

Larry D. Pyeatt, PhD  
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Abilene, TX 79605  
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May 18, 2010

Stellar Science  
6565 Americas Parkway NE  
Suite 725  
Albuquerque, NM 87110

Dear Sir or Madam,

Please consider my application for Scientific and Engineering Software Developer. I am an exceptionally good programmer when working alone or in small teams. I have worked on small, medium, and large projects in industry and academia. I have also contributed to open software projects, including the Linux kernel. I have used many programming languages and I can quickly learn new ones whenever necessary.

My strongest language is C++. I have developed C++ object libraries and templates. My philosophy is to use what I can from the libraries that are available, and write anything else that I need. When I need to design an object, I try to make it re-usable.

For the past 10 years, I have been a professor at Texas Tech University, where I have been conducting and directing research in robotics and artificial intelligence. This research includes optimal control, planning and decision making under uncertainty, computer vision, neural networks, Markov decision processes, and similar technologies and theoretical models.

Your job opening lists several areas where experience is desired. Here is how I compare on your list:

**Image processing, imagery analysis, or computer vision:** I have worked on projects in image processing and machine vision. I have directed research in recognizing license plates.

**Cross-platform development with C++:** I prefer to develop code on Solaris, HP-UX, or Linux and enforce strict POSIX compliance. For non-GUI code, I have never had any portability issues with people running my code under Windows. With Qt or other libraries, even GUI code is easy to make cross platform.

**3D graphics using OpenInventor and/or OpenGL:** I wrote an application using OpenGL that was licensed to the US Coast Guard.

**Knowledge of satellites, space, orbital mechanics:** From Physics class, I recall that it reduces to solving systems of differential equations.

**Computer Aided Design (CAD):** I have used Mentor Graphics, AutoCAD, OrCAD,

and a couple of others. I wrote a small circuit board auto-router for fun, using the layout and net list provided by OrCAD.

**Linux, Sun, SGI, Windows:** I have used and programmed all four of those, in exactly that order.

**Familiarity with Microsoft Visual Studio:** I have tried to use it, but found that it really just gets in my way. I am very efficient with Emacs, make, and the command shell.

**Python:** This is the introductory programming language at Texas Tech. As such, I can use it reasonably well.

**Java:** I have not used it in several years, but it would not take long to become proficient.

**Matlab:** I have used Matlab to write quick prototypes for proof-of-concept. I have also used it for plotting and graphing results.

**MySQL or other relational databases:** I have used several SQL databases for back-end data storage, including MySQL, Oracle, and Postgres.

I would appreciate the opportunity to speak with you to discuss the value that my strengths and experience can bring to Stellar Science. I believe that my experience is a very good match to your needs.

Best Regards,

A handwritten signature in cursive script that reads "Larry D. Pyeatt".

Larry D. Pyeatt, PhD

# Larry D. Pyeatt, PhD

## Curriculum Vitae

426 South La Salle  
Abilene, Texas 79605  
larry.pyeatt@ttu.edu

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### Education

#### **Doctor of Philosophy in Computer Science**

Colorado State University, 1999

Dissertation: *Integration of Partially Observable Markov Decision Processes and Reinforcement Learning for Simulated Robot Navigation*

Committee: Adele Howe (Chair), Charles Anderson, Darrell Whitley, Wade Troxell

#### **Master of Science in Computer Science**

Texas Tech University, 1991

Thesis: *Application of the Neural Ring Pattern Classifier to Speech Recognition*

Committee: W. J. Bryan Oldham (Chair), Thomas M. English, Donald Gustafson

#### **Bachelor of Science in Computer Science**

Texas Tech University, 1988

Minor in Psychology with additional course work in Mathematics and Electrical Engineering

### Research Interests

Robotics, Partially Observable Markov Decision Processes, Reinforcement Learning, Function Approximation, Bioinformatics, Agent Architectures, Real-time and Embedded Systems, Computer Forensic Analysis

### Professional Experience

**Associate Department Chair** Texas Tech University at Abilene, 8/2007 – present. All duties of Associate professor, plus manage the Computer Science department at Abilene. Developed strategic plan to: Increase enrollment of graduate students, improve Faculty recruitment and retention, and increase research productivity and external funding.

