workshops

- “*Analysis of the Metrics of Coincident Failing Ensembles in Multiversion Systems*” (with Michael N. Huhns), in Proceedings of the 19th IEEE International Symposium on Software Reliability Engineering (ISSRE): Workshop on Dependable Software Engineering, Redmond, WA, USA, November, 2008.
- “*Behavioral Queries for Service Selection: An Agile Approach to SOC*” (with Benito Mendoza, and Michael N. Huhns), in Proceedings of the IEEE International Conference on Web Services (ICWS), Salt Lake City, UT, USA, July 2007.
- “*A Schema-based Approach Combined with Inter-Ontology Reasoning to Construct Consensus Ontologies*” (with Huang, J., Mendoza, B., and Huhns, M.), in Proceedings of the AAAI Workshop on Contexts and Ontologies: Theory, Practice and Applications, AAAI Press, pp. 80-87, July 2005.
- “*Sharing Ontology Schema Information for Web Service Integration*” (with Huang, J., Mendoza, B., and Huhns, M.), in Proceedings of the Fifth International Conference on Computer and Information Technology (CIT), Shanghai, China, September, 2005.
- “*A Web-Service Based Computational Environment for Biomedical Computing*” (with Line C. Pouchard, Richard C. Ward, Michael Huhns, and Karthik Iyer), 13th Annual Medicine Meets Virtual Reality Conference, Long Beach, CA, USA, January 2005.
- “*A Middleware-based Computing Architecture for Virtual Medicine*” (with Line C. Pouchard, Richard C. Ward, Michael Huhns, and Karthik Iyer), 13th Annual Medicine Meets Virtual Reality Conference, Long Beach, CA, USA, January 2005.
- “*Achieving Software Robustness via Multiagent-Based Redundancy*” (with Michael N. Huhns), in Proceedings of the IJCAI Workshop on AI and Autonomic Computing: Developing a Research Agenda for Self-Managing Computer Systems, Acapulco, Mexico, August 2003.

- “*Robust Software Via Agent-Based Redundancy*” (with Vance T. Holderfield and Michael N. Huhns), in Proceedings Second International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), Melbourne, Australia, July 2003.
- “*CATNAgent Toolkit: A system for the design and execution of multiagent systems*” (with Araceli Carreño and Christian Lemaitre), in Proceedings of the Mexican International Conference on Computer Science (ENC), Aguascalientes, Mexico, September 2001.
- “*Ant Colony System for the Design of Combinational Logic Circuits*” (with Carlos Coello, Benito Mendoza, and Arturo Hernández A), in Proceedings of the Third International Conference on Evolvable Systems (ICES), Edinburgh, Scotland, UK, April 2000.
- “*Xlearn: A Reinforcement Learning Tutoring System*” (with Eduardo Islas et al.), in Proceedings of the Mexican International Conference on Artificial Intelligence (MICAI), Acapulco, Mexico, April 2000.
- “*An Expert System inspired in the Neural Physiology*” (with Grecia Lapizco and Jose Negrete-Martinez), in Proceedings of the First International Symposium on Math and Cybernetics Applications to Medicine (AMCIME), Center for Cybernetics applied to Medicine CECAM, Havana, Cuba, May 1999.

## Honors and Awards

Upsilon Pi Epsilon (International Honor Society for the Computing and Information Disciplines)

Eta Kappa Nu (Electrical and Computer Engineering Honor Society)

CONACyT Fellowship for Master Program on Artificial Intelligence

University of Veracruz, Computer Science Department Honor Roll 1992 to 1996

Government of Veracruz Outstanding Student Award Fellowship 1992 to 1996

Invited participant to “2007 CDC Academic Career Workshop for Under-represented Participants”

Invited student to the “2006 Google Workshop For Women Engineers”

Invited student to the “2005 International Working Retreat on Research Directions in Multiagent Systems”

