CURRICULUM VITAE
30 August, 1996

JAMES MAYFIELD

Personal Data:

Date of Birth: 17 October 1957
Place of Birth: Carlisle, Pennsylvania

Education:

A.B.	1979	Harvard College, Engineering (Cum Laude, general studies).
Ph.D.	1989	University of California at Berkeley, Computer Science.

Experience in Higher Education:

1996–present:	Johns Hopkins University Applied Physics Laboratory. Member, Senior Professional Staff.
1996–present:	University of Maryland, Baltimore County. Associate Professor. (on leave 1996-1997 academic year)
1989–1996:	University of Maryland, Baltimore County. Assistant Professor.
1987–1989:	University of Maryland, Baltimore County. Instructor.
1983–1987:	University of California at Berkeley. Research Assistant.
1981–1983:	University of California at Berkeley. Teaching Assistant.

Experience in other than Higher Education:

1979–1981: Hewlett Packard Co. Development Engineer.

Research Support and Fellowships—Awarded:

1996–1999:	$900,000.	Investigator	NIST ATP/TIMA Grant: *An agent-based Framework for Integrated Intelligent Planning–Execution.* Partnership with IBM *et al.* $900,000 is the UMBC portion.
1995	$130,000.	PI	Equipment grant: Excalibur Technologies Inc.
1995–1997	$500,000.	Investigator	U. S. Army Phase II SBIR: *Automatic Memoization—A Practical Tool for High–Performance Artificial Intelligence Applications.* Partnership with Johns Hopkins University Applied Physics Laboratory.
1995:	$4,000.	PI	NASA Summer Faculty Fellowship, Goddard Space Flight Center.

Research Support and Fellowships—Awarded *cont.*:

1995:	$49,958.	PI	Department of Defense Contract: *A Study to Assess the Usefulness of Cyc in a Mediated Architecture.*
1994–1997:	$253,206.	co–PI	Department of Defense Contract: *An Agent-based Architecture for Large–scale Document Information Systems.*
1994–1995:	$73,400.	Investigator	U. S. Army Small Business Technology Transfer Research Grant, *Automatic Memoization—A Practical Tool for High–Performance Artificial Intelligence Applications.* Partnership with Johns Hopkins University Applied Physics Laboratory.
1994–1995:	$1,500.	Advisor	UMBC Dean of Arts and Sciences Undergraduate Research Award, awarded to Justin Sun for *A Hypermedia Campus Information System.*
1994:	$10,000.	PI	NASA Summer Faculty Fellowship, Goddard Space Flight Center.
1994:	$2,000.	Advisor	Ronald E. McNair Research Fellowship, awarded to Justin Sun for *Seeking World–Wide Web Information Using a Signature File Search.*
1993:	$2,000.	Advisor	Ronald E. McNair Research Fellowship, awarded to Priscilla Walther for *Natural Language Interfaces to Databases.*
1992:	$10,000.	PI	DARPA grant: Fourth Message Understanding Conference. Partnership with ConQuest, Inc.
1991–1992:	$52,998.	PI	Maryland Industrial Partnerships (MIPS) grant: *Automatic Conversion of Linear Text to Hypertext Using Semantic Nets.*
1990–1991:	$37,454.	PI	Maryland Industrial Partnerships (MIPS) grant: *Converting Text to Hypertext.*
1990:	$2,000.	PI	University of Maryland DRIF award: *An Automatic Importation System for Hypertext.*

Ph.D. Students—Advisor:

- Marty Hall. *Automatic Memoization as a Practical Optimization Technique.* Expected May, 1996.
- Brian Peterson. Topic to be decided. Expected May, 1998.
- Rita McCardell Doerr. *A Lexical–Semantic and Statistical Approach to Lexical Collocation Extraction for Natural Language Generation.* September, 1994.
- Ralph Semmel. *A Knowledge–Based Approach to Automatic Query Formulation.* December 1991.
- Woo–Young Soh. *Episodic Learning through Conceptual Clustering in a Parallel Activation Model for Diagnostic Reasoning.* December, 1990.

Ph.D. Students—Reader:

- Yannis Labrou. *Semantics for an Agent Communication Language.* July, 1996.
- Edward Sim. *An Investigation into the Effectiveness of Object–Oriented Analysis.* May, 1996.
- Larry D. Wagoner. *Group Theory as a Basis for Searching and Routing Techniques.* April 1994.
- Claudia Pearce. *A Dynamic Hypertext Environment through n–gram Analysis.* April 1994.