**Associate Professor** Texas Tech University, Lubbock, 1/2006–present. Research in Robotics, Partially Observable Markov Decision Processes, and Reinforcement Learning. Taught several graduate and undergraduate courses, in areas of Robotics, AI, Computer Forensics, and core Computer Science curriculum. Received very high student evaluations without sacrificing high expectations of student performance. Directed research work of MS and PhD students.

**Visiting Associate Professor** University of Missouri, Rolla, 1/2005–12/2005. Taught graduate course in Markov Decision Processes and graduate course in Reinforcement Learning. Conducted research on two research projects in collaboration with Donald Wunsch. The projects involved optimal routing in disruption tolerant networks and threat detection and evaluation using smart sensors. We wrote our own event-driven simulator for these projects, so they have taken some time to come into fruition. We are preparing publications for 2009.

**Assistant Professor** Texas Tech University, Lubbock, 9/99–12/2004. As graduate advisor, led efforts to restructure and improve the graduate programs. Those efforts resulted in growth in enrollment of the MS and PhD programs, while also improving the quality of the students, both incoming and graduating. Performed research in Robotics, Partially Observable Markov Decision Processes, and Reinforcement Learning. Taught graduate and undergraduate courses including courses in digital logic, operating systems, reinforcement learning, and artificial intelligence. Received very high student evaluations without sacrificing high expectations of student performance. Directed research work of MS and PhD students.

**Lecturer** Colorado State University, Fort Collins, 9/98–9/99. Taught courses in digital logic and assembly language, operating systems, and programming languages.

**Graduate Research Assistant** Colorado State University, Fort Collins, multiple appointments, 9/93–9/98. Research in areas of partially observable Markov decision processes, robotics, neural networks and reinforcement learning, finding structure in discrete event sequences, geographical information systems (GIS), and genetic algorithms. The following sections detail some of the research that I conducted at Colorado State.

**Partially Observable Markov Decision Processes** (9/97–9/99) Implemented several POMDP solution algorithms. Extended the Incremental Pruning algorithm and code to perform distributed execution on several UNIX machines.

**Robotics** (9/97–9/99) Developed a three-level control architecture for the Khepera robot using a symbolic planner at the highest level, POMDP planning at the middle level, and reinforcement learning at the low level. Implemented middle and low levels and demonstrated that a robot could learn low level extended actions as necessary to complete its task and could modify its low level actions to adapt to sensor and effector failures.

**Neural Networks and Reinforcement Learning** (9/96–9/97) Experimented with reinforcement learning using neural networks for function approximation. Ran experiments using a Pente simulator, pole-balancing simulator, and the Robot Auto Racing Simulator (RARS). Added a high-level controller to the RARS system to allow switching between learned behaviors. Invented a new function approximation technique based on decision trees. Showed that it was superior to the neural network approach.

**Structure in Discrete Event Sequences** (9/95–9/97) Developed method to detect dependencies in program execution traces and construct a Semi-Markov model of the underlying system behavior. Worked with Adele Howe, Eric Dahlman and Gabriel Somlo to write CLASPWeb which allows anyone with a web browser to use the code.

**Geographical Information Systems (GIS)** (5/95–8/95) Developed method to normalize lighting and remove shadows from aerial and satellite terrain photographs. The software worked by texture mapping the photograph onto the corresponding USGS elevation data, calculating the position of the sun at the time the photograph was taken, and applying an inverse lighting calculation. The normalized photograph could then be texture mapped onto the USGS elevation data and a forward lighting model could be applied to show lighting conditions at any time of day or year.

**Genetic Algorithms** (9/93–5/95) Developed system to track the ranking of hyperplanes during genetic search; compared dynamic ranking with static ranking. Wrote code to evolve neural network weights. Compared the results with Frédéric Gruau's Cellular Encoding method.

**Other projects** Completed several smaller projects, including a ray tracer, a computer vision system, and an optimizing compiler for a language similar to C.

**Senior Information Systems Programmer** Texaco Inc., Houston 9/91–9/93. Applied Artificial Intelligence techniques to Texaco business needs. Delivered applications on PC, Unix, and IBM mainframe platforms. Performed system administration for Unix environment. Used a wide variety of systems, languages, tools, and techniques. Major projects included:

**SpectraMan** (9/92–9/94) Ultraviolet Fluorescence Spectra Manager. The software was used to automate the process of identifying and characterizing unknown hydrocarbon mixtures. It kept a database of thousands of known 3D ultraviolet fluorescence spectra. The chemist could use a neural network, embedded in the software, to match an unknown sample to every other sample in the database. The neural net selected a user-specified number of similar spectra that the chemist could then view and print, along with additional information in the database, in order to make a final determination about the characteristics of the unknown sample. This software greatly reduced the time required to perform an analysis and enabled a large increase in the productivity of the chemists. I wrote the prototype in assembly and C on a PC running DOS. The prototype showed what was possible, but was deemed too slow and could only allow viewing of one spectrum at a time. The final version of the software was written in C using the X Window System, Motif, OpenGL, and an SQL database server. It was developed on Sun and delivered on SGI. The lead chemist, Dr. Marilyn Reyes, and I were awarded United States Patent 5424959 for this software.

