Eugene Charniak

Curriculum Vitae

1. Personal

Professor
Department of Computer Science
Brown University
Providence, RI 02912

2. Home Address

106 Halsey Street
Providence, RI 02906

3. Education

A.B. with Honors, Physics, University of Chicago, 1967

M.S., Electrical Engineering, Massachusetts Institute of Technology, 1968

Ph.D., Electrical Engineering, Massachusetts Institute of Technology, 1972

Dissertation topic: *Toward a Model of Children's Story Comprehension*
(supervised by M. Minsky)

4. Professional Appointments

1968-1971	Teaching Assistant, Massachusetts Institute of Technology, Cambridge, MA
1971-1972	Research Assistant, Massachusetts Institute of Technology, Cambridge, MA
1972-1973	Research Associate, Massachusetts Institute of Technology, Cambridge, MA
1973-1975	Research Scientist, Institute of Semantic and Cognitive Studies, Lugano, Switzerland
1976-1977	Institute of Semantic and Cognitive Studies became part of the Computer Science Department, University of Geneva
1977-1978	Visiting Assistant Professor, Department of Computer Science, Yale University, New Haven, CT
1978-1979	Assistant Professor of Computer Science and Engineering, Brown University, Providence, RI
1979-1981	Assistant Professor of Computer Science and Cognitive and Linguistic Science, Brown University, Providence, RI
1981-1984	Associate Professor of Computer Science and Cognitive and Linguistic Science, Brown University, Providence, RI
1984-	Professor of Computer Science and Cognitive and Linguistic Science, Brown University, Providence, RI

1984-1985 Visiting Professor of Computer Science, Yale University, New Haven CT

1991-1997 Chairman, Department of Computer Science, Brown University, Providence, RI

1998 Visiting Professor of Computer Science and Electrical Engineering, Johns Hopkins University, Baltimore, MD

5. Publications

Books

Computational Semantics: An Introduction to Artificial Intelligence and Natural Language Comprehension (with Y. Wilks), North-Holland Publishing Company, Amsterdam (1976).

Artificial Intelligence Programming (with C. Riesbeck and D. V. McDermott), Lawrence Erlbaum Associates, Hillsdale, NJ (1980). Second Edition (with C. Riesbeck, D. V. McDermott and J. R. Meehan) (1987).

Introduction to Artificial Intelligence(with D. V. McDermott), Addison-Wesley, Reading, MA (1985).

Statistical Language Learning MIT Press, Cambridge, MA (1993).

Chapters in Books

"Context and the Reference Problem," *Natural Language Processing* (ed. R. Rustin), pp. 311-331, Algorithmics Press, New York (1972).

"Introduction to Syntax," *Computational Semantics*: *An Introduction to Artificial Intelligence and Natural Language Comprehension* (ed. E. Charniak and Y. Wilks), North-Holland Publishing Co., Amsterdam (1976).

"Reference and Question Answering in Simple Narration," *Semantics and Artificial Intelligence* (ed. P. Eisenberg), W. de Gruyter, Berlin (1976) (in German).

"Inference and Knowledge," *Computational Semantics: An Introduction to Artificial Intelligence and Natural Language Comprehension (*ed. E. Charniak and Y. Wilks), North-Holland Publishing Co., Amsterdam (1976).

``Knowledge and Inference in Language Comprehension: An Overview," *Machine Representations of Knowledge*, D. Reidel Publishing Co., Netherlands (1977).

``Context Recognition in Language Comprehension," *Strategies for Natural Language Processing* (ed. W. Lehnert and M. Ringle), Laurence Erlbaum Associates, Hillsdale, NJ (1982).

``Cognitive Science is Methodologically Fine," *Methods and Tactics in Cognitive Science* (ed. W. Kintch, J.R. Miller and P.G. Polson), Laurence Erlbaum Associates, Hillsdale, NJ (1983).

``A Parser with Something for Everyone," *Parsing Natural Language* (ed. M. King), Academic Press, London (1983).

``Parsing, How To," *Automatic Natural Language Parsing* (ed. K. Sparck Jones and Y. Wilks), Wiley, Colchester, England (1983).

