

Curriculum Vitae

Kurt D. Krebsbach

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CURRENT POSITION

Associate Professor of Computer Science, 2002 – present.
Lawrence University, Appleton, Wisconsin. Tenure granted 2007.

European Masters of Informatics (EuMI) Scholar, 2007-2009.
School of Informatics at the University of Edinburgh, Scotland. Also supported by EuMI partner universities - RWTH University Aachen, Germany, and the Università degli Studi di Trento, Italy.

EDUCATION

University of Minnesota, Minneapolis, MN (9/85 – 7/93)
Ph.D., Computer and Information Sciences, July, 1993
M.S., Computer and Information Sciences, July, 1988
Advisor: Dr. Maria Gini (Computer Science)
Minor in related fields (primarily Cognitive Science)
Selected Course List:

Artificial Intelligence I & II, AI Programming Techniques, Topics in AI: Expert Systems, Topics in AI: Robotics, Topics in AI: Planning Systems, Principles of Database Systems, Automata Theory, Formal Language Theory, Theories of Learning and Cognition, Psychology of Language.

Lawrence University, Appleton, WI (9/81 – 6/85)
B.A., Mathematics and Computer Science, 1985
B.A., Music, 1985
Summa cum laude in thesis
Magna cum laude in course
Phi Beta Kappa

DISSERTATION

Title: *A Decision-Theoretic Approach to Sensor-Based Task Planning*
Keywords: Artificial Intelligence, Task Planning, Decision Theory, Reasoning about Sensors
Date: June, 1993
Abstract:

This dissertation work involves applying decision theoretical techniques and analysis to the general problem of task planning with sensors. In particular, I provide experimental data and theoretical analyses of several planning domains (involving both reversible and irreversible actions), and suggest a method for using the results to improve a planner's performance from both success-based and cost-based perspectives. Finally, since exhaustive techniques become intractable for even a modest degree of environmental uncertainty, I suggest ways to make the comparison of potential solutions computationally feasible.

JOURNAL PAPERS

Robert P. Goldman, David J. Musliner, and Kurt D. Krebsbach,
Managing Online Self-Adaptation in Real-Time Environments, Springer-Verlag Lecture Notes on Computer Science, Edited by R. Laddaga, P. Robertson, and H. Shrobe, LNCS 2614, pp. 6-23, 2003.

David J. Musliner, Robert P. Goldman, Michael J. Pelican, and Kurt D. Krebsbach,
Self-Adaptive Software for Hard Real-Time Environments, IEEE Intelligent Systems, vol 14, number 4, pp. 23-29, July/August 1999.

PEER-REVIEWED CONFERENCE PAPERS

D. Musliner, M. Pelican, R. Goldman, K. Krebsbach, and E. Durfee,
The Evolution of CIRCA, a Theory-Based AI Architecture with Real-Time Performance Guarantees, Proceedings of the AAAI Spring Symposium on Architectures for Intelligent Theory-Based Agents, Stanford University, Palo Alto, CA, March 26-28, 2008.

Duncan McKee¹ and Kurt Krebsbach,
A Learning Natural Language Parser, Proceedings of the Midwest Instruction in Computing Symposium (MICS), University of Wisconsin-Lacrosse, Lacrosse, WI, April 11-12, 2008.

Benjamin H. Willard¹ and Kurt D. Krebsbach,
Map-Making with a Four-Legged Mobile Robot, Proceedings of the AAAI Spring Symposium on Robots and Robot Venues: Resources for AI Education, Stanford University, Palo Alto, CA, March 26-28, 2007.

Kurt D. Krebsbach,
Stochastic Deliberation Scheduling using GSMDPs, Proceedings of the Florida Artificial Intelligence Research Society's International Conference (FLAIRS 2006), Special Track on Uncertain Reasoning, Melbourne Beach, FL, May 11-13, 2006.