**Reservoir Modeling Expert System** (11/9–11/92) The reservoir management team at Texaco gathers production data on every reservoir that Texaco owns. Once they have sufficient data on a particular reservoir, they try to fit the data to one of several mathematical models. If they select the correct model, they can accurately predict the production of the reservoir and select an appropriate production schedule. There were very few people experienced in selecting the model, and several experts had recently retired or were preparing to retire. The team leader was faced with having an inexperienced staff and no one to train them.

We built an expert system for selecting the reservoir model, allowing the team to continue its work with a reduced and less experienced staff.

**Graduate Research Assistant** Texas Tech University, Lubbock, 8/88–9/91. Research in neural networks and speech recognition.

**Speech Recognition** Developed speaker independent speech recognition system for digits. The speech recognition system followed the now standard model of signal preprocessing, fast Fourier transform, Mel scale extraction, segmentation using a hidden Markov model, and recognition. The recognition section used a neural ring pattern classifier.

**Embedded Control** Evaluated hardware and operating systems for embedded distributed control of silicon wafer processing machinery. Made recommendation to the company that funded the study. Taught Introduction to Computer Science course using Pascal. Taught digital electronics lab. Supervised construction of circuits by the students. Assisted students in the implementation of their circuit designs.

**Embedded Control Systems Engineer** Applied Hydraulics, Lubbock, Texas, 1/87–7/88. Designed and built microprocessor and sequential logic based systems for industrial control and data acquisition.

#### Honors and Awards

##### Academic

Upsilon Pi Epsilon (computer science honor society), Texas Tech University, 1989  
Third Place Team, ACM International Programming Competition, Louisville, Kentucky, 1989  
Engineering Academic Scholarship, Texas Tech University, 1983

##### Texaco

Patent Letter, August 30, 1995  
Patent Application Award, July 19, 1993  
Exploration & Production Technology Department Award for Outstanding Supplier, February 23, 1993  
Individual Outstanding Contribution (IOC) Award for Innovation, August 5, 1992

#### Refereed Journal Articles

Brett L. Moore, Anthony G. Doufas, and Larry D. Pyeatt. Reinforcement learning: A novel method for optimal control in challenging clinical domains. *Anesthesia and Analgesia*, In Review.

Larry D. Pyeatt and Adele E. Howe. Evaluating robustness in a two layer simulated robot architecture. *Journal of Experimental and Theoretical Artificial Intelligence: Special Issue on Autonomy Control Software*, 12(2):213–234, 2000.

#### Refereed Conference Papers

Eddy C. Borera, Arisoa Randrianasolo, and Larry D. Pyeatt. Intersection point based POMDP solver. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*. IEEE, 2010. In Review.

Mahdi Naser-Moghadasi, Arisoa Randrianasolo, and Larry D. Pyeatt. Scan line point based POMDP solver. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*. IEEE, 2010. In Review.

Brett L. Moore, Larry D. Pyeatt, and Anthony G. Doufas. Fuzzy control for closed-loop, patient-specific hypnosis in intraoperative patients: a simulation study. In *Proceedings of the International Society of Anaesthetic Pharmacology Conference*, New Orleans, LA, October 2009.

Brett L. Moore, Larry D. Pyeatt, and Anthony G. Doufas. Fuzzy control for closed-loop, patient-specific hypnosis in intraoperative patients: A simulation study. In *Proceedings of the IEEE Engineering in Medicine and Biology Society Conference*, Minneapolis, Minnesota, USA, September 2009. IEEE.

Tae-Hyung Kim, Larry D. Pyeatt, and Donald C. Wunsch II. Reconfigurable disruption tolerant routing via reinforcement learning. In *Proceedings of the International Joint Conference on Neural Networks (IJCNN)*, Atlanta, GA, June 14–19, 2009. IEEE.