Masters Students (thesis):

- Anupama Potluri, *Architecture for Multiple Transport Protocol Support in KQML.* August, 1996. Reader.
- Gopinath Rebala, *Internet Publishing Engine.* June, 1996. Reader.
- Rummia Jayachandran, *Secure Credit Card Authorization System.* June, 1996. Reader.
- John Miller, *A Distributed Client/Server Architecture for Diplomacy.* May, 1996. Reader.
- Brian Peterson, *Translation between Cyc and KIF.* February, 1996. Advisor.
- Ping Yu, *A Graphical Interface to the Stdio I/O Package for Novice Programmers.* August, 1995. Advisor.
- Chelliah Thirunavukkarasu, *A Security Architecture for KQML.* August, 1995. Reader.
- Frank Blair, *A Voice–Linked Expert Inspection System.* December, 1994. Advisor.
- Timothy William Collins, *A Mosaic–Based Information Resource: A Hypertext Browser for a Controlled Vocabulary.* May, 1994. Reader.
- Rajiv Bawa, *Rendering of Surface Based Objects using Shadow Table Technique.* May, 1994. Reader.
- I–Ping Shih, *Issues in Designing Groupware, and a Case Study.* December, 1993. Reader.
- Madhu Subbacharya, *Xhyper: An X/Motif Based Hypertext System.* August, 1993. Reader.
- Mattie Mae Love, *MILTRANS: Enhancing a Successful Transition into the Private Sector.* May, 1993. Reader.
- Daryl Marcus Harp, *Interactive Reclassification Advisory Expert System: A Computer–Based Consultation Expert System for the Enlisted Military Occupational Specialty Classification System of the United States Department of the Army.* May, 1993. Advisor.
- Nanda S. Kumar, *Design and Implementation of a Help Facility using Hypertext on a DOS–based System.* December, 1992. Reader.

Masters Students (thesis) *cont.*:

- Nabil W. Alkharouf, *An Empirical Study of a Hybrid Learning Algorithm that Combines Learning by Examples and Neural Network Learning.* August, 1992. Advisor.
- Alexander S. Ho, *Three Design Techniques for MUC–4 Semantic Nets.* August, 1992. Advisor.
- Karen E. Petraska–Veum, *Representing Hypertext in SGML, ODA, and CDA.* May, 1991. Reader.
- Nirmala A. Prabhu, *A Study on the Feasibility of Formalizing Commonsense Knowledge.* December, 1990. Advisor.
- Thomas S. Doerr, *From General Problem–Solving Architectures to a Unified Theory of Cognition.* May, 1990. Reader.
- Xiaohong Shi, *The Modularity of an Object–Oriented Programming Language: C++.* May, 1990. Reader.
- Ravi Ganesan, *SETS–A*: A Heuristic Tool for Distributed Applications.* December, 1989. Reader.
- Minhsuan Fan, *The Algorithm for the Base Case of KORAL Formulas.* December, 1989. Reader.
- Hung–Jin Hong, *An Overview of Genetic Algorithms.* May, 1989. Reader.

Undergraduate Mentorships:

- Dedrick Henry, *Image Maps in the World–Wide Web.* Ronald E. McNair Research Scholarship, 1995.
- Justin Sun, *A Hypermedia Campus Information System.* Dean of Arts and Sciences Undergraduate Research Award, 1994–1995. $1500.[1]
- Justin Sun, *SWISS: Seeking World–Wide Web Information Using a Signature File Search.* Ronald E. McNair Research Fellowship, 1994. $2000 plus tuition.
- Priscilla Walther, *Natural Language Interfaces to Databases.* Ronald E. McNair Research Fellowship, 1993. $2000 plus tuition.

[1] Award amounts listed in this section are cross–listed under Research Support and Fellowships Awarded.

Publications—Books:

- James Mayfield and Charles Nicholas, eds., *Advances in Hypertext.* Springer–Verlag, Lecture Notes in Computer Science series, 1996. In preparation.

