

Larry D. Pyeatt, PhD

Curriculum Vitae

Department of Mathematics and Computer Science
South Dakota School of Mines and Technology
larry.pyeatt@sdsmt.edu

Education	Doctor of Philosophy in Computer Science Colorado State University, 1999 Dissertation: <i>Integration of Partially Observable Markov Decision Processes and Reinforcement Learning for Simulated Robot Navigation</i> Committee: Adele Howe (Chair), Charles Anderson, Darrell Whitley, Wade Troxell Master of Science in Computer Science Texas Tech University, 1991 Thesis: <i>Application of the Neural Ring Pattern Classifier to Speech Recognition</i> 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	Machine Learning, Neural Networks, Partially Observable Markov Decision Processes, Reinforcement Learning, Function Approximation, Bioinformatics, Agent Architectures, Real-time and Embedded Systems, Robotics
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
Professional Experience	Associate Professor South Dakota School of Mines and Technology, Rapid City, South Dakota, 8/2012–present. Research in Robotics, Partially Observable Markov Decision Processes, and Reinforcement Learning. Teach several graduate and undergraduate courses, in areas of Robotics, AI, Computer Forensics, and core Computer Science curriculum. Direct research work of graduate students.

Associate Professor Texas Tech University, Lubbock, 1/2006–7/2012. Research in Robotics, Partially Observable Markov Decision Processes, and Reinforcement Learning. Teach several graduate and undergraduate courses, in areas of Robotics, AI, Computer Forensics, and core Computer Science curriculum. Direct research work of graduate students.

Associate Department Chair Texas Tech University at Abilene, 8/2007 – 8/2010. 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.

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.

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. 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.

Senior Information Systems Programmer Texaco Inc., Houston 9/91–9/93. Applied Artificial Intelligence techniques to Texaco business needs.

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

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.

Textbooks Larry D. Pyeatt. *ARM 64-bit Assembly Language*. Elsevier Science (Newnes) *Under Contract*, October 2019. \approx 475 pages.

Larry D. Pyeatt. *Modern Assembly Language Programming with the ARM Processor*. Elsevier Science (Newnes), April 2016. 504 pages.

**Refereed
Journal
Articles**

Brett L Moore, Larry D Pyeatt, Vivekanand Kulkarni, Periklis Panousis, Kevin Padrez, and Anthony G Doufas. Reinforcement learning for closed-loop propofol anesthesia: A study in human volunteers. *Journal of Machine Learning Research*, 15:655–696, 2014.

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*, February 2011.

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**

Kyle Caudle, Larry Pyeatt, Patrick Fleming, and Randy Hoover. Flow field forecasting with many predictors. In *Proceedings of the 3rd International Conference on Compute and Data Analysis*, University of Hawaii Maui College, March 14–17 2019. ACM Press. ISBN 978-1-4503-6634-2.

Arisoa S. Randrianasolo and Larry D. Pyeatt. Predicting head-to-head games with a similarity metric and genetic algorithm. In *Proceedings of the Future Technologies Conference*, Vancouver, BC, Canada, November 2018. IEEE.

Kyle A. Caudle, Christer Karlsson, and Larry D. Pyeatt. Using density estimation to detect computer intrusions. In *Proceedings of the Fifth ACM Conference on Data and Application Security and Privacy (CODASPY)*, San Antonio, TX, March 2015. ACM, ACM Press.

Kyle A. Caudle, Christer Karlsson, and Larry D. Pyeatt. Multivariate wavelet density estimation for streaming data: A parallel programming approach. In *JSM Proceedings, Statistical Computing Section*, Boston, MA, August 2014. American Statistical Association.

Arisoa S. Randrianasolo and Larry D. Pyeatt. Q-learning: From computer network security to software security. In *Proceedings of the 13th International Conference on Machine Learning and Applications*, Detroit, Michigan, December 2014. IEEE, IEEE Press.

Arisoa S. Randrianasolo and Larry D. Pyeatt. A theoretical Q-Learning temporary security repair. In *Proceedings of the 2014 IEEE Symposium Series on Computational Intelligence*, Orlando, Florida, December 9–12 2014. IEEE, IEEE Press.