Kurt D. Krebsbach,
Other Agents' Actions as Asynchronous Events, Proceedings of the AAAI Spring Symposium on Distributed Plan and Schedule Management, Stanford University, Palo Alto, CA, March 27-29, 2006.

Kurt D. Krebsbach and David J. Musliner,
Projection and Reaction for Decision Support in Refineries: Combining Multiple Theories, Proceedings of the AAAI Spring Symposium on Challenges to Decision Support in a Changing World, Stanford University, Palo Alto, CA, March 21-23, 2005.

David J. Musliner, Robert P. Goldman, and Kurt D. Krebsbach,
Deliberation Scheduling for Planning in Real-Time, Proceedings of the AAAI Spring Symposium on Metacognition in Computation, Stanford University, Palo Alto, CA, March 21-23, 2005.

David J. Musliner, Robert P. Goldman, and Kurt D. Krebsbach,
Deliberation Scheduling Strategies for Adaptive Mission Planning in Real-Time Environments, International Workshop of Self-Adaptive Software 2003 (IWSAS '03), Rosslyn, VA, June 9-11, 2003.

Kurt D. Krebsbach and David J. Musliner,
Plant + Control System + Human: Three's a Crowd (Extended Abstract), Proceedings of the AAAI Spring Symposium on Human Interaction with Autonomous Systems in Complex Environments, Stanford University, Palo Alto, CA, March 24-26, 2003.

¹Denotes Lawrence undergraduate author.

David J. Musliner, Michael J.S. Pelican, and Kurt D. Krebsbach,
Building Coordinated Real-Time Control Plans, Proceedings of the Third International NASA Workshop on Planning and Scheduling for Space, Houston, TX, October 27-29, 2002.

Kurt D. Krebsbach,
Coordinated Deliberation Management in Multi-Agent CIRCA (Extended Abstract), Working Notes of the AAI Spring Symposium on Collaborative Learning Agents, Palo Alto, CA, March 2002.

Robert P. Goldman and David J. Musliner and Kurt D. Krebsbach,
Managing Online Self-Adaptation in Real-Time Environments, Proceedings of the Second International Workshop on Self Adaptive Software, Balatonfured, Hungary, May, 2001.

Kurt D. Krebsbach and David J. Musliner,
You Sense, I'll Act: Coordinated Preemption in Multi-Agent CIRCA Working Notes of the AAI Fall Symposium on Negotiation Methods for Autonomous Cooperative Systems, North Falmouth, MA, November, 2001.

David J. Musliner and Kurt D. Krebsbach,
Multi-Agent Mission Coordination via Negotiation, Working Notes of the AAI Fall Symposium on Negotiation Methods for Autonomous Cooperative Systems, North Falmouth, MA, November, 2001.

David J. Musliner and Kurt D. Krebsbach,
Adjustable Autonomy in Procedural Control for Refineries, Working Notes of the AAI Spring Symposium on Adjustable Autonomy, Palo Alto, CA, March 1999.

Kurt D. Krebsbach and David J. Musliner,
A Procedural Approach to Abnormal Situation Management in Refineries, Poster session, Chemical Engineers Annual Meeting (AIChE '98), Miami Beach, FL, November 1998.

David J. Musliner and Kurt D. Krebsbach,
Applying a Procedural and Reactive Approach to Abnormal Situations in Refinery Control, Intelligent Systems Track, Foundations of Computer-Aided Process Operations (FOCAPO '98), Snowbird, UT, July 1998.

D. Musliner, K. Krebsbach, M. Pelican, R. Goldman, and M. Boddy,
Issues in Distributed Planning for Real-Time Control, Working Notes of the AAI Fall Symposium on Distributed Continual Planning, Orlando, FL, October 1998.

Robert P. Goldman, David J. Musliner, Mark S. Boddy, and Kurt D. Krebsbach,
Abstraction for Real-Time Intelligent Control, Working Notes of the Symposium on Abstraction, Reformulation and Approximation (SARA '98), Pacific Grove, CA, May, 1998.

