

Stephen J. Verzi, PhD

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Education

University of New Mexico, Albuquerque, NM

- PhD** Computer Science, May 2003 – Dissertation Title: “Extensions to Fuzzy ARTMAP Based on Structural Risk Minimization”
- MS** Computer Science, May, 1990
- BS** Computer Science, December 1987

Professional Experience

- **Member of Technical Staff**, Sandia National Laboratories, Albuquerque, NM (October 2004 – Present)

Software engineer for Cognitive Science Application 2, Department 01432.

- **Adjunct Professor**, University of New Mexico, Albuquerque, NM (January 2008 – Present).

Instruct undergraduate and graduate level courses in software design, pattern recognition, mathematics of information theory and computation/complexity.

- **Post-Doctoral Researcher**, University of New Mexico, Albuquerque, NM (July 2004 – October 2004).

Conduct research directly related to my dissertation for future publication.

- **Software Engineer**, MZA Associates, Inc., Albuquerque, NM (March 1998 – August 2003).

Design and implementation of software, responsible for software source configuration.

- **Principal Investigator**, Object Science Corporation, Albuquerque, NM (April 1997 – March 1998)

Phase II Small Business Innovation Research Grant management and coordination with the U.S. Air Force. Design and implementation of software, verification and validation of computer network architecture.

- **Research Assistant**, University of New Mexico (November 1996 – May 1997 and March 1993 – November 1995)

Subcontract with Albuquerque High Performance Computing Center to design and implement computer simulation environment for civil engineering applications.

Subcontract with the Failure Analysis Laboratory, Sandia National Laboratories. Design and implementation of graphical user interface for a fault detection system.

Classes Taught

- Pattern Recognition (UNM), Spring 2008
- Information Theory (UNM), Spring 2009
- Software Design (UNM), Spring 2010
- Foundations of Computing (UNM), Fall 2011

Patents

Novel term dominance computation in text documents (App #12/364,753), 02/03/2009

Research Publications

Chew, PA., Bader, BW., Helmreich, S., Abdelali, A. and Verzi, SJ., (2011) An information-theoretic, vector-space-model approach to cross-language information retrieval, *Natural Language Engineering*, Cambridge University Press, 19(1), pp. 37-70.

Taylor, SE., Bernard, ML., Verzi, SJ., Morrow, JD., Vineyard, CM., Healy, MJ. and Caudell, TP., (2009) Temporal semantics: an adaptive resonance theory approach, *IJCNN'09: Proceedings of the 2009 international joint conference on Neural Networks*, pp. 2410-2416.

Donna D. Djordjevich, Patrick G. Xavier, Michael L. Bernard, Jonathan H. Whetzel, Matthew R. Glickman, and Stephen J. Verzi, (2008) Preparing for the Aftermath: Using Emotional Agents in Game-Based Training for Disaster Response, in *Proceedings of the 2008 IEEE Symposium on Computational Intelligence and Games (CIG'08)*, pp 266-275.

Chew, P., S. Verzi, T. Bauer, and J. McClain, (2006) Evaluation of the Bible as a resource for cross-language information retrieval, in *Proceedings of the Workshop on MLRI 2006 (July)*, pp. 68-74.

Verzi, S., G. Heileman, and M. Georgiopoulos (2006). “Boosted ARTMAP: Modifications to Fuzzy ARTMAP Motivated by Boosting Theory”, *Neural Networks*, May 2006, Vol. 19, No. 4, pp. 446-468.

Verzi, S., G. Heileman, M. Georgiopoulos, and G. Anagnostopoulos (2003). “Universal Approximation with Fuzzy ART and Fuzzy ARTMAP”, in *Proceedings of the International Joint Conference on Neural Networks, IJNN2003*

Verzi, S. G. Heileman, M. Georgiopoulos, and G. Anagnostopoulos (2002). “Off-line Structural Risk Minimization and BARTMAP-S”, in *Proceedings of the International Joint Conference on Neural Networks, IJCNN2002*.

Verzi, S., G. Heileman, M. Georgiopoulos, and G. Anagnostopoulos (2002). A Study of Generalization Performance of ARTMAP-based Networks in the Framework of Structural Risk Minimization. In *Proceedings of the International Joint Conference on Neural Networks, IJCNN2002, IJCNN, 2002*.

Verzi, S., G. Heileman, M. Georgiopoulos, and M. Healy (2001). “Rademacher Penalization Applied to Fuzzy ARTMAP and Boosted ARTMAP,” in *Proceedings of the International Joint Conference on Neural Networks, IJCNN2001*, Washington, DC, USA, July 2001, pp. 1191-1196.

Verzi, S, G. Heileman, M. Georgiopoulos, and M. Healy (2000). “Boosting in ARTMAP Networks”, in *Proceedings of Systemics, Cybernetics, and Informatics, SCI'2000*, 2000 pp. 473-478.

Verzi, S., G. Heileman, M. Georgiopoulos, and M. Healy (2000). Hierarchical ARTMAP, in *Proceedings of the International Joint Conference on Neural Networks, IJCNN2000*, 2000 *Como, Italy*, July, 2000 , pp. 41 – 46.

Verzi, S., G. Heileman, M. Georgiopoulos, and M. Healy (1998). Boosting the Performance of ARTMAP. In *Proceedings of the International Joint Conference on Neural Networks, IJCNN98*, 1998, pp 396-401.

Ross, T., T. Hasselman, J. Chrostowski, and S. Verzi (1993). Fuzzy Set Methods for Assessing Uncertainty in the Modeling and Control of Space Structures. *Journal of Fuzzy and Intelligent Systems* 1 (3), pp 135-155.

Ross, T., S. Verzi, S. Shler, G. McKeen and V. Shaefer (1992). PARES – An Expert System for Preliminary Flexible Pavement Rehabilitation and Design. *Transportation Research Record No. 1374*, pp. 81-89.