Arisoa Randrianasolo and Larry D. Pyeatt. An artificial immune system based on Holland’s classifier as network intrusion detection. In *Proceedings of the 4th International Conference on Agents and Artificial Intelligence (ICAART)*, Valamoura, Algarve, Portugal, February 2012. Institute for Systems and Technologies of Information, Control and Communication (INSTICC).

Arisoa Randrianasolo and Larry D. Pyeatt. Using local regression in Monte Carlo search tree. In *Proceedings of the 4th International Conference on Agents and Artificial Intelligence (ICAART)*, Valamoura, Algarve, Portugal, February 2012. Institute for Systems and Technologies of Information, Control and Communication (INSTICC).

Eddy C. Borera and Larry D. Pyeatt. Offline policy optimization: Using online Monte Carlo simulation-based techniques to deal with changes in dynamic environments. In *Proceedings on the IEEE International Conference on Intelligent Computing and Intelligent Systems (ICIS)*, Guangzhou, China, November 18–20 2011.

Eddy C. Borera, Brett L. Moore, Anthony G. Doufas, and Larry D. Pyeatt. An adaptive neural network filter for improved patient state estimation in closed-loop anesthesia control. In *Proceedings of the IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, Boca Raton, Florida, USA, November 7–9 2011.

Arisoa Randrianasolo and Larry D. Pyeatt. Applying context-based prediction in adversarial Watkins' $Q(\lambda)$ learning. In *Proceedings of the 2011 International Conference on Artificial Intelligence, ICAI 2011*, Las Vegas, Nevada, July 2011. CSREA Press.

Shubham Shukla and Larry D. Pyeatt. A guided learning algorithm for solving traveling salesman problem. In *Proceedings of the 2011 International Conference on Artificial Intelligence, ICAI 2011*, Las Vegas, Nevada, July 2011. CSREA Press.

Eddy C. Borera, Mahdi Naser-Moghadasi, Arisoa S. Randrianasolo, and Larry D. Pyeatt. POMDP filter: Pruning POMDP value functions with the Kaczmarz iterative method. In *Proceedings of the 9th Mexican International Conference on Artificial Intelligence (MICAI)*, pages 254–265, Pachuca, Mexico, November 2010. Springer.

Brett L. Moore, Periklis Panousis, Vivek Kulkarni, Larry D. Pyeatt, and Anthony G. Doufas. Reinforcement learning for closed-loop propofol anesthesia: A human volunteer study. In *Proceedings of the 22nd IAAI Conference*, Atlanta, GA, July 2010. AAAI Press.

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.

Tae hyung Kim, Larry D. Pyeatt, and Donald C. Wunsch II. Performance comparison of Z-learning to Q-learning for reconfigurable disruption tolerant routing. In *Proceedings of the Eleventh International Conference on Cognitive and Neural Systems (ICCNS)*, Boston University, Boston, MA, May 2007.

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.

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.

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.

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).

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. 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. 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.

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.

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. 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. 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. 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, 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.

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

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- 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** *A Theoretical Q-Learning Temporary Security Repair*. IEEE Symposium on Computational Intelligence, December 9–12 2014.
- Multivariate Wavelet Density Estimation for Streaming Data: A parallel programming approach*. Interface Symposium, April 2013. Presented by Kyle Caudle.
- A Guided Learning Algorithm for Solving the Traveling Salesman Problem*. 2011 International Conference on Artificial Intelligence, July 2011. Las Vegas, Nevada.
- 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.
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Pending Proposals	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.
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Grants Received	Kyle Caudle, Larry Pyeatt, Christer Karlsson, and Randy Hoover. <i>Optimization of Decision Trees by Delaying the Split Decision.</i> Naval Engineering Education Consortium (NEEC) Broad Agency Announcement (BAA) N00174-17-0001, February 2018. Total Awarded: \$188,000.
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Grants Received	Jeff McGough, Larry Pyeatt, Toni Logar, Mark Bedillion, and Randy Hoover. <i>Vertical Integration of Programming into Engineering Education.</i> SD Space Grant FY13-14 "Project Innovation Grant", February 2014. Total Awarded: \$25,313.
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Larry D. Pyeatt. *Improved POMDP Solution Method*. SDSM&T Foundation, May 2013. Award amount: \$5,000.

Larry D. Pyeatt. *Parallel Distributed POMDP Solution Methods*. Texas Tech Seed Grant, October 2008–2009. Award amount: \$21,000.