Robert P. Goldman, David J. Musliner, Kurt D. Krebsbach, and Mark S. Boddy,
Dynamic Abstraction Planning, AAI '97, Providence, Rhode Island, July 1997.

Kurt D. Krebsbach and David J. Musliner,
A Refinery Immobot for Abnormal Situation Management, AAI '97 Workshop on Robots, Softbots, and Immobots: Theories of Action, Planning, and Control, Providence, Rhode Island, July 1997.

Robert P. Goldman, David J. Musliner, Mark S. Boddy, and Kurt D. Krebsbach,
The CIRCA Model of Planning and Execution, AAI '97 Workshop on Robots, Softbots, and Immobots: Theories of Action, Planning, and Control, July 1997.

David J. Musliner, Mark S. Boddy, Kurt D. Krebsbach, and Robert P. Goldman,
The Link Between Distributed Planning and Abstraction, Working Notes of the 1997 AAI Fall Symposium on Model-Directed Autonomous Systems, October, 1997.

Mark S. Boddy and Kurt D. Krebsbach,
Hybrid Reasoning for Complex Systems, AAAI Fall Symposium on Model-Directed Autonomous Systems, Cambridge, MA, October, 1997.

David J. Musliner and Kurt D. Krebsbach,
Planning for Murphy's Law: Uncertainty in CIRCA, Working Notes of AAAI Spring Symposium on Planning with Incomplete Information for Robot Problems, Palo Alto, CA, March 1996.

Edward Sobiesk, Kurt Krebsbach, and Maria Gini,
Over-Constrained Scheduling Using Dynamic Programming, Proceedings of the Artificial Intelligence and Manufacturing Research Planning Workshop, Albuquerque, NM, pp. 195-201, June 24-26, 1996.

Kurt Krebsbach and Maria Gini,
Dynamic Sensor Policies, AAAI Spring Symposium on Detecting and Resolving Errors in Manufacturing Systems, pp. 74-80, Stanford University, Stanford, CA, March 25-27, 1994.

Kurt Krebsbach, Duane Olawsky, and Maria Gini,
Sensing and Deferral in Planning: Empirical Results, Working Notes of the Selective Perception Workshop: AAAI Spring Symposium Series, Stanford University, Stanford, CA, March 25-27, 1992.

Kurt Krebsbach, Duane Olawsky, and Maria Gini,
An Empirical Study of Sensing and Defaulting in Planning, In J. Hendler, editor, Artificial Intelligence Planning Systems: Proceedings of the First International Conference (AIPS-92), College Park, Maryland, June, 1992, Morgan Kaufmann Publishers, San Mateo, CA.

TECHNICAL REPORTS

Kurt D. Krebsbach, David J. Musliner, Kyle S. Nelson, and Robin R. Penner,
SARA: The Search and Rescue Associate, Honeywell Technology Center, 1997.

David J. Musliner, Robert P. Goldman, Mark S. Boddy, and Kurt D. Krebsbach,
Distributed CIRCA: Guaranteeing Coordinated Behavior in Distributed Real-Time Domains., Technical Report SST-R97-030, Honeywell Technology Center, October, 1997.

David J. Musliner and Kurt D. Krebsbach,
1995 IR&D Project Report: Planning for Intelligent Real-Time Control, Honeywell Technology Center, 1995.

Duane Olawsky, Kurt Krebsbach, and Maria Gini,
An Analysis of Sensor-Based Task Planning (version 2.0), Technical Report 95-051, University of Minnesota Department of Computer Science, Minneapolis, MN, July, 1995.

Kurt Krebsbach,
Rational Sensing for an AI Planner: A Cost-Based Approach, Ph.D. Thesis, Department of Computer Science, University of Minnesota, June, 1993.

Duane Olawsky, Kurt Krebsbach, and Maria Gini,
An Analysis of Sensor-Based Task Planning, Technical Report 93-43, University of Minnesota Department of Computer Science, Minneapolis, MN, June, 1993.

