

Gary H. Merrill

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Research Interests

In philosophy: Logic, formal semantics, metaphysics, philosophy of language, philosophy of science.

In informatics: Formal ontology, biomedical coding schemes, application of formal ontologies to knowledge discovery and knowledge exploration.

Summary of Qualifications

- 12 years experience in teaching at the university level, from introductory undergraduate courses through advanced Ph.D.-level graduate courses, including classroom training of graduate students in teaching sections and courses.
- Over ten years experience in curriculum development and teaching of programming, software design, operating systems, history and philosophy of science, formal logic, artificial intelligence and computability.
- Development and use of computer-assisted instruction software for formal logic and for introduction to the UNIX operating system.
- Experience in curriculum development and teaching within a university setting (both undergraduate and graduate courses) and within a commercial business environment.
- Direct involvement in creating the Logic and Cognitive Science Initiative at NC State University; development of the GSK Internship in Knowledge Exploration; employment, education, and direct work with both undergraduate and graduate interns; contributions to enhancement of the curriculum pertaining to Logic and Cognitive Science at NC State; curriculum design and development consulting for a course offered in the NC State Institute for Advanced Analytics.
- Twenty-five years experience in software development, product definition and development, strategy, management (including project management), and the development of infrastructure for advanced technology solutions to business problems.
- Experience (with publication history) in knowledge management and knowledge based systems, applied computational linguistics, and text and data mining technology and applications.
- Over fifteen years experience in the areas of compilers and software tools, interactive development environments, and graphical user interface development on a variety of hardware and operating systems. Familiarity with a wide spectrum of programming languages, development environments, client-server technology, web

technology, artificial intelligence applications, text/data mining, knowledge representation and management, search and retrieval, and project management tools.

- Substantial experience in the design and writing of technical documentation, including paper documentation, on-line documentation, and hypertext help. Management of documentation development for a variety of products.

Education

- 1996 On site course in Object Oriented Analysis and Object Oriented Design by First Principles Engineering.
- 1990 Center for Creative Leadership course in creative management.
- 1984 Western Institute in Computer Science. Stanford University.
- 1983 All course work completed for M.S. in Electrical Engineering and Computer Science (University of Illinois at Chicago). Thesis Topic: *A Computer-Aided Instruction Program for Derivations in First-Order Formal Logic*.
- 1974 Ph.D.; University of Rochester (Philosophy). Area of specialization: formal logic. Thesis Title: *A Semantically Closed Theory of Truth*.
Dissertation director: Rolf A. Eberle. Second Reader: John L. Pollock.
- 1973 M.A.; University of Rochester (Philosophy).
- 1969 B.S.; Rensselaer Polytechnic Institute. Thesis title: *Anscombe's Theory of Action*. Thesis director: Gail C. Stine.

Employment History

- Present President: Ontolytics, LLC
Visiting Scholar: Department of Philosophy and Religion, North Carolina State University
- 2005-2010 Director and Head
Semantic Technologies Group
GlaxoSmithKline Inc.
- 2002-2005 Director and Principal Scientist
Analysis Applications, Research, and Technologies
GlaxoSmithKline Inc.
- 2001-2002 Associate Director of Knowledge Engineering
Novartis Pharmaceuticals Corp.
- 2001 Principal Scientist (Associate Director Level)
Data Exploration Sciences (Research and Development)
GlaxoSmithKline Inc.
- 1997-2000 Principal Consultant
Emerging Technologies Group (Information Technology)
GlaxoWellcome Inc.
- 1996 Training Consultant to Imonics, Inc. for course development and teaching of *A User's Introduction to UNIX*

1992-1997	Principal Systems Developer SAS Institute Inc.; Cary, NC
1987-1992	Manager, Language Features and Environments Department SAS Institute Inc.; Cary, NC
1984-1987	Senior member of the Technical Staff Lattice, Inc.; Oak Brook, IL
1982-1984	Bell Laboratories; Naperville, IL (On contract from Lachman Associates.)
1978-1982	Associate Professor (tenured), Department of Philosophy Loyola University of Chicago
1973-1977	Assistant Professor, Department of Philosophy Loyola University of Chicago

Awards

- 2009: SafetyWorks/SAEfetyWorks received industry *Bio-IT World* award for *Translational and Personalized Medicine*.
- 2008: GlaxoSmithKline Gold Award for “Exemplary contributions that resulted in the delivery of the SAEfetyWorks tool for GSK.”
- 2007: GlaxoSmithKline Gold Award for “Theoretical and material contributions in leading the SafetyWorks observational pharmacovigilance project.”
- 1972-1973: Woodrow Wilson Dissertation Fellowship

Publications

A 'P' indicates a publication in the area of philosophy, 'C' indicates computer science, artificial intelligence, or software engineering, and 'I' indicates informatics. Some papers span multiple disciplines and therefore have multiple subject indicators associated with them.

This list does not include book reviews or abstracts of talks given at meetings of the Association for Symbolic Logic.

In preparation

P *False Wisdom: Principles and Practice of Pseudo-Philosophy.*

Published articles and presentations

P 2010 “Ontology, ontologies, and science”. *Topoi*, Vol. 30, Number 1, pp. 71-83.