``Probabilistic Text Understanding" (with Robert Goldman), *Statistics and Computing* .Also in *Artificial Intelligence Frontiers in Statistics*: *AI and Statistics III* (ed. D. J. Hand), Chapman and Hall (1992).

``A Statistical Syntactic Disambiguation Program and What it Learns" (with Murat Ersan), *Symbolic, Connectionist, and Statistical Approaches to Learning for Natural Language Processing* (ed. S. Wermter, E. Riloff, and G. Scheler), Springer, pp. 146-160 (1996).

Refereed Journal Articles

``A Framed PAINTING: The Representation of a Common Sense Knowledge Fragment," *Cognitive Science* 1 (4), pp. 355-395 (1977). Also published as Technical Report 31, Institute for Semantic and Cognitive Studies, Geneva, Switzerland (1977).

``On the Use of Framed Knowledge in Language Comprehension," *Artificial Intelligence* 11 (3), pp. 225-265 (1978). Also published as Research Report 137, Yale University Artificial Intelligence Project (1978).

``A Common Representation for Problem Solving and Language Comprehension Information," *Artificial Intelligence*, 16, pp. 225-255 (1981).

``The Case-Slot Identity Theory," *Cognitive Science* 5 (3), pp. 285-292 (1981).

``Passing Markers: A Theory of Contextual Influence in Language Comprehension," *Cognitive Science*, pp. 171-190 (1983).

``Motivation Analysis, Abductive Unification, and Non-Monotonic Equality," *Artificial Intelligence*, 34 (3), pp. 275-296 (1988).

``Dynamic Construction of Belief Networks" (with Robert Goldman), Proc. *Conference on Uncertainty in Artificial Intelligence*, (1990). Also appears in *Uncertainty in Artificial Intelligence*, 6, pp. 171-184 (1991).

``Bayesian Networks Without Tears," *AI Magazine*, pp. 50-63 (1991).

``A Language for Construction of Belief Networks" (with Robert Goldman), *IEEE Transactions on Pattern Analysis and Machine Intelligence*,15 (3), pp. 196-208 (1993).

``A Bayesian Model of Plan Recognition" (with Robert Goldman), *Artifical Intelligence Journal*, 64 (1), pp. 53-79 (1993).

`Cost-Based Abduction and MAP Explanation" (with Solomon Shimony), *Artificial Intelligence Journal*, 66, pp. 345-374 (1994).

``Taggers for Parsers" (with G. Carroll, J. Adcock, A. Cassandra, Y. Gotoh, J. Katz, M. Littman, and J. McCann), *Artificial Intelligence Journal*, 85 (1-2), pp. 45-57 (1996).

``Statistical Techniques for Natural Language Parsing," *AI Magazine*, 18 (4), pp. 33-43 (1997).

``New Figures of Merit for Best-first Probabilistic Chart Parsing" (with Sharon Caraballo), *Computational Linguistics*, 24, pp. 275-298 (1998).

Refereed Conference Articles

``Computer Comprehension of Calculus Word Problems," Proc. 1969 *International Joint Conference on Artificial Intelligence*, pp. 303-316 (1969).

``Jack and Janet in Search of a Theory of Knowledge,"Proc. 1973 *International Joint Conference on Artificial Intelligence* (1973).

``A Partial Taxonomy of Knowledge About Actions," Technical Report, Institute for Semantic and Cognitive Studies, Castagnola, Switzerland (1975). Also published in Proc. 1975 *International Joint Conference on Artificial Intelligence.*

``Organization and Inference in a Frame-Like System of Common Sense Knowledge," *Papers for the Workshop on Theoretical Issuesin Natural Language Processing*, M.I.T. (1975).

``Ms. Malaprop, A Language Comprehension Program," Proc. 1977 *International Joint Conference on Artificial Intelligence* (1977). Also published as Research Technical Report 31, Institute for Semantic and Cognitive Studies, Geneva, Switzerland (1977).

``With a Spoon in My Hand This Must be the Eating Frame," *Proc. Second Workshop