JON A. PASTOR

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SUMMARY

Intelligent systems developer/researcher with over twenty-five years of experience in problem-solving over a wide range of application areas, in both the private and public sectors. Demonstrated ability to find and implement innovative solutions in unstructured and poorly-understood task domains. I have extensive experience with data and knowledge modeling, and with the integration of diverse and appropriate technologies, both conventional and cutting-edge, into a unified system solution. Most of my work has been collaborative, on heterogeneous teams. I am the co-author and -implementer of pioneering work in Intelligent Agent Architectures.

I have worked with great success in domains as diverse as eCommerce, Military Transportation Logistics, Image Processing, and Computational Molecular Biology, using technologies ranging from C programming to Neural Networks. Most of my career has been spent in the support of government contracts sponsored by DARPA and other government agencies, for which I have written successful proposals in response to both BAAs and SBIRs.

Information about security clearances will be provided upon request.

SKILLS

I have been working with ontologies throughout my career, long before the term and the technology became widely known: my first professional position, in 1984, was as a Knowledge Engineer, and I participated in the development and maintenance of a knowledge representation language that is a direct ancestor of OWL (Web Ontology Language).

I have substantial experience with all common desktop/workstation operating systems, virtually all high-level programming languages, and a wide variety of data modeling tools ranging from RDBMSs to RDF/OWL.

EXPERIENCE

Senior Scientist, Global InfoTek, Incorporated (GITI), March 2008 – Present

I am presently PI on a contract under the Army's COBRA program, for which we are providing semantic integration capabilities for information systems from both Army Battle Command and Intel; I was the principal architect of the semantics-related portions of the winning proposal, and a principal contributor to the proposal effort.

I recently completed work on a Phase I SBIR, for which I co-authored the winning proposal, in which we investigated the mapping of "folksonomies" to ontologies, in order to permit some reasoning over semi-formal and informal knowledge structures.

I designed the core architecture for the successful IARPA Tangram Project, as well as implementing, maintaining, and supporting an ontology-based system to support fast and dynamic assembly of chains of legacy analysis components.

Ontology Consultant, Franz Incorporated, September 2006 – March 2008

Provided knowledge engineering, ontology development, and guidance to developers using ontologies for large investment bank with global operations (identity of customer protected by non-disclosure agreement). Providing ongoing guidance in semantic technology, investigation of new tools, and tactical support.

Senior Ontologist, McDonald Bradley Incorporated (MBI), March 2004 – August 2006

As part of the Discovery Ontology team for VKB, I developed tools and ontologies for resource discovery and registration, and provided leadership and guidance for junior members of our team. As a member of the DoDIIS Data Layer (DDL) Ontology team, I researched tools and methodologies for large-scale ontology development and maintenance, and developed significant portions of ontologies to support DDL activities.

Consultant, Global InfoTek, Incorporated (GITI), October 2002 – March 2004

As part of kickoff team, established direction for GITI's Genoa II effort, researched and identified Policy Management and Ontology Development tools. Researched a variety of topics for pending proposal efforts, including Privacy, Self-Regenerating Systems, and Amorphous Systems, Insider Threat Mitigation, and Psychophysiological Detection of Deception. Authored several White Papers and proposals on Insider Threat for submission to DARPA, ARDA, ONR, AFRL, DoDPI, and other agencies, and contributed to and managed others.

AI Developer, American Business Financial Services (ABFS), April 2001 – August 2002

Responsible for maintenance and enhancement of deal-structuring expert system at core of ABFS's consumer mortgage loan business (Art*Enterprise, C++, and Oracle, on PCs and Sun servers, under Windows and Solaris).

Senior Ontologist, VerticalNet Corporation, December 1999–January 2001

Responsible for development of ontologies for online e-commerce, as well as tools to support ontology development. As a senior staff member with extensive experience in knowledge representation and knowledge services, I also functioned as mentor and advisor for more junior staff (XML and Common Lisp).

Consultant, Brightware Corporation, January 1999–December 1999

Designed, implemented, and supported large-scale knowledge-based expert systems for Bell Atlantic and Advanta Mortgage. Both systems were in daily use by telephone representatives for their respective companies, which relied on these systems to provide timely and accurate service to customers (Art*Enterprise, C++, and Oracle, on PCs and Sun servers, under Windows and Solaris).

Lockheed Martin Integration Systems July 1984–December 1998

Joint Logistics Advanced Concepts Technology Demo (JL ACTD)	Analyzed performance of major system prior to demo and made recommendations that resulted in a 2 order of magnitude improvement.
DARPA Consortium for ADvanced Education & Training Technologies (CADETT)	Designed and developed WWW-based tools to support Work-Based Learning and School-to-Career programs for Montgomery County Intermediate Unit and Philadelphia School District, using a variety of development tools.
Advanced Logistics Project, DELTA tasks	Designed and developed components of WWW-based system to support maintenance of long-term vendor contracts and orders placement for Defense Logistics Agency (DLA).
Collaborative Environment Internal Research & Development	Led design and implementation of WWW-based environment to support remote collaboration, focusing on public domain and low-cost tools.
Mediated Architectures Internal Research & Development	Led design and implementation of WWW-based systems which mapped object-based queries onto multiple object views of multiple remote relational DBMSs.

DARPA Computer Aided Education and Training Initiative (CAETI)	Re-designed and re-implemented earlier knowledge-base/database interface in Java, was lead implementer, and led a team of three other developers.
DARPA Computer Aided Education and Training Initiative (CAETI)	Designed and implemented core infrastructure for an Intelligent Resource Agent Architecture by extending previous DB middleware system (see below), as well as core functional modules, for WWW-based K–12 education.
	Led design and implementation of both conceptual and functional architecture for this system.
(D)ARPA/Rome Lab Planning Initiative (D/ARPI)	Designed, implemented, and supported a middleware system that provided transparent object-oriented access to relational databases from Knowledge Based Systems.
Image Processing Internal R & D	Designed and implemented a Neural Network system for recognizing IRS forms, including X Window System interface.
GeneSys (Genetic Research Support System)	Designed and implemented a variety of tools and systems, including a system to predict positions of functional regions on genes, an interface between the CYC Knowledge Representation System and a relational database, and a package for identifying critical reactions in metabolic pathways.
PRC Knowledge Representation Group	Developed graph-based GUI for and collaborated in the development of PROTEM, a knowledge representation and reasoning system.
	Designed and implemented a graph-based interactive knowledge base (ontology) editor, based on Xerox Grapher, in Prolog.
BEACON Configuration Expert System	Knowledge engineered, designed, and built knowledge bases for Burroughs computers and peripherals. Designed and implemented an integrated rule-based expert system used by BEACON to populate I/O buses with peripheral interface cards. Designed, and led implementation of, window-based GUI for both BEACON and KNET.

Wharton School, University of Pennsylvania

Instructor/Teaching Assistant/Research Assistant

- Developed curriculum and instructed Wharton undergraduate core course in Business Data Processing, Summer introductory programming course
- Collaborated in research for CODASYL DDLC and ANSI X3H2 on database access and integrity control
- Assisted professors instructing Wharton undergraduates and MBA students

EDUCATION

Ph.D. * Decision Sciences, Wharton School, University of Pennsylvania. Coursework included Decision Processes, Artificial Intelligence, Expert Systems, Organizational Behavior, Operations Research, and Operations Management

B.A. Humanities, University of Pennsylvania.

(no degree)*

PUBLICATIONS

Intelligence Analysis

Robert C. Schrag, Jon Pastor, Chris Long, Eric Peterson, Mark Cornwell, Lance A.Forbes, "Contributions to a Semantically Based Intelligence Analysis Enterprise Workflow System," 8th International Semantic Web Conference, ISWC 2009, Chantilly, VA, USA, October 25-29, 2009.

Distributed Intelligent Agent Architectures

Jon Pastor, Suzanne Taylor, Donald P. McKay, and Robin McEntire, "An Architecture for Intelligent Resource Agents," IFCIS Conference on Cooperative Information Systems (CoopIS-97) June 24–27, 1997.

Donald McKay, Jon Pastor, Robin McEntire, and Tim Finin, "An Architecture for Information Agents," in *Advanced Planning Technology*, (ed. Austin Tate), The AAAI Press, Menlo Park, CA., USA, May 1996, ISBN 0-929280-98-0

Database Middleware:

Special Issue on ARPA-Rome Planning Initiative. *IEEE Expert*, Vol. 10, No. 1, February 1995.

Jon A. Pastor and Don McKay, "View-Concepts – Persistent Storage for Planning and Scheduling." In *Proceedings of the ARPA/Rome Lab 1994 Knowledge-Based Planning and Scheduling Initiative Workshop*, Tucson AZ, February, 1994.

Jon A. Pastor, Don McKay, and Tim Finin, "View-Concepts- Knowledge-Based Access to Databases." In *Proceedings of the First International Conference on Information and Knowledge Management*, Baltimore MD, November 1992.

Image Processing using Neural Nets:

Suzanne Taylor, Richard Fritzson, and Jon A. Pastor. "Extraction of Data from Pre-printed Forms" *Machine Vision and Applications*, Vol. 5, No. 3, Summer 1992.

Jon A. Pastor, Suzanne Taylor, Richard Fritzson, and Richard Rudolph. "Neural Networks: A Unisys Perspective." In *Proceedings of the IFIP W.G. 10.5 Workshop on Silicon Architectures for Neural Nets*, St. Paul-de-Vence France, 28-30 November 1991.

Jon A. Pastor and Suzanne Taylor. "Recognizing Structured Forms Using Neural Networks" In *Proceedings of IJCNN-91*, Seattle WA, July 1991.

S. Taylor, R. Fritzson, M. Lipshutz, J. Pastor, and C. Weir. "Document Understanding." In *Intelligence Community AI/Advanced Computing Symposium*, March 1991.

Computational Molecular Biology:

Jon A. Pastor, Kimberle Koile, and G. Christian Overton. "Using Analogy to Predict Functional Regions on Genes" In *Proceedings of the 24th Hawaii International Conference on System Science*, 1991.

G. Christian Overton and Jon A. Pastor. "A Platform for Applying Multiple Machine Learning Strategies to the Task of Understanding Gene Structure." In *Proceedings of the Seventh IEEE Conference on Artificial Intelligence Applications*, 1991.

G. Christian Overton, Kimberle Koile, and Jon A. Pastor. "GeneSys: A Knowledge Management System for Molecular Biology." In G. Bell and T. Marr, editors, *Computers and DNA*, Addison-Wesley/Santa Fe Institute, Reading MA, 1990.

Expert Systems:

Jon A. Pastor and G. Christian Overton. *The BEACON UIO BasePacker: Expert Support for an Expert System*. LBS Technical Memo 64, Unisys Corporation, September 1987.

DBMS Technology:

Eric K. Clemons, Steven Hanks, and Jon A. Pastor. [six ANSI X3H2 and CODASYL DDLC reports on database access control; details available upon request]

Eric K. Clemons, Jon A. Pastor, Jeanne Lee, and Edgar H. Sibley. DDL-DML-Host Language Tutorial: An Integrated Data Base Example Illustrating the 1980 ANSI X3H2 dpANS. Technical Report 80-07-01, Department Of Decision Sciences, The Wharton School, University of Pennsylvania, July 1980.