Publications—Peer–reviewed Book Chapters and Journal Articles:

Appeared/In Press:

- *Chapter:* James Mayfield, Yannis Labrou, and Tim Finin, "Evaluation of KQML as an agent communication language." To appear in M. Wooldridge and J. P. Müller and M. Tambe, eds., *Intelligent Agents Volume II—Proceedings of the 1995 Workshop on Agent Theories, Architectures, and Languages (ATAL–95).* Springer–Verlag, Lecture Notes in Artificial Intelligence Series, 1996.
- *Article:* Marty Hall, James Mayfield, and Tim Finin, "Automatic memoization." To appear in *IEEE Expert.*
- *Article:* Ralph D. Semmel and James Mayfield, 'Automated query formulation using an entity–relationship conceptual schema.' To appear in *Journal of Intelligent Information Systems.*
- *Chapter:* James Mayfield, 'Two–level models of hypertext. To appear in R. D. Semmel, ed., *Advances in Software Engineering and Knowledge Engineering*, Series on Software Engineering and Knowledge Engineering, World Scientific Publishing.
- *Chapter:* Tim Finin, Yannis Labrou and James Mayfield, 'KQML and software agent communication.' To appear in Jeff Bradshaw, ed., *Software Agents,* MIT Press.
- *Article:* James Mayfield and Charles Nicholas, 'SNITCH: Augmenting hypertext documents with a semantic net.' *International Journal of Intelligent and Cooperative Information Systems* 2(3):335–351, 1993.
- *Article:* James Mayfield, 'Controlling inference in plan recognition.' *User Modeling and User–Adapted Interaction* 2(1–2):83–115, 1992.
- *Article:* Robert Wilensky, David Chin, Marc Luria, James Martin, James Mayfield, and Dekai Wu, 'The Berkeley UNIX Consultant project.' *Computational Linguistics* 14(4):35–84, 1988.

Invited:

- *Chapter:* Tim Finin, Donald Mckay and James Mayfield, 'KQML and the Knowledge Sharing Approach to Intelligent Information Systems.' Invited to appear in Gunter Schlageter and Mike Papazoglou (eds.), *Cooperative Information Systems*, Academic Press, 1996.

Submitted:

- *Article:* James Mayfield, 'Evaluating Plan Recognition Systems: Three Properties of a Good Explanation.' Submitted to *Artificial Intelligence Review Journal* 12, 1996.

In Preparation:

- *Article:* James Mayfield and Justin Sun, "Rediscovering Hypertext Documents Using N–Gram Signature Files." To be submitted to *Electronic Publishing.*
- *Article:* James Mayfield, Tim Finin, Rajkumar Narayanaswamy, Chetan Shah, William MacCartney, and Keith Goolsbey, "Distributed Inference in an Agent–Based Architecture." To be submitted to *Artificial Intelligence.*

Publications—Peer–reviewed Conferences and Workshops:

All are full, peer–reviewed papers, unless otherwise indicated.

Appeared/In Press:

- *Paper:* James Mayfield, Tim Finin, Chetan Shah, Rajkumar Narayanaswamy, William MacCartney and Keith Goolsbey, 'Cycic Friends Network: Getting Cyc Agents to Reason Together.' To appear in *Proceedings of the ACM CIKM Intelligent Information Agents Workshop*, Baltimore MD. December, 1995.
- *Paper:* Chelliah Thirunavukkarasu, Tim Finin and James Mayfield, 'Secret Agents—A Security Architecture for KQML.' To appear in *Proceedings of the ACM CIKM Intelligent Information Agents Workshop*, Baltimore, MD. December, 1995.
- *Refereed paper:* Justin Sun and James Mayfield, 'Searching the World–Wide Web using Signature Files.' To appear in the *AAAI Fall Symposium on AI Applications in Knowledge Navigation and Retrieval*, Cambridge, MA. November, 1995.
- *Refereed paper:* James Mayfield, Yannis Labrou, and Tim Finin, 'Evaluating KQML as an Agent Communication Language.' *IJCAI-95 workshop on Agent Theories, Architectures, and Languages* (ATAL–95). Montreal, Quebec, 19-20 August, 1995.
- *Refereed paper:* James Mayfield, Yannis Labrou and Tim Finin, 'Desiderata for agent communication languages.' *Proceedings of the AAAI Spring Symposium on Information Gathering from Heterogeneous, Distributed Environments,* Palo Alto, CA. March, 1995.
- *Refereed paper:* James Mayfield, Marty Hall, and Tim Finin, 'Using automatic memoization as a software engineering tool in real-world AI systems.' *Proceedings of the Eleventh IEEE Conference on Artificial Intelligence for Applications* (CAIA '95), pp. 87–93. Los Angeles, CA. IEEE Computer Society Press, February, 1995.