Kurt Krebsbach, Duane Olawsky, and Maria Gini,
Deferring Task Planning in the Tool Box World: Empirical Results, Technical Report TR 91-60, University of Minnesota Department of Computer Science, Minneapolis, MN, December, 1991.

INVITED TALKS

Invited talks do not involve a particular conference, paper, or project.

Kurt Krebsbach, *Artificial Intelligence: Oxymoron or New Frontier?*, Lunch at Lawrence Lecture Series, Lawrence University, March, 2007.

Kurt Krebsbach, *Planning to Plan: Deliberation Scheduling Using GSMDPs*, Science Hall Colloquium Series, Lawrence University, April 2006.

Kurt Krebsbach, *Adjustable Autonomy in Procedural Control for Refineries*, AI Seminar Schedule, Computer Sciences Department, University of Wisconsin, Madison, February, 2001.

Kurt Krebsbach, *The Thinking Machine: How to Think Straight about AI*, Science Hall Colloquium Series, Lawrence University, April, 1996.

Kurt Krebsbach, *Current Issues in Planning Research*, NSF-sponsored UGAI Workshop, Temple University, June, 1994.

Kurt Krebsbach, *Task Planning With Sensors*, Pennsylvania Area Computer and Information Science Educators (PACISE) Spring Conference, Slippery Rock University, March, 1994.

RESEARCH WITH UNDERGRADUATES

Senior Independent Study: Duncan McKee, Fall, 2007

A Learning Natural Language Parser: Duncan developed a learning algorithm to parse English sentences into their X-bar parse trees. He expanded the model to learn to disambiguate parses over time via feedback from a user as to which parse was intended in each earlier case. This IS was turned into a paper and accepted and presented at the MICS conference (see *Peer-Reviewed Conference Papers*).

Senior Independent Study: Dan Zwell, Fall and Winter, 2007-2008

Genetic Evolution of Game Playing Strategies: Over the course of two terms, Dan studied the competence of genetic programming to evolve neural networks in a domain – the game Go-moku – with a large problem space. Two types of neural networks were trained and compared, including one with a fixed structure and another with a self-adaptive structure.

Senior Independent Study: Kendrick Boyd, Winter, 2007

A Comparison of Fitness Evaluations for Genetic Algorithms in Adversarial Games: Using tic-tac-toe as a fairly straightforward domain, Kendrick pitted random players against a competent (but sub-optimal) player and “bred” future generations of tic-tac-toe players by “mating” pairs of individuals that were deemed the most “fit,” (i.e., performed the best against the competent opponent). He showed that over time the population grew more competent to a point and then did not improve any more, offering several reasons why that might be so given this domain and these fitness functions.

Senior Independent Study: Ben Willard, Academic Year 2006-07

Map-Making with a Four-Legged Mobile Robot: Ben investigated methods for enabling a Sony AIBO robot to autonomously map unknown hallway environments. The result was a fully-implemented framework incorporating a sophisticated occupancy grid-based mapper and a state machine-based controller governing the robot’s walking behavior and head movement. This independent study (and grant) led to a joint peer-reviewed paper and presentation (see *Peer-Reviewed Conference Papers*).

Senior Independent Study: Deana Brown, Winter, 2007

Treasure-Hunting with a Mobile Robot: Deana used a Lego Mindstorms NXT Robotic Invention Kit to build and program a robot capable of following paths, sensing and interpreting en route, rejecting apparent but false goals, and recognizing actual goals. She overcame many technical problems with the inexpensive robot by diligently and creatively devising alternative solutions.

Senior Independent Study: Daniel Casner, Winter, 2006

Robot Planning: Daniel did a superb job of combining AI-style planning (with Sensory Graphplan) with the mid-level Tekkotsu software from Carnegie-Mellon University to control an AIBO robot. Dan’s robot was able to identify a pink ball, retrieve it, and deliver it to a specified destination starting with no information about the initial state.