Michael Helm, Daniel Cooke, Nelson Rushton, Larry Pyeatt, and Klaus Becker. Reinforcement learning agents applied to a class of control system problems. In *Proceedings of the IEEE Region 5 Technical, Professional, and Student Conference*, San Antonio, Texas, April 2006. IEEE.

- Chengcheng Li and Larry D. Pyeatt. A short tutorial on reinforcement learning: review and applications. In *Proceedings of the International Conference on Intelligent Information Process*, page not yet available, Beijing, China, October 2004.
- Chengcheng Li and Larry D. Pyeatt. Automatic U.S. vehicle license plate extraction and license number splitting under various illumination conditions. In *Proceedings of the International Conference on Computing, Communications and Control Technologies*, volume II, pages 143–148, 2004.
- Chengcheng Li and Larry D. Pyeatt. Preprocesses of U.S. vehicle license plate” recognition. In *Proceedings of The 6th IASTED International Conference on Signal and Image Processing*, pages 89–94, Honolulu, Hawaii, August 2004. International Association of Science and Technology for Development (IASTED).
- Chengcheng Li and Larry D. Pyeatt. U.s. vehicle license plate localization. In *Proceedings of the International Conference on Computing, Communications and Control Technologies*, volume VII, pages 314–319, Austin, Texas, August 2004. University of Texas at Austin and the International Institute of Informatics and Systemics (IIS).
- Todd M. Quasny and Larry D. Pyeatt. Reinforcement learning in the control of a simulated life support system. In *Proceedings of the International Conference on Environmental Systems (ICES)*, pages 1–7, Colorado Springs, CO, July 2004. Society of Automotive Engineers. The proceedings were produced on CD-ROM and papers were not assigned individual page numbers.
- Laura Barnes, Todd Quasny, Richard Garcia, and Larry D. Pyeatt. Multi-agent mapping using dynamic allocation utilizing a centralized storage system. In *Proceedings of the 12th Annual Mediterranean Conference on Control and Automation*, pages 1–6, Kusadasi, Aydin, Turkey, June 2004. The proceedings were produced on CD-ROM and papers were not assigned individual page numbers.
- Brett Moore, Todd Quasny, Eric Sinzinger, and Larry Pyeatt. An intelligent agent for closed-loop sedation of simulated ICU patients. In *Proceedings of the 17th International Florida AI Research Society Conference (FLAIRS)*, pages 109–113, Miami Beach, Florida, May 2004. Winner of best paper award.
- Larry D. Pyeatt. Reinforcement learning with decision trees. In *Proceedings of the IASTED International Conference on Applied Informatics (AI 2003)*, pages 26–31, Innsbruck, Austria, February 2003. International Association of Science and Technology for Development (IASTED).
- Todd M. Quasny, Larry D. Pyeatt, and Jackie Moore. Curvature-velocity method for differentially steered robots. In *Proceedings of the IASTED International Conference on Modelling, Identification, and Control (MIC 2003)*, pages 618–622, Innsbruck, Austria, February 2003. International Association of Science and Technology for Development (IASTED).
- Brett L. Moore, Todd M. Quasny, Larry D. Pyeatt, and Eric D. Sinzinger. Performance of a single action partially observable Markov decision process in a recognition task. In *Proceedings of the Fourth Annual International Conference on Artificial Intelligence and Soft Computing*, pages 367–371, Cancun, Mexico, May 2001. International Association of Science and Technology for Development (IASTED).
- Larry D. Pyeatt and Adele E. Howe. Decision tree function approximation in reinforcement learning. In *Proceedings of the Third International Symposium on Adaptive Systems: Evolutionary Computation & Probabilistic Graphical Models*, pages 70–77, Havana, Cuba, March 2001. Institute of Cybernetics, Mathematics and Physics.
- Larry D. Pyeatt and Adele E. Howe. A parallel algorithm for POMDP solution. In *Proceedings of the Fifth European Conference on Planning (ECP-99)*, pages 73–83, Durham, United Kingdom, September 1999.
- Larry D. Pyeatt and Adele E. Howe. Integrating POMDP and reinforcement learning for a two layer simulated robot architecture. In Oren Etzioni, Jörg P. Müller, and Jeffrey M. Bradshaw, editors, *Proceedings of the Third International Conference on Autonomous Agents (Agents’99)*, pages 168–174, Seattle, WA, USA, May 1999. ACM Press.
- Larry D. Pyeatt and Adele E. Howe. Learning to race: Experiments with a simulated race car. In Diane J. Cook, editor, *Proceedings of the Eleventh International Florida Artificial Intelligence Research Symposium Conference*, pages 357–361, Sanibel Island, FL, May 1998. Florida Artificial Intelligence Research Symposium, AAAI Press.
- Larry D. Pyeatt and Adele E. Howe. Reinforcement learning for coordinated reactive control. In *Fourth World Congress on Expert Systems: Workshop on machine learning*, page unavailable, March 1998.

Adele E. Howe and Larry D. Pyeatt. Constructing transition models of AI planner behavior. In *Proceedings of the Eleventh Knowledge Based Systems Engineering Conference*, pages 33–41, September 1996.

Frédéric Gruau, Darrell Whitley, and Larry Pyeatt. A comparison between cellular encoding and direct encoding for genetic neural networks. In John R. Koza, David E. Goldberg, David B. Fogel, and Rick L. Riolo, editors, *Genetic Programming 1996: Proceedings of the First Annual Conference*, pages 81–89, Stanford University, CA, USA, 1996. MIT Press.

Darrell Whitley, Frédéric Gruau, and Larry Pyeatt. Cellular encoding applied to neurocontrol. In Larry Eshelman, editor, *Proceedings of the Sixth International Conference on Genetic Algorithms*, pages 460–467, Pittsburgh, PA, USA, July 1995. Morgan Kaufmann.

Darrell Whitley, Keith Mathias, and Larry Pyeatt. Hyperplane ranking and implicit parallelism in simple genetic algorithms. In Larry Eshelman, editor, *Proceedings of the Sixth International Conference on Genetic Algorithms*, pages 231–238, San Francisco, CA, July 1995. Morgan Kaufmann.

Larry D. Pyeatt and W. J. Bryan Oldham. Application of the neural ring pattern classifier to speech recognition. In *Proceedings of the Southeastern Region ACM Conference*, pages 385–387. ACM, 1991.

**Doctoral  
Dissertation**

Larry D. Pyeatt. *Integration of Partially Observable Markov Decision Processes and Reinforcement Learning for Simulated Robot Navigation*. PhD dissertation, Colorado State University, Computer Science Department, July 1999.

**Master's  
Thesis**

Larry D. Pyeatt. Application of the neural ring pattern classifier to speech recognition. M.S. Thesis, Texas Tech University, May 1991.

**Unrefereed  
Symposia &  
Workshops**

Larry D. Pyeatt and Adele E. Howe. Testing generalization in learned simulated robot behaviors. In Henry Hexmoore, editor, *Workshop on Autonomy Control Software*, Seattle, Washington, May 1999. Third International Conference on Autonomous Agents.

Larry D. Pyeatt and Adele E. Howe. Integrating POMDP and reinforcement learning for a two layer simulated robot architecture. In Michael Littman and Tony Cassandra, editors, *AAAI 1998 Fall Symposium Series – Planning with Partially Observable Markov Decision Processes: Working Notes*, pages 371–388, Orlando, Florida, October 1998. AAAI. Revised version appeared in *Third International Conference on Autonomous Agents*.

**Unrefereed  
Technical  
Reports**

Mark R. Stevens, Larry D. Pyeatt, David J. Houlton, and Michael E. Goss. *Locating Shadows in Aerial Photographs Using Imprecise Elevation Data*. Technical Report TR CS-95-105, Colorado State University, Department of Computer Science, Fort Collins, Colorado, 1995.

Larry D. Pyeatt and Adele E. Howe. *Decision Tree Function Approximation in Reinforcement Learning*. Tech Report TR CS-98-112, Colorado State University, Fort Collins, Colorado, October 1998.

**Professional  
Presentations**

*Reinforcement Learning with Decision Trees*. IASTED International Conference on Applied Informatics (AI 2003), February 2003. Innsbruck, Austria.

*Curvature-Velocity Method for Differentially Steered Robots*. IASTED International Conference on Modelling, Identification, and Control (MIC 2003), February 2003. Innsbruck, Austria.

Invited talk: *Probabilistic Methods for Robot Navigation*. University of Hawaii, March 22 2002. Honolulu, Hawaii.

Invited talk: *Probabilistic Methods for Robot Navigation*. University of Alaska, Fairbanks, July 9 2001. Fairbanks, Alaska.

*Decision Tree Function Approximation in Reinforcement Learning*. Third International Symposium on Adaptive Systems, March 20 2001. Havana, Cuba.

Invited talk: *Learning Low Level Actions for Robot Navigation*. RIACS, NASA Ames Research Center, November 9 2000. Moffett Field, California.

*A Parallel Algorithm for POMDP Solution*. Fifth European Conference on Planning (ECP-99), September 1999. Durham, United Kingdom.

*Testing Generalization in Learned Simulated Robot Behaviors*. Third International Conference on Autonomous Agents: Workshop on Autonomy Control Software, May 1999. Seattle, Washington.

*Integrating POMDP and Reinforcement Learning for a Two Layer Simulated Robot Architecture*. Third International Conference on Autonomous Agents, May 1999. Seattle, Washington.

*Automatic Learning of Extended Actions in a Multi-Level Robot Architecture: Preliminary Results*. AAAI Fall Symposium on Planning with Partially Observable Markov Decision Processes, October 1998. Orlando, Florida.

*Learning to Race: Experiments with a Simulated Race Car*. Eleventh International Florida Artificial Intelligence Research Symposium Conference, July 1998. Sanibel Island, Florida.

*Reinforcement Learning for Coordinated Reactive Control*. Fourth World Congress on Expert Systems, March 1998. Mexico City, Mexico.

*Learning New Behaviors*. NSF Sponsored Workshop on Intelligent Agents, July 1997. Porto Alegre, Brazil.

*A Comparison between Cellular Encoding and Direct Encoding for Genetic Neural Networks*. Genetic Programming Conference, July 1996. Stanford University.

*Application of the Neural Ring Pattern Classifier to Speech Recognition*. Southeastern Region ACM Conference, 1991. Auburn University, Auburn, Alabama.

#### Patent

Marilyn V. Reyes and Larry D. Pyeatt. Interpretation of fluorescence fingerprints of crude oils and other hydrocarbon mixtures using neural networks. United States Patent 5424959, property of Texaco Inc., 1995.

**Grants Received** Larry D. Pyeatt. *Improved POMDP Solution Method*. Texas Tech Seed Grant, October 2008–2009. Award amount: \$21,000.

Sunanda Mitra and Larry Pyeatt. *Supplemental REU: CRCD: Machine Learning: A Multidisciplinary Computer Engineering Graduate Program*. NSF, February 2003-2004. Award amount: \$12,000.

Michael Parten, Larry Pyeatt, et al. *Plant Research in the EDU, Water Reuse/Recycling, Locomotion in Simulated Partial Gravity, and Human Centered Computing*. NASA, October 2003-2004. Award amount: \$2,250,000.

Michael Parten, Larry Pyeatt, et al. *Plant Research in the EDU (Engineering Development Unit)*. NASA - Johnson Space center, October 2002-2003. Award amount: \$1,675,000.

Daniel Cooke, Bryan Oldham, Michael Gelfond, Larry Pyeatt, Hector Hernandez, and Richard Watson. *Exploiting Inherent Features of Problem Solutions Leading to Improvements in Human-Centered Computing*. NASA, September 2002–2004. Award amount: \$701,130.

Larry D. Pyeatt. *Robotics Laboratory Infrastructure*. Sun Microsystems Academic Equipment Grant, August 2000–2002. Award Amount: \$15,250.

James P. Dunyak, Larry D. Pyeatt, and Sunanda Mitra. *Machine Learning: A Multidisciplinary Computer Engineering Graduate Program*. National Science Foundation CRCD Grant, January 2000–2003. Award amount: \$493,762. Proposal written by James Dunyak and Donald Wunsch.

#### International Service

**External Examiner** PhD defense of Adam Milstein, “Improved Particle Filter Based Localization and Mapping,” University of Waterloo, Waterloo, CA, March 5, 2008.



**Professional  
Service**

**Reviewer**

2010 Journal of Machine Learning Research  
2004 International Conference on Machine Learning  
2002 IASTED International Conference on Applied Informatics (AI 2003)  
2001 IEEE Transactions on Pattern Analysis and Machine Intelligence  
2001 International Symposium on Adaptive Systems  
2000 IEEE Transactions on Pattern Analysis and Machine Intelligence  
1999 Journal of Experimental and Theoretical Artificial Intelligence  
1999 IEEE Transactions on Knowledge and Data Engineering  
1998 American Journal of Mathematical and Management Sciences

**Program Committee**

2004 International Conference on Machine Learning  
2001 Third International Symposium on Adaptive Systems

**Departmental  
Service**

Associate department chair, TTU CS at Abilene 2007–present  
Lead Abilene branch of the Texas Tech Computer Science Department  
Developed strategy to increase student enrollment  
Developed strategy to increase research funding and productivity  
Developed strategy to recruit and retain top faculty  
Coached Programming Team 1999–2002  
Developed System Administrator Guidelines for the CS department network  
Developed System Usage Policies for the CS department network  
Served as graduate advisor 2000–2001  
Re-structured the degree requirements for MS degree  
Created new forms and procedures to improve consistency and help enforce requirements  
Worked to improve consistency in admissions  
Developed new leveling requirements and created mechanisms to ensure compliance  
Instituted policies that encourage students to take the thesis option  
Drove the creation of posters and brochures to recruit graduate students  
Improved the quality of our computer systems support  
Configured server to provide more reliable service  
Installed numerous software packages on server and clients  
Set up accounts for all students enrolled in CS courses  
Provided email lists for faculty, staff, and students  
Set up web-based system support request forms  
Provided systems support to other faculty, staff, and students  
Organized the UIL Computer Science competition at Texas Tech  
Served on faculty recruiting committees, 2001–2003  
Served on several M.S. thesis committees

**Courses Taught**

**Undergraduate**

Introduction to Systems Programming  
Introduction to Digital Logic  
Advanced Digital Projects  
Operating Systems  
Introduction to AI Robotics  
Programming Languages  
Senior Projects  
Introduction to Computer Science

## **Graduate**

Digital Forensics  
Computer Architecture  
Markov Decision Processes  
Reinforcement Learning  
Advanced Operating Systems  
Intelligent Systems  
Introduction to AI Robotics  
All-terrain Robotics

## **Graduate Students Advised**

### **Doctoral Students**

Brett Moore, expected graduation in May, 2010  
Mahdi Naser-Moghadasi, starting Fall, 2010  
Arisoa Randrianasolo, starting Fall, 2010  
Eddy Borera, starting Fall, 2010

### **Master's Students**

Mahdi Naser-Moghadasi, expected graduation in May, 2010  
Arisoa Randrianasolo, expected graduation in May, 2010  
Eddy Borera, expected graduation in May, 2010  
Nguyen Bach, expected graduation in May, 2010  
ChengCheng Li, graduated in May, 2005  
Srividya Kona, graduated in May, 2002  
Ajay Bansal, graduated in May, 2002  
Bharani Ellore, graduated in December, 2002  
Todd Quasny, graduated in December, 2003  
Julian Hooker, graduated in May, 2004  
Krishnan Pazhayanoor, graduated in December, 2004  
Karan Gupta, graduated in May, 2005  
Roger Coffey, expected graduation in May, 2009  
Derik Dalton, expected graduation in December, 2009  
Eddie Borera, expected graduation in May, 2010  
Arisoa Randrianasolo, expected graduation in May, 2010

## **References**

**Daniel Cooke**, Former Chair, Department of Computer Science, Texas Tech University, 302 Pine, Abilene, TX 79601. Telephone: (325)677-1112, Email: daniel.cooke@ttu.edu

**Donald C. Wunsch II**, M.K. Finley Distinguished Professor of Computer Engineering, Department of Electrical and Computer Engineering, 1870 Miner Circle, 131 Emerson Electric Company Hall, Rolla, MO 65409, Telephone: (573)341-4521, Email: dwunsch@mst.edu

**William M. Marcy**, Former Provost, Texas Tech University, Texas Tech University Department of Industrial Engineering, Lubbock, TX 79409-3061. Telephone: (806)742-3543, Email: william.marcy@ttu.edu

**Adele E. Howe**, Department of Computer Science, Colorado State University, Fort Collins, CO 80523. Telephone: (970)491-4192, Email: howe@cs.colostate.edu

**Robin R. Murphy**, Department of Computer Science and Engineering, 333 H.R. Bright Building, Texas A&M University, College Station, TX 77843-3112, Telephone: (979)845-2015, Email: murphy@cs.tamu.edu

**Henry Hexmoor**, Department of Computer Science, Southern Illinois University at Carbondale, Faner Hall, Room 2130, Carbondale, IL 62901, Telephone: (618)453-6047, Email: Hexmoor@gmail.com