Publications—Peer–reviewed Conferences and Workshops *cont.*:

- *Extended abstract:* James Mayfield, 'Two–level hypertext models as an underpinning for adaptive hypertext systems.' *Proceedings of the Workshop on Adaptive Hypertext Systems.* Held in conjunction with the *Fourth International Conference on User Modeling,* Hyannis, MA. August, 1994.
- *Refereed paper:* Marty Hall and James Mayfield, 'Improving the performance of AI software: Payoffs and pitfalls in using automatic memoization'. *Proceedings of the Sixth International Symposium on Artificial Intelligence,* Monterrey, Mexico. September, 1993.
- *Abstract:* James Mayfield and Charles Nicholas, 'Augmenting hypertext documents with a semantic net'. *Proceedings of the Symposium on Advanced Information Processing and Analysis,* Tyson's Corner, Virginia. March, 1993.
- *Refereed paper:* James Mayfield and Charles Nicholas, 'SNITCH: Augmenting hypertext documents with a semantic net'. *Proceedings of the ISMM International Conference on Information and Knowledge Management (CIKM–92)* pp. 146–152, Baltimore, MD. ISMM Press, November, 1992.
- *Refereed paper:* Charles Nicholas, James Mayfield, and James Sasaki, 'Category theory and natural language understanding as models for document processing.' *Principles of Document Processing (PODP '92) Proceedings.* Washington DC. October, 1992.
- *Paper (competitive admission):* James Mayfield, 'University of Maryland/Conquest: MUC–4 test results and analysis,' *Proceedings of the Fourth Message Understanding Conference,* pp. 148–150, McLean, VA, Morgan Kaufmann, 1992.
- *Paper (competitive admission):* James Mayfield, 'University of Maryland/Conquest: Description of the ICTOAN system used for MUC–4,' *Proceedings of the Fourth Message Understanding Conference,* McLean, VA, pp. 276–281, Morgan Kaufmann, 1992.
- *Paper (competitive admission):* James Mayfield and Edwin Addison, 'Description of the Synchronetics system used for MUC–3'. *Proceedings of the Third Message Understanding Conference,* San Diego, CA, pp. 207–211, Morgan Kaufmann, 1991.
- *Paper (competitive admission):* James Mayfield and Edwin Addison, 'MUC–3 test results and analysis.' *Proceedings of the Third Message Understanding Conference,* San Diego, CA, pp. 108–111, Morgan Kaufmann, 1991.
- *Refereed paper:* James Mayfield, 'When to keep thinking.' *Proceedings of the Third Workshop on Theoretical Issues in Conceptual Information Processing,* In conjunction with the National Conference on Artificial Intelligence (AAAI '86), Philadelphia, PA. August, 1986.

Publications—Edited:

Appeared:

- James Mayfield and Tim Finin, eds., *Proceedings of the Workshop on Intelligent Information Agents.* Held in conjunction with the ACM International Conference on Information and Knowledge Management (CIKM '95). Baltimore, MD. December 1–2, 1995.
- James Mayfield and Charles Nicholas, eds., *Proceedings of the Second Workshop on Intelligent Hypertext.* Held in conjunction with the ACM International Conference on Information and Knowledge Management (CIKM '94). Gaithersburg, MD. December 2, 1994.
- James Mayfield and Charles Nicholas, eds., *Proceedings of the Workshop on Intelligent Hypertext.* Held in conjunction with the ACM International Conference on Information and Knowledge Management (CIKM '93). Arlington, VA. November 5, 1993.