Senior Independent Study: Daniel Casner and Ben Willard, Spring, 2006

Mobile Robot Cooperation and Navigation: Dan and Ben used the opportunity of having 2 AIBO robots at their disposal to implement multi-robot coordination algorithms. The robots use real-time information obtained from the sensors of both robots to communicate wirelessly to arrange and execute a rendezvous.

Senior Independent Study: Tatiana Plaxina, Winter, 2005

Pattern Recognition: Tatiana designed and implemented a neural network to recognize alphabetic characters despite corrupted or incomplete input data.

Senior Independent Study: Matt Kruse, Fall, 2004

Chess AI: Emulating a Mind: Matt designed and implemented a system to play chess.

One version was designed to play based on AI min-max search techniques while another used a model of his own intuition.

Summer Research Grant, Summer, 2003

Lawrence University provided this award to fund a summer research assistant, **Nabeeha Mohammed**, to assist in several summer research projects in the area of heuristic search and automated planning. Award: \$3000. This grant resulted in a student presentation entitled "*Artificial Intelligence: Search and Graphplan*," at the following venues:

- The PEW Midstates Undergraduate Research Symposium in the Physical Sciences and Mathematics, University of Chicago, November 14-16, 2003.
- Lawrence University Science Hall Poster Session, May 24, 2004.

Senior Independent Study: Nabeeha Mohammed, Winter, 2003

Web-Based System Design: Nabeeha analyzed the current Lawrence Phonathon (paper) system for soliciting alumni donations, and designed and implemented a web-based system to improve and streamline many of the functions.

OTHER ACADEMIC ACTIVITIES

Enhancing Academic Distinctiveness Grant: MICS Conference, Spring, 2008

On behalf of seniors Duncan McKee '08, and Stephen Marquis, '08, we received an *Enhancing Distinctiveness Grant* to defray costs associated with attending the Midwest Instruction in Computing Symposium (MICS), held at the University of Wisconsin-Lacrosse, Lacrosse, WI, April 11-12, 2008. Duncan both gave excellent talks on their papers, as well as placing 2nd of 42 teams in the programming competition to claim a \$300 prize. This was all the remarkable as they played as a team of 2 undergraduates, when most other teams were 3 students, including graduate students.

Conference Grant, March, 2008

Lawrence University provided reimbursement to attend the AAAI Spring Symposium workshop entitled *Architectures for Intelligent Theory-Based Agents* at Stanford in which I co-authored an accepted paper called *The Evolution of CIRCA, a Theory-Based AI Architecture with Real-Time Performance Guarantees*. Due to unforeseen circumstances, the travel money was instead used to travel to the AAAI national conference in Chicago, July, 2008.

Conference Grant, March, 2007

Lawrence University provided reimbursement to attend the AAAI Spring Symposium workshop entitled *Robots and Robot Venues: Resources for AI Education* at Stanford in which I co-authored an accepted paper called *Map-Making with a Four-Legged Mobile Robot*.

Scholarly Distinctiveness Grant: Mobile Robotics, Summer, 2006

Kurt Krebsbach, associate professor of computer science, and senior Ben Willard '07, received a Scholarly Distinctiveness Grant of \$9000 for Mobile Robot Control that began in January 2006 and culminated in a year-long independent study project and a joint paper published and presented in the 2007 AAAI Spring Symposium at Stanford University in March, 2007. The grant provided funds for one Sony AIBO robot, a laptop for programming and control, and a stipend to allow Ben to work full-time on this project throughout the summer of 2006.

Referee and Program Committee Member

Florida Artificial Intelligence Research Society Annual Conference (FLAIRS '07), Key West, FL, May 7-9, 2007.

Conference Grant, May, 2006

Lawrence University provided reimbursement for travel to the FLAIRS '06 conference to present the paper, *Stochastic Deliberation Scheduling Using GSMDPs*, for the Special Track in Uncertain Reasoning. (Chair: Dan Wu, University of Windsor, Canada).