- I,P,C 2010 "Ontology Development in the Sciences: Some Fundamental Considerations", invited presentation, *BioSynC Workshop: Integrating ontologies with biodiversity research* (organized by the Biodiversity Synthesis Center, Field Museum of Natural History), Raleigh, NC, Oct. 16, 2010.
- I,P 2010 "Realism and Reference Ontologies: Considerations, Reflections, and Problems". *Applied Ontology*, Vol. 5, No. 3, 2010, pp. 50-79.
- I,P 2010 "Ontological realism: methodology or misdirection". *Applied Ontology*, Vol. 5, No. 2, 2010, pp. 79-137.
- I, P 2009 "Concepts and Synonymy in the UMLS Metathesaurus". *Discovery and Collaboration* (online), Vol 4, 2009.
- I,P 2008 "The MedDRA Paradox". *AMIA Annual Symposium Proceedings*, 2008 Nov 6:470-474.
- I 2008 (with Patrick B. Ryan and Jeffery L. Painter) "Applying a UMLS/SNOMED-based Drug Ontology for Observational Pharmacovigilance". IDAMAP 2008 Intelligent Data Analysis in Biomedicine and Pharmacology (Washington, D.C., Nov. 7, 2008. Available in the *Working Notes* (ed. John Holmes and Alan Tucker) at <http://www.aialab.si/idamap/idamap2008/IDAMAP2008Proceedings.pdf>.
- I 2008 (with Patrick B. Ryan and Jeffery L. Painter) "Using SNOMED to Normalize and Aggregate Drug References in the SafetyWorks Observational Pharmacovigilance Project." KR-MED, 2008 poster session. Phoenix, AZ.
- I 2007 (with Patrick B. Ryan and Robertino Mera) "Opportunities and Challenges in Leveraging Observational Data for Pharmacovigilance." AMIA Pharmacovigilance and Informatics Summit, Washington DC, June 2007.
- C,I 2006 "Inter-translation of Biomedical Coding Schemes Using UMLS" (with GSK/LACSI interns Jeffery Painter and Kristoph Kleiner), *Fall Symposium of the American Association for Artificial Intelligence on Semantic Web for Collaborative Knowledge Acquisition*, Arlington Va., October, 2006.
- C,I 2006 "Engineering a Development Platform for Ontology-Enhanced Knowledge Applications", Ch. 28 (invited) in *Ontologies: A Handbook of Principles, Concepts and Applications in Information Systems* (Integrated Series in Information Systems), ed. by Raj Sharman, et. al., Springer-Verlag.
- I 2004 "A Practical Multi-Ontology Approach to Knowledge Exploration", presented at *Technology for Life*, North Carolina Symposium on Biotechnology and Bioinformatics, Oct. 12-15, 2004.
- C,I 2003 "The Babylon Project: Toward an Extensible Text-mining Platform", *IEEE IT Professional*; March/April, 2003.
- C 1999 Interface-guided Ontology Design, in *Technical Notes on Ontology Management* (AAAI-99 workshop); the American Association for Artificial Intelligence.
- I 1998 Editor of *Technical Notes on Knowledge Sharing Across Medical and Biological Knowledge Bases* (a AAAI-98 workshop); the American Association for Artificial Intelligence, Gary H. Merrill and Dhiraj K. Pathak, organizers.
- C 1993 "Parsing Non-LR(k) Grammars with Yacc", *Software Practice and Experience*, Vol. 23(8), 829-850 (August, 1993).
- C 1990 "Porting C to the IBM Mainframe Environment", *SUGI Conference Proceedings* (15), 736-740.
- C 1990 "Introduction to the C Programming Language", *SUGI Conference Proceedings* (15), 745-751.

(Various other articles and presentations on the C language and programming in C elided.)

- P,C 1984 "Truth, Proof, and Program Correctness," *SIGPLAN Notices*, Dec. 1983.
- P 1981 "Extensional modal logic" (Abstract, Meeting of the Association for Symbolic Logic), *Journal of Symbolic Logic*, Vol. 46, No. 3 (Jun., 1981), p. 686.
- P 1980 "Three Forms of Realism," *American Philosophical Quarterly* 17, 229-235.
- P 1980 "The Model-Theoretic Argument Against Realism," *Philosophy of Science* 47, 69-81."
- P 1980 "Moderate historicism and the empirical sense of good science," *PSA 1980*, edited by P. d. Asquith and R. N. Giere. 223-235."
- P 1979 "Confirmation and Prediction," *Philosophy of Science* 46, 98-117.
- P 1979 "Marginal Notes on the Theory of Reference," *Grazer Philosophische Studien* 9, 35-50.
- P 1979 "On the uniqueness of the identity relation," *Analysis* 39, 133-136.
- P 1979 "What A Sentence Says," *Philosophical Studies* 35, 405-412.
- P 1978 "A Note on Proxies," *Erkenntnis* 14, 371-372.
- P 1978 "Formalization, Possible Worlds and the Foundations of Modal Logic," *Erkenntnis* 12, 305-327.
- P 1977 "On an enduring non sequitur of Quine's," *Notre Dame Journal of Formal Logic* 18, 613-615.
- P 1976 "Natural deduction in the style of Kalish and Montague" (Abstract, Meeting of the Association for Symbolic Logic), *Journal of Symbolic Logic*, Vol. 41, No. 2 (Jun., 1976), pp. 553-554.
- P 1975 "A Free Logic With Intensions As Possible Values of Terms," *Journal of Philosophical Logic* 4, 293-326.
- P 1975 "A free modal logic with intensions as possible 'designata' of terms" (Abstract, Meeting of the Association for Symbolic Logic), *The Journal of Symbolic Logic*, Vol. 40, No. 2 (Jun., 1975), pp. 303-304.
- P 1975 "Peirce on Probability and Induction," *Transactions of the C. S. Peirce Society* 11, 90-109.
- P 1974 "Identity in free modal logic" (Abstract, Meeting of the Association for Symbolic Logic), *The Journal of Symbolic Logic*, Vol. 39, No. 2 (Jun., 1974), pp. 397.