Publications—Unrefereed:

- Charles Nicholas and James Mayfield, *Intelligent Web Servers and the Automatic Construction of HTML Documents.* Computer Science Department Technical Report No. CS–94–01, University of Maryland Baltimore County, 1994.
- James Mayfield and Charles Nicholas, *Using Semantic Nets to Enrich Hypertext Links.* Computer Science Department Technical Report No. CS–92–02, University of Maryland Baltimore County, 1992.
- James Mayfield, *Goal Analysis: Plan Recognition in Dialogue Systems.* Ph.D. Dissertation, University of California at Berkeley. 1989. Also published as Computer Science Division Technical Report No. UCB/CSD 89/521, University of California at Berkeley, 1989.
- Robert Wilensky, James Mayfield, Anthony Albert, David Chin, Charles Cox, Marc Luria, James Martin and Dekai Wu, *UC: A Progress Report.* Computer Science Division Technical Report No. UCB/CSD 87/303, University of California at Berkeley, 1986.

Professional Activities—Workshops and Panels Organized:

- Organizer (with Tim Finin), *ACM Workshop on Intelligent Information Agents,* Baltimore, MD, December, 1995. In conjunction with the Fourth ACM International Conference on Information and Knowledge Management (CIKM '95).
- Organizer (with Charles Nicholas), *Workshop on Intelligent Hypertext,* Gaithersburg, MD, December 2, 1994. In conjunction with the Third ACM International Conference on Information and Knowledge Management (CIKM '94).
- Organizer (with Charles Nicholas), *Workshop on Intelligent Hypertext,* Alexandria, VA, November 5, 1993. In conjunction with the Second ACM International Conference on Information and Knowledge Management (CIKM '93).
- Organizer and chair, Panel: *The Future of Data Extraction from Natural Language Texts,* Baltimore, MD. November 9, 1992. At the First ISMM International Conference on Information and Knowledge Management (CIKM '92).
- Organizer (with Edwin Addison), Workshop: *Natural Language Text Retrieval,* Los Angeles, CA. July 15, 1991. In conjunction with the National Conference on Artificial Intelligence (AAAI '91).

Professional Activities—Program Committee Membership:

- Program committee member, *National Conference on Artificial Intelligence (AAAI '96)*, Portland, OR. August, 1996.
- Vice chair, *IEEE International Conference on Tools with Artificial Intelligence (ICTAI '95)*, Washington, DC. November, 1995.
- Program committee member and session chair, *AAAI Symposium on AI Applications in Knowledge Navigation and Retrieval*, Cambridge, MA. November, 1995.
- Program committee member, *ACM Workshop on Intelligent Information Agents,* Gaithersburg, MD, December, 1994. In conjunction with the Third ACM International Conference on Information and Knowledge Management (CIKM '94).
- Program committee member, *Third ACM International Conference on Information and Knowledge Management (CIKM '94)*, Gaithersburg, MD. December, 1994.
- Program committee member and session chair, *Second ACM International Conference on Information and Knowledge Management (CIKM '93)*, Washington, DC. November, 1993.
- Program Committee Member, *Fifth International Conference on Software Engineering and Knowledge Engineering (SEKE '93)*, San Francisco, CA. June, 1993.
- Program committee member and session chair, *First ISMM International Conference on Information and Knowledge Management (CIKM '92)*, Baltimore, MD. November, 1992.

Professional Activities—Other Reviewing:

- Review panel member, NSF Small Business Innovation Research Solicitation, Arlington, VA. September, 1995.
- Reviewer, *Fourteenth International Joint Conference on Artificial Intelligence (IJCAI '95).*
- Reviewer, *World Conference on Educational Multimedia and Hypermedia (Ed–Media '95).*
- Reviewer, *Journal of Intelligent Information Systems,* 1994.
- Review panel member, NASA Cooperative Agreement Notice CAN OA–01–94, *Public Use of Earth and Space Science Data Over the Internet,* Greenbelt, MD. May, 1994.
- Reviewer, *Ninth IEEE Conference on Artificial Intelligence for Applications (CAIA '93).*
- Reviewer, *Journal of Systems and Software,* 1992.
- Reviewer, *Eighth IEEE Conference on Artificial Intelligence for Applications (CAIA '92).*

Professional Activities—Invited Talks and Conference Presentations:

- *Intelligent Agents,* National Security Agency, Fort Meade, MD. May 1996.
- *Intelligent Agents,* Johns Hopkins Applied Physics Laboratory, Columbia, MD. May, 1996.
- *Advances in Hypertext for Massive Digital Data Systems,* NASA Goddard Space Flight Center, Greenbelt, MD. June, 1995.
- *Using Automatic Memoization as a Software Engineering Tool in Real-World AI Systems,* Eleventh IEEE Conference on Artificial Intelligence for Applications (CAIA '95). Los Angeles, CA. February, 1995.
- *Information Retrieval and Natural Language Processing,* NASA Goddard Space Flight Center, Greenbelt, MD. August, 1994.
- *Two–level Hypertext Models as an Underpinning for Adaptive Hypertext Systems,* Workshop on Adaptive Hypertext Systems. Hyannis, MA. August, 1994.
- *Two–Level Models of Hypertext,* University of Texas, Austin, TX. March, 1994.
- *Two–Level Models of Hypertext,* MCC Corp., Austin, TX. March, 1994.
- *Augmenting Hypertext Documents with a Semantic Net,* ISMM International Conference on Information and Knowledge Management. Baltimore, MD. November, 1992.
- *Intelligent Document Processing,* Bell Atlantic, Silver Spring, MD. November, 1992.
- *MUC–4 Test Results and Analysis,* Fourth Message Understanding Conference (MUC–4), McLean, Virginia. June, 1992.

Professional Activities—Invited Talks and Conference Presentations *cont.*:

- *Description of the ICTOAN System as Used for MUC–4,* Fourth Message Understanding Conference (MUC–4), McLean, Virginia. June, 1992.
- *Synchronetics Site Report,* Third Message Understanding Conference (MUC–3), San Diego, CA. May, 1991.
- *Synchronetics System Summary,* Third Message Understanding Conference (MUC–3), San Diego, CA. May, 1991.
- *Converting Text to Hypertext,* Space Telescope Science Institute, Baltimore, MD. March, 1990.
- *Plan Recognition in Dialogue Systems,* University of California at Berkeley, May, 1989.
- *Representing Plans and Goals,* Workshop on Knowledge Representation in the UNIX Help Domain, Berkeley, CA. December, 1987.
- *When to Keep Thinking,* Theoretical Issues in Conceptual Information Processing (TICIP '86), Philadelphia, PA. August, 1986.
- *Goal Analysis: How to Read Someone's Mind,* Hewlett Packard Laboratories, Palo Alto, CA. May, 1986.

Professional Activities—Memberships:

- American Association for Artificial Intelligence
- Association for Computational Linguistics
- Computer Professionals for Social Responsibility
- American Association of University Professors

Service—University:

- Computer Science/Electrical Engineering Merger Committee: member, 1995. Responsible for formulating initial programmatic proposals and suggesting research synergies.
- University Library Policy Committee: member, 1989–1993. Responsible for advising on issues of library policy.
- University Barry S. Goldwater Scholarship Committee: member, 1991–1995. Responsible for selecting students to represent UMBC in the Goldwater Scholarship competition.
- University NPC Programming Team: Faculty Advisor, 1993–1995. The team was one of sixteen invited to participate in the National Programming Contest (NPC '94 and NPC '95).
- University ACM Programming Team: Faculty Advisor, 1994–1995. The team participated in the ACM International Collegiate Programming Contest in October, 1994.

Service—Departmental:

- CSEE Dept. Part–time Student Programs Committee: member, 1995. Responsible for developing recommendations on how part–time students might be better served by the CSEE Department.
- CSEE Dept. Computer System Upgrades and Integration Committee: member, 1995. Provided advice on how to upgrade our existing computing equipment in light of the special needs of the new combined department.
- Computer Science Dept. Equipment Committee: chair, 1989–1995; member, 1987–1989. Responsibilities included supervision of student employees, software and hardware purchase and maintenance, handling user queries and requests, serving as liaison to Academic Computing Services, serving as contact point for vendors, and performing inventory.
- Computer Science Dept. Faculty Search Committee: member, 1992–1993. Conducted search for two faculty positions selected from over 400 applicants.
- Computer Science Council of Majors: Faculty Advisor, 1988–1992. Advised the organization of undergraduates who are majoring in computer science on activities, fund–raising, *etc.*
- Computer Science Dept. Textbook Committee: chair, 1988–1989. Served as the Department's liaison to publishers, and recommended textbooks for adoption in computer science courses.
- Computer Science Dept. Undergraduate Committee: member, 1987–1989. Responsible for the undergraduate curriculum, and for issues relating to undergraduate students.