Conference Grant, March, 2006

Lawrence University provided reimbursement for travel to the AAAI Spring Symposium Series to present the paper, *Other Agents' Actions as Asynchronous Events*, for the workshop entitled "Distributed Plan and Schedule Management" I was also asked to serve with two other speakers on a 90-minute panel on the topic of "Meta-Level Reasoning." (Chair: Edmund Durfee, University of Michigan).

Conference Grant, March, 2005

Lawrence University provided reimbursement for travel to the AAAI Spring Symposium Series to present the paper, *Projection and Reaction for Decision Support in Refineries: Combining Multiple Theories*, for the workshop entitled "Challenges to Decision Support in a Changing World." I was also asked to serve with three other speakers on a 90-minute panel entitled: "Challenges Posed by the Changing World" (Co-Chairs: Marek Druzdzal, University of Pittsburgh and Tze-Yun Leong, National University of Singapore).

Referee, International Joint Conference on Artificial Intelligence, Edinburgh, Scotland, UK, July 30-August 5, 2005.

Conference Grant, March, 2003

Lawrence University provided reimbursement for travel to the AAAI Spring Symposium Series to present the paper, “*Plant + Control System + Human: Three’s a Crowd*”, for the workshop entitled “Human Interaction with Autonomous Systems in Complex Environments.”

PEW Faculty Development Workshop, November, 2002

This workshop, entitled *Computer Science in the Next Decade*, was held at Hope College in Holland, MI, and addressed three areas of critical concern to computer science faculty: hiring and retaining faculty at undergraduate institutions, designing the introductory CS sequence, and attracting women and minorities to computer science. Funded by the PEW Midstates Science and Mathematics Consortium.

Referee, International Conference on Robotics and Automation, Washington D.C., May 11-15, 2002.

Referee, Hawaii International Conference on System Sciences, Emerging Paradigms for Intelligent Systems track, HICSS-31, Kohala Coast, Hawaii, January 6-9, 1998.

Referee, Hawaii International Conference on System Sciences, Emerging Paradigms for Intelligent Systems track, HICSS-28, University of Hawaii, January 3-6, 1995.

Faculty Professional Development Grant: Curriculum Development,

Shippensburg University, Pennsylvania State System of Higher Education (6/94–8/94).

In its ninth year, the SSHE made awards to deserving faculty members in a variety of instructional, research, and service categories, based on the merit of the grant proposal. In 1994, 83 of 239 proposals were funded. My proposal was in the Curriculum Development category, was entitled *Computer Lab Development for the Artificial Intelligence Course*, and provided \$4200 for necessary software and a small summer stipend.

Faculty Professional Development Grant: Joint Student-Faculty Research,

Shippensburg University, PA SSHE (5/95 – 7/95).

This fully-funded proposal was submitted in the Joint Student-Faculty Research category and was entitled *Designing Softbots: Intelligent Software Robots for Automated Maintenance of Computer Networks*. It involved a junior undergraduate with an excellent background in networks but who is new to AI problem-solving techniques. Funding level: \$6009.

NFS-sponsored Workshop: Teaching an Undergraduate Course in Artificial Intelligence Given Limited Resources, Temple University, June, 1994.

Sponsored by the National Science Foundation, this week-long workshop involved twenty selected undergraduate educators (from almost twenty institutions) and five organizers (from Temple, Drexel, and Villanova Universities). The participants had the broad goal of seeking innovative yet realistic ways to teach a first course in Artificial Intelligence, given reasonably limited resources. The participants also met for two “reflection days” in the fall and spring to compare notes. In addition, a growing repository of free AI course materials developed by members of the group is now available online via FTP and Mosaic.

TEACHING EXPERIENCE

Associate Professor of Computer Science

Department of Mathematics, Lawrence University, Appleton, Wisconsin.

Lectures include seven hours per week (2 courses) per term for a total of six courses per three-term academic year. Other duties include grading, office hours, preparing assignments and exams, maintenance of course web sites, conducting publishable research, advising students, involving students in undergraduate research, and serving on departmental and University committees.

