

SUMMARY

Machine learning expert and algorithm R&D team lead, with doctoral training in autonomous learning systems and production software engineering experience. My interests are in solving real-world problems in predictive analysis while advancing the state of the art.

EDUCATION

- Boston University**, Boston, MA May, 2009
Ph.D., Cognitive & Neural Systems GPA: 3.96
Dissertation: "Models of Supervised and Self-Supervised Learning," defended March 17, 2009
Advised by Prof. Gail A. Carpenter. Classes in computational models of brain function, data mining, probability, artificial intelligence, machine learning, dynamical systems, optimization, and operations research.
- Wesleyan University**, Middletown, CT May, 2000
B.A., Neuroscience & Behavior GPA: 3.46
Classes in learning and memory systems, programming, discrete math, linear algebra, calculus, physics, neurophysiology, and neuropsychology.

EXPERIENCE

- Principal Research Engineer** August, 2011 to Present
Technology Solutions, BAE Systems, Inc. (formerly AlphaTech, Inc.), Burlington, MA
Design machine learning algorithms and adaptive systems for military and intelligence communities. Lead a team of 9 research engineers (6.5 full-time equivalent), design, implement and test algorithms, write proposals, and present solutions to clients.
Promoted from Senior Research Engineer to Principal in fewer than 2 years. Received Chairman's Bronze Award for innovation, as part of a 4-person team in the top 5th percentile of nominees from the 50,000-person company. Key author on successful \$38M DARPA proposal effort.
Projects include real-time adaptive radio communications and radar jamming for DARPA; a system for identifying technological emergence from text and metadata corpora for IARPA; and a number of classified efforts involving event, anomaly, and pattern detection.
Techniques include neural, Bayesian, and kernel methods, HMMs, latent Dirichlet allocation, and numerous proprietary algorithms. Technologies include Java, Matlab, Virtuoso, and others.
- Complexity Scientist** July, 2009 to August, 2011
Icosystem Corporation, Cambridge, MA
Created agent-based simulations of complex business and government systems in healthcare, personnel management, and cybersecurity for use in decision support. Managed projects with team sizes ranging from 2 to 6 using Agile methodologies. Engaged with clients to develop requirements. Designed, implemented, and validated Java simulation models.
- Graduate Research Assistant** May, 2005 to April, 2009
Technology Laboratory, Center for Adaptive Systems, Boston University
Developed brain-inspired models of supervised and semi-supervised learning for information fusion problems with varying pattern dimensionalities. Responsibilities included problem definition, algorithm development, software implementation, testing, analysis and visualization,

publication and presentation to neural networks community. Techniques included neural networks, probability and statistics, ensemble systems, optimization, multithreaded Java, and MATLAB. Teaching fellow for “Models of Recognition, Memory and Attention,” a graduate-level class on neural and mathematical models of pattern learning and recognition, Spring, 2005. Received award for best teaching fellow in department for 2004-2005.

Senior Software Engineer

July, 2000 to August, 2004

Liquid Engines, Inc., Sunnyvale, CA

Led development of enterprise-scale user interface for corporate tax planning software. Created Java/XML/SQL framework for rapid UI panel construction. Co-authored marketing requirements and functional specifications documents. Created 8 unique product prototypes and sales demonstrations. Hired as webmaster in July, 2000; promoted to interface engineer in December, 2001; and senior software engineer in December, 2002.

Principal Consultant

November, 1998 to December, 2008

AmisWorks, Acton, MA

Developed and maintained web sites and databases for clients in agriculture, biotechnology, manufacturing, and education. Technologies include PHP, MySQL, Apache, Lucene, and DHTML.

PUBLICATIONS

- O. Babko-Malaya, P. Thomas, D. Hunter, A. Meyers, J. Pustejovsky, M. Verhagen, & G. Amis (2013). Characterizing Communities of Practice in Emerging Science and Technology Fields. *Proceedings of the International Conference on Social Intelligence and Technology (SOCIETY)*, State College, PA.
- G. Amis & P. Gaudio (2010). IMPACT-RES: A predictive simulation tool for Navy Reserve strength planning and community management. *Navy Workforce Research and Analysis Conference*, Alexandria, VA.
- G. Amis & G. A. Carpenter (2010). Self-Supervised ARTMAP. *Neural Networks*, 23, 265-282. doi:10.1016/j.neunet. 2009.07.026.
- G. Amis & G. A. Carpenter (2007). Default ARTMAP 2. *Proceedings of the International Joint Conference on Neural Networks (IJCNN)*, Orlando, FL.
- G. Amis & J. R. Kirn (1999). Does song recover following transection of the vocal motor pathway in the adult zebra finch? *Poster Session for the H. Hughes Fellowship for Undergraduate Research*.

TECHNICAL SKILLS

Java, MATLAB, C, C++, Mathematica, PHP, JavaScript, SQL, SPARQL, DHTML, XML, LaTeX.

Especially interested in furthering my experience in Scala, Julia, C++11, and Python.

Object-oriented design, multithreaded computing, continuous integration.

Weka, MS SQL Server (incl. Business Intelligence Studio), MySQL, Oracle, Git, SVN, CVS, VSS.

Adaptive resonance theory (ART/ARTMAP), multilayer perceptrons (MLP/Backprop/ANN), agent-based modeling and simulation (ABM/ABS), support vector machines (SVM), C4.5 decision trees, genetic algorithms, Latent Dirichlet Allocation (LDA), Bayesian networks, Hidden Markov Models (HMM).