Sunanda Mitra and Larry Pyeatt. *Supplemental REU: CRCSD: 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 CRCSD Grant, January 2000–2003. Award amount: \$493,762.

Recent Proposals

Randy C. Hoover, Theodore Donovan, and Larry Pyeatt. *Design and Development of Humanoid Robotic System for STEM Recruitment, Engagement, and Retention*.

Larry D. Pyeatt, Kyle Caudle, and Jeff McGough. Threat detection using geospatial data with deep learning and statistical modelling. NSF, February 2017.

Larry D. Pyeatt, Jeff McGough, and Dan Dolan. *Heterogeneous Robotic Exploration Team*. SD Space Grant FY16-18 “Project Innovation Grant”, September 2016. Total Requested: \$30,948.

Larry D. Pyeatt, Jeff McGough, Paul Hinker, Christer Karlsson, and Charles Tolle. *Localization Using Phased Array SONAR*. SD Space Grant FY16-18 “Project Innovation Grant”, September 2016. Total Requested: \$27,198.

Kyle Caudle and Larry D. Pyeatt. *Detecting Computer Intrusions and Anomalies via Density Estimation*. White Paper for USAFA, March 2015.

Phil Ahrenkiel, Larry D. Pyeatt, Steve Smith, Elif Ertekin, John Ayers, Zhigang Wu, Qi Fan, Robert Walters, and Suhuai Wei. *Data-Enabled Design of Metamorphic Electronic Nanomaterials*. U.S. Department of Energy, February 2015. LOI was submitted, but the PI missed the deadline for full proposal. Waiting for another opportunity to submit it.

Kyle Caudle, Larry D. Pyeatt, and Christer Karlsson. *Change Detection in Multi-variate Data Streams*. SD Board of Regents Competitive Research Grant, 2014.

Larry Pyeatt, Jeff McGough, Kyle Riley, and Toni Logar. *Building a Better Engineer: Developing the Computing Skills Critical for Success*. NSF, February 2014.

Kyle Caudle, Larry D. Pyeatt, and Michael Frey. *Flow Field Forecasting in Pursuit of Optimal Resource Allocation*. White Paper for Office of Naval Research: Research Opportunity: Computational Methods for Decision Making, 2013.

Charles Tolle, Christian Widener, John Brockman, Patrick Pinhero, Bharat Jasthi, and Larry Pyeatt. *Accelerated Testing and Modeling of Environmentally Assisted Cracking (EAC) in Welded RPV Materials*. DOE-NEUP, May 2013. Total Requested: \$799,540.

Richard Gowen, Larry Pyeatt, Jeff McGough, Randy Hoover, and Dan Dolan. *QUIET Assurance System: A Process to Assure Quality, Integrity, and Trust in the Development of Multiplatform Autonomous Systems (pre-proposal)*. DARPA, February 2013.

Other Proposals

Mohan Sridharan and Larry D. Pyeatt. *POMDP-Based Planning of Visual Actions for Cognitive Mobile Robots*. NSF, December 2008. Request Amount: \$450,168.

Howard Curzer, Ed Youngblood, and Larry D. Pyeatt. *E-Conversations with the Socrates Bot: Users and A.I. Bots in an Electronic Classroom*. Texas Tech Seed Grant, October 2004. Request Amount: \$17,950.

Larry D. Pyeatt. *Improved POMDP Solution Method*. NSF Small Grant for Exploratory Research, December 2003. Request Amount: \$68,009.

Larry D. Pyeatt. *Value Function Approximation Techniques for Reinforcement Learning*. NSF Small Grant for Exploratory Research, December 2003. Request Amount: \$51,089.

Larry D. Pyeatt. *POMDP Decomposition and Planning for Large Domains*. NSF, December 2003. Request Amount: \$213,236.

Larry D. Pyeatt. *Robotic Systems for Unstructured Environments*. NASA, October 2003. Request Amount: \$359,996.

Larry D. Pyeatt. *SGR: REU: Improved POMDP Solution Method*. NSF, March 2003. Request Amount: \$70,605.

Theodore Weisner and Larry D. Pyeatt. *Chemical Process Synthesis Using Genetic Algorithms*. NSF, October 2002. Request Amount: \$954,479.

Alan Barhorst and Larry D. Pyeatt. *Tumbleweed Inspired Sensor Platforms for Martian Exploration*. NASA, August 2002. Request Amount: \$359,996.

Larry D. Pyeatt. *Value Function Approximation Techniques for Reinforcement Learning*. NSF, April 2002. Request Amount: \$51,349.

Larry D. Pyeatt. *Probabilistic Methods for Robots in Large Outdoor Environments*. NSF CAREER, June 2001. Request Amount: \$372,441.

Larry D. Pyeatt. *An Architecture for Reliable Robot Navigation*. NSF CAREER, July 2000. Request Amount: \$507,740.

Larry D. Pyeatt. *Effect of Equipment Availability on Research and Education in Computer Science*. NSF CISE Research Infrastructure, January 2000. Request Amount: \$1,059,895.

Daniel Cooke, Larry D. Pyeatt, et al. *Acquisition of Computational Facilities to Support Research into the Application of SequenceL Language to the Development of Parallel Finite Element Code*. NSF, January 2000. Request Amount: \$154,188.

Departmental Service **Programming Team Coach 2016-2017** Ran mock competitions and managed study sessions for the programming teams. Determined which students would be on each team. Managed registration for the competition and ran the competition site.

Managed Senior Design Team 2015-2016 We are working on coordinated control of an autonomous quad-rotor and an unmanned ground vehicle to assist in fighting forest fires.

2013 International Electro/Information Technology Conference

Worked as Reviewer

Served as Session chair

Participated in preparation for ABET accreditation 2013

Assisted with West River Math Contest 2012 and 2013

Coached Programming Team 2012–Present

CSC and CSR Curriculum Committees 2012–Present

Associate department chair, TTU CS at Abilene 2007–2010

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

Department Unix Administrator 1999–2008

Developed System Administrator Guidelines for the CS department network

Developed System Usage Policies for the CS department network

Configured servers 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

Coached Programming Team 1999–2002

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

Organized the UIL Computer Science competition 1999-2005

Served on faculty recruiting committees 2001–2003

Served on multiple M.S. thesis committees 2000–Present

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

Program Committees

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

Professional Service **Reviewer**

- 2014 Textbook Reviewer for Elsevier
- 2013 IEEE Transactions on Neural Networks and Learning Systems
- 2013 Chemical Engineering Science
- 2013–2014 Journal of Advances in Robotics and Automation (served on editorial board)
- 2012 International Conference on Artificial Intelligence
- 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

**Courses
Taught**

Undergraduate

Introduction to Robotics (CSC 415/515)
Assembly Language (CSC/CENG 314)
Computer Science I (CSC 150)
Computer Organization and Architecture (CSC 317)
Senior Design (CSC 465)
Introduction to Systems Programming
Introduction to Digital Logic
Advanced Digital Projects
Operating Systems
Introduction to AI Robotics
Programming Languages

Graduate

Introduction to Robotics (CSC 415/515)
Digital Forensics
Computer Architecture
Markov Decision Processes
Reinforcement Learning
Advanced Operating Systems
Intelligent Systems
Introduction to AI Robotics
All-terrain Robotics

**Graduate
Students
Advised**

Master's Students

Derek Stotz, Expected Graduation in 2016
Tetsuya Idota, Graduated May, 2015
Amit Yadav, Graduated May, 2012
Shubham Shukla, graduated in May, 2011
Mahdi Naser-Moghadasi, graduated in May, 2010
Arisoa Randrianasolo, graduated in May, 2010
Eddy Borera, graduated in May, 2010
Nguyen Bach, graduated in May, 2010
Derik Dalton, graduated December, 2009
Roger Coffey, graduated May, 2009
ChengCheng Li, graduated in May, 2005
Karan Gupta, graduated in May, 2005
Krishnan Pazhayanoor, graduated in December, 2004
Julian Hooker, graduated in May, 2004
Todd Quasny, graduated in December, 2003
Bharani Ellore, graduated in December, 2002
Srividya Kona, graduated in May, 2002
Ajay Bansal, graduated in May, 2002

Doctoral Students

Eddy Borera, expected Graduated December 2012

Arisoa Randrianasolo, Graduated May 2012

Brett Moore, Graduated April, 2010