Courses:

Artificial Intelligence (W04, W06, W08)

Freshman Studies (F03, F04, F05, F06)

Programming Languages (F02, F03, F05, F07)

Data Structures (S06, S07, S08)

Systems Analysis and Design (W03, W05, W07)

Exploring Computer Science (W03, W04, F04, W06, F06, F07)

Introduction to Computer Science (Java) (S03(2), S04(2), S06, S07, S08)

Computer Science Senior Seminar (W07, W08)

Advanced Topics in Computing (W08)

Adjunct Professor

Department of Computer Science, University of Minnesota, Minneapolis, MN.

Duties include 3 hours of lecture and 2 hours of office hours per week, preparation of all course materials, maintenance of course web site, management of grading teaching assistants, and coordination with Unite (University Television) office for off-campus students enrolled in course. Enrollment in course was nearly 100 students.

Courses:

Artificial Intelligence (F96)

Assistant Professor

Department of Math and Computer Science, Shippensburg University of Pennsylvania.

Duties include 12 hours of lecture per week per semester, grading, office hours, preparing assignments and exams, writing grant proposals, conducting publishable research, advising students involving students in undergraduate-level research, serving on departmental and University committees, and serving on the graduate faculty in both the Computer Science and Information Systems Master's program.

Courses:

Programming Languages (Semesters: F94)

Artificial Intelligence (S95)

Database Systems (F93, graduate and undergraduate)

Structured Computer Programming (F94, S95)

Computer Science for Liberal Studies (F93, S94)

Introduction to Algebra (S94)

Systems Development Projects (S94, S95, graduate)

Lecturing Teaching Assistant

Computer Science Department, University of Minnesota, Minneapolis, MN.

Duties include lecturing, grading, holding office hours, managing graders, and preparing assignments and exams.

Courses:

A FORTRAN Introduction to Computer Programming

(Quarters: F90, Sum91 (2 sessions), W92, S92, Sum92, F92)

Introduction to Pascal Programming (W93, S93)

Teaching Assistant

Computer Science Department, University of Minnesota, Minneapolis, MN.

Duties for each of the following courses include grading, holding office hours, preparing test and assignment keys, and in some cases, preparing assignments and exams.

Courses:

Artificial Intelligence I (F87, W88, W90, F91)

AI Programming Techniques (S87, S88, S89, W90)

AI Topics: Robotics (S90)

Automata Theory (S91)

Fundamentals of Algorithms and Languages I (F86)

Fundamentals of Algorithms and Languages II (W87)

A FORTRAN Introduction to Computer Programming (S91, Sum91, W92)

HONORS

Sabbatical Research Scholar, University of Edinburgh, Scotland (2007-2009)

I was named the 2007-2009 European Masters of Informatics (EuMI) Scholar for the School of Informatics at the University of Edinburgh, Scotland. As part of the EuMI post-graduate degree which is financially supported by the European Commission's ERASMUS MUNDUS initiative, EuMI offers a limited number of stipends for high-profile non-EU scholars to visit Europe for a total of up to three months. The scholarship will support sabbatical research in Edinburgh in the spring and summer of 2009. The invitation also encourages the possibility of extending the visit with several shorter visits to the other EuMI partner universities (the Universita degli Studi di Trento (Italy) and RWTH University Aachen (Germany)).

MEIS Doctoral Fellowship, University of Minnesota (9/85 – 6/86)

Sponsored by the Minnesota Microelectronic and Information Sciences Center, and funded by the local companies of 3M, Honeywell, Cray Research, Control Data, and Sperry (now Unisys), 16 one-year awards of \$10,000 each (plus tuition) were distributed across the five disciplines of chemical engineering/material sciences, physics, chemistry, electrical engineering, and computer science. Received one of five fellowships awarded in computer science in fall of 1985.

Research Contribution Award, University of Minnesota (Spring, 1992)

Monetary awards of \$350 were awarded to selected students demonstrating research initiative by authoring or co-authoring accepted conference or journal papers.

Honors Thesis, Lawrence University (1984-1985)

Smart Database Management: An Implementation in Lisp, using Knowledge Representation Theory and Artificial Intelligence Programming Techniques, was one of two honors papers to receive summa cum laude honors at Lawrence University in 1985.

Commencement Introduction, Lawrence Commencement Ceremony (Spring, 1985).

Honored as the senior mathematics/computer science student chosen to introduce Professor Donald Knuth of Stanford University as a keynote speaker and a recipient of an honorary doctorate from Lawrence University.

Phi Beta Kappa, $\Gamma\Delta$ Chapter of Wisconsin (elected 5/85).**Pi Kappa Lambda**, music honor society (elected 5/85).**Kappa Mu Epsilon**, mathematics honor society (elected 5/94).**Mortar Board**, member (elected 5/84).**London Seminar**, One-term study abroad, Lawrence University, (Spring, 1984).**National Rotary Scholarship**, Berlin High School, (awarded 6/81)

Sponsored by the Berlin Rotary Club, this scholarship is acknowledged as the most generous and prestigious of the scholarships awarded at BHS to one college-bound senior each year.

MEMBERSHIP IN SCHOLARLY ORGANIZATIONS

American Association for Artificial Intelligence (AAAI), (1987 – present).

Phi Beta Kappa, President (2006-2007), Vice President (2005-2006), and member (since 1985) of Gamma-Delta Chapter of Wisconsin.

COMPUTER LANGUAGES

Experienced with Common Lisp, CLOS, Scheme, Prolog, Java, C++, C, Pascal, SQL, Fortran, Smalltalk, and BASIC, and have taught courses involving each of these languages.

EMPLOYMENT HISTORY

Associate Professor of Computer Science (7/02 – present), Lawrence University, Department of Mathematics, Appleton, WI.

Principal Research Scientist (5/99 – 5/02), Honeywell Technology Center, Automated Reasoning Group, Minneapolis, MN.

Senior Research Scientist (7/95 – 5/99), Honeywell Technology Center, Automated Reasoning Group, Minneapolis, MN.

Adjunct Professor (8/96), University of Minnesota, Minneapolis, MN, Department of Computer Science.

Assistant Professor (8/93 – 5/95), Shippensburg University, Shippensburg, PA, Department of Mathematics and Computer Science.

Teaching Assistant (9/86 – 6/93), Computer Science Dept., University of Minnesota.

Student Intern (6/86 – 8/90), Honeywell Sensor and System Development Center, Minneapolis, MN. Participated in the design, implementation and test phases of numerous research systems, mostly expert systems shells and applications.

Research Assistant (9/89 – 6/90) for Dr. Maria Gini, Dept. of Computer Science, University of Minnesota. Assisted in designing and implemented a task planning system. Participated in weekly group meetings on task planning, robot path planning, sensor integration and robot error recovery.

Research Assistant (9/88 – 9/89) for Dr. Charles Fletcher, Dept. of Psychology, University of Minnesota. Designed and implemented computer models of several theories of text and discourse understanding. Implemented and executed hundreds of experiments involving the computer models. Gathered and summarized experimental results, some of which have since been published by Dr. Fletcher.

Research Intern (summer 1985), Sperry Corporation (now UNISYS). Was invited to join the newly-formed Knowledge-Based Systems group as a summer intern. Wrote AI demonstration software on Lisp machines and assisted in presenting them at the International Joint Conference for Artificial Intelligence (IJCAI), held in Los Angeles in 1985.

Staff Programmer/Analyst (summers 1983, 84), Lawrence University. Wrote software used for administrative and educational purposes on the Lawrence computer lab staff. Second most prolific co-author of COSAP version 3, a Conversationally-Oriented Statistical Analysis Package.

Staff Computer Consultant (6/82 – 3/84), Lawrence University. Worked in the Lawrence computer lab as a consultant for students taking introductory computer courses.