Larry D. Pyeatt, PhD
Curriculum Vitae

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Abilene, Texas 79605
larry.pyeatt@ttu.edu

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

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

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 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. The strategic plan is currently being implemented, and has already shown some results.

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 projects in collaboration with Donald Wunsch. The projects involved optimal routing in disruption tolerant netorks and threat detection and evaluation using smart sensors. Both projects are continuing through the summer of 2006.

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.

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.

Refereed Journal Articles

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.

Larry D. Pyeatt and Bharani K. Ellore. Dynamically expanding evidence grids. *IEEE Transactions on Robotics and Automation*, 2004. Under Review.

Refereed Conference Papers

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 (IIIS).

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

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.

Unfunded Proposals

W.J. Bryan Oldham and Larry D. Pyeatt. *Self-Organization of Twice-Multilayered Networks for Data Mining in High-Dimensional Problems*. U.S. Civilian R&D Found for Ind States of FSU, September 1999. Request Amount: $154,188.

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.

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.

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

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

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

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

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

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

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

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

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

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

Departmental Service

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

Professional Service

Reviewer
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

Courses Taught

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

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

Graduate Students Advised

Doctoral Students

ChengCheng Li, graduated in May, 2005
Todd Quasny, expected graduation in May, 2006
Robert Watson, expected graduation in May, 2007
Pradeep Jeya, expected graduation in May, 2008

Master's Students

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

References

Adele E. Howe, Department of Computer Science, Colorado State University, Fort Collins, CO 80523. Telephone: (970) 491–7589 Email: howe@cs.colostate.edu

Robin R. Murphy, Department of Computer Science and Engineering, University of South Florida, 4202 East Fowler Ave ENB342, Tampa, FL 33620-5399, Telephone (813) 974-3652, Email: murphy@csee.usf.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@ece.umr.edu

Larry D. Pyeatt
Statement of Research Interests

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My main research interests are probabilistic AI techniques and mobile robot navigation in complex unstructured environments. My most recent work deals with robust control and learning for partially observable, uncertain, and non-stationary environments. Recently, there have been some efforts to apply probabilistic AI techniques in bioinformatics. I am planning to submit a grant proposal in that area in the near future. My research interests can be divided into three general areas:

Probabilistic Techniques: I am investigating partially observable Markov decision process (POMDP) techniques. My research in this area is aimed at efficiently finding exact and approximate policies for POMDP problems. So far, the application domain for this work has been autonomous mapping and navigation of indoor environments. I have selected bioinformatics as another application domain and have begun initial investigation in that area. In the robotics domain, my next goal is to extend the current techniques to work in large outdoor environments. Outdoor robotics pose several grand challenges in the area of mobile robotics. To encapsulate these issues into a single problem, my research group is developing a campus tour guide robot.

Sensor Modeling: In order to use the probabilistic mapping techniques, it is necessary to convert a stream of sensor data into a stream of local maps. Data from multiple local maps, possibly generated from different sensors, can be fused to form a global map. For some sensors, such as laser and sonar, the sensor model is well understood and easy to implement. However, no good model for stereo vision exists. Students in my lab are working on this problem.

Learning Actions: The behaviors that humans perform are quite often either completely reflexive or were learned at an early age and have since become reflexive in nature. Higher level behaviors are ordered sets of these sub-cognitive behaviors. We are developing solutions for learning these low-level sub-cognitive behaviors in order to provide them to intelligent agents for ordering in high-level behaviors. For my dissertation work, I developed a framework for using POMDP based navigation with reinforcement learning (RL) to provide adaptive low-level actions. This work was a proof of concept and was done completely in simulation. Most of my current work is aimed at extending the architecture to run on a real robot.

My future research plans involve continued effort in learning and control, and application of probabilistic techniques in domains other than robotics. In particular, I am interested in applying probabilistic machine learning techniques in bioinformatics. I have also begun investigating distributed computing and adaptive wireless networks to support computation and communication between computers, sensors, and robots. I would also enjoy working on issues of human-robot interaction, including gesture recognition, learning through imitation, and understanding high-level spoken commands.

Larry D. Pyeatt
Statement of Teaching Interests

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I take teaching very seriously and strive to do the best job that I can. I have worked in industry and routinely bring that experience to the classroom to help prepare students to enter the workforce. Several students have attributed their success in industry to taking one or more of my classes. My overall philosophy of teaching can be described as follows:

Continuous Improvement: Not only is Computer Science a rapidly changing field, but new pedagogies are being developed all of the time. If a course does not change, then it becomes outdated. This is true of any field, but especially true for Computer Science. Thus, I work for continuous improvement in my course materials, content, and teaching style. This applies to not only the classes that I am teaching, but also to my duty to help determine and improve the curriculum for the department.

Active Learning: Active learning gets the student involved so that they learn the material at a deeper level than rote memorization. In-class discussions and course projects are excellent ways to involve the students. The homework and projects should be chosen carefully to reinforce the most important concepts in the course. As students progress and mature, they should take more of the responsibility for learning. At some point, they can become their own teachers. That is the point at which they are truly educated.

Appropriate Rewards: Students should get the grade they earn. What most students want is to get the highest possible grades for the least amount of work. That is natural and should be expected. However, teachers have a responsibility to display fairness and integrity. It is important to set expectations, tell the students what the expectations are and tie grades to how well the students meet those expectations.

Courses that I enjoy teaching include robotics, artificial intelligence, digital logic, architecture, operating systems, assembly language, and real-time systems. Courses that I would like to teach if given the opportunity include genetic algorithms, speech recognition, planning, machine vision, Markov decision processes, discrete mathematics, data structures, system administration, and compiler construction. In addition to these preferences, I am competent and willing to teach any traditional computer science core course at either the undergraduate or graduate level.

My greatest teaching achievement involves a student who had a low GPA and was in danger of dropping out of the program. He indicated that he was interested in robotics, so I told him that I would work with him on two conditions: he was to make a 4.0 GPA in the coming semester, and meet with me weekly for an independent study in reinforcement learning. At the end of the semester, he had achieved all A's and had a good basic understanding of reinforcement learning. More than that, our relationship had developed into a mentorship. By Fall of his senior year, he was doing research. He published his first paper as a senior and has published another in his first year of graduate school. Not only has he blossomed academically, but he has decided to work towards a PhD. He is on the road to becoming an excellent researcher and has begun mentoring the other students in my lab. My mentorship of him has given me a new perspective on teaching and advising: Some students need a teacher to get them interested and involved, and I can be that teacher. Nothing could be more personally rewarding.