

GREGORY P. AMIS

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SUMMARY

Complexity scientist and machine learning expert with doctoral training in autonomous learning systems and professional software engineering experience. Research interests include computational modeling and algorithm development for emergent behavior analysis, machine learning, decision support, and intelligent user interfaces.

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

Complexity Scientist

July, 2009 to Present

Icosystem Corporation, Cambridge, MA

Develop agent-based models and simulations (ABM/ABS) of complex business and government systems in healthcare and personnel management. Responsibilities include project management, requirements development, data analysis, model design, implementation, and validation.

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 problems with disparate pattern dimensionalities. Responsibilities included problem definition, algorithm development, software implementation, testing, analysis and visualization. Techniques included neural networks, probability, 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 recognition, Spring, 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 eight 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. Contracts in agriculture, biotechnology, manufacturing, and education. Technologies include PHP, MySQL, Apache, Lucene, and DHTML.

Computing Helpdesk Manager, Consultant **September, 1996 to June, 2000**

Department of Information Technology Services, Wesleyan University

Led 24 student consultants, supporting 4,000+ students, faculty, and staff; responsible for hiring, training, scheduling, setting policy, and purchasing.

Undergraduate Research Assistant **June, 1999 to May, 2000**

Laboratory of John R. Kirn, Biology Department, Wesleyan University

Conducted behavioral and histological research of adult neuronal plasticity as it applies to learning and memory in the vocal control systems of songbirds.

PUBLICATIONS

- 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, B. Ersoy, & S. Grossberg (2009). Cortical learning of recognition categories: A resolution of the exemplar vs. prototype debate. Submitted to *Psychonomic Bulletin & Review*.
- 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*.

HONORS

Invited Reviewer

International Joint Conference on Neural Networks, 2007-2009; IEEE Transactions on Neural Networks, Fall, 2008; Neural Computing and Applications, Fall, 2007.

Teaching Fellow Award, Dept. of Cognitive & Neural Systems, Boston U. **2005/2006**

Dean's Fellowship, Graduate School of Arts & Sciences, Boston U. **August, 2004 to April, 2009**

Employee-of-the-Month Award, Liquid Engines, Inc., Sunnyvale, CA **February, 2001**

Howard Hughes Fellowship for Undergraduate Research in the Life Sciences **Summer, 1999**

COMMUNITY VOLUNTEER POSITIONS

Student/Post-Doc Advisory Board Member **February, 2008 to April, 2009**
NSF Center of Excellence for Learning in Education, Science, and Technology (CELEST)

Planning Committee Member, Webmaster **July, 2007 to February, 2009**
CNS/CELEST Career Day (2007 and 2008)
NSF Science of Learning Conference (Pittsburgh, 2008 and Seattle, 2009)

TECHNICAL SKILLS

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

Object-oriented design, multithreaded computing.

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

Agent-based modeling and simulation (ABM/ABS), Adaptive resonance theory (ART/ARTMAP), multilayer perceptrons (MLP/Backprop/ANN), support vector machines (SVM), genetic algorithms, Bayesian belief networks.