## Other Professional Activities

**Panel Reviewer for NSF**, The Division of Computing and Communication Foundations (CCF), 2010.

### Technical Papers Reviewer

- International Journal of Cooperative Information Systems
- SpringerLink Journal of Service Oriented Computing and Applications
- SpringerLink Journal of Autonomous Agents and Multi-Agent System
- IEEE Internet Computing

### Program Committee Member

- The Third International Conference on Agents and Artificial Intelligence (ICAART 2011)

- The Third International Conference on Advances in Semantic Processing (SEMAPRO 2009)
- The Eighth International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2009)
- The Seventh International Conference on Ontologies, DataBases, and Applications of Semantics (ODBASE 2008)
- The Sixth International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2007)
- The Ninth Pacific Rim International Workshop on Multi-Agents (PRIMA 2006)
- The Seventh International Workshop on Agent-Oriented Software Engineering (AOSE 2006), held at The Fifth International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2006)
- The Eighth Pacific Rim International Workshop on Multi-Agents (PRIMA 2005)
- The Second International Workshop on Programming Multiagent Systems Languages and tools (PROMAS 2004), held at The Third International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2004)

#### **Other**

- 2008 Grace Hopper Conference official blogger, <http://ghcbloggers.blogspot.com/>
- Some Blogging and WordPress Plugin Development, <http://wordpress.org/extend/plugins/profile/zavalatech>
- AI and multiagent applications in NetLogo, <http://www.cs.umbc.edu/~rzavala/netlogomas/>

## **Invited Talks, Presentations, and Guest Lectures**

“Trust and Reputation in Social Networks,” UMBC ebiquity research group, March, 2010.

“A Schema-Based Approach Combined with Inter-Ontology Reasoning to Construct Consensus Ontologies,” Computer Science Department, UMBC, November, 2009.

“A Multiagent-Based Synergistic Approach For Software Fault Tolerance,” Computer Science Department, UMBC, November, 2009.

“Behavioral Queries for Service Selection: An Agile Approach to SOC,” IEEE International Conference on Web Services (ICWS), Salt Lake City, UT, USA, July 2007.

“Learning to match ontologies on the Semantic Web,” Multiagent Systems Reading Group, University of South Carolina, March 2005.

“Trust-Based Mechanism Design,” Multiagent Systems Reading Group, at University of South Carolina, October 2004.

“Achieving Software Robustness via Multiagent-Based Redundancy,” IJCAI Workshop on AI and Automatic Computing: Developing a Research Agenda for Self-Managing Computer Systems, Acapulco, Mexico, August 2003.

“Ontologies for Corporate Web Applications,” Multiagent Systems Reading Group, University of South Carolina, December 2003.

“Towards practical reasoning agents for the semantic web,” Multiagent Systems Reading Group, University of South Carolina, October 2003.

“Xlearn: A Reinforcement Learning Tutoring System,” Mexican International Conference on Artificial Intelligence (MICAI’00), Acapulco, Mexico, April 2000.

## **Technical Proficiencies**

Programming: OOP, JAVA, Visual Basic, PHP, Python, and JUnit.

Databases: SQL, Oracle, MySQL, Access, and FoxPro.

Web services: SOAP, UDDI, WSDL, Apache Tomcat, and Apache Axis & Axis2.

Scripting and Markup: JSP, JavaScript, XML, XML Parsers (DOM & SAX), XPath, and XSLT.

Agents and Ontologies: RDF(S), OWL, Pellet, Jena, Protégé, Java WordNet Library (JWNL), NetLogo, Jade, FIPA-OS.

## **Linguistic Proficiency**

English (fluent), French (intermediate), Spanish (native speaker).

## **Extra curricular Activities**

Running and yoga. As a combination of my interest in running and technology, I have developed some Wordpress plugins and Facebook apps that keep track of my running workouts.

## **Professional Affiliations**

Upsilon Pi Epsilon (International Honor Society for the Computing and Information Disciplines)

Eta Kappa Nu (Electrical and Computer Engineering Honor Society)

IEEE Service Oriented Computing Society

Society of Hispanic Professional Engineers

Latinas in Computing. Ambassador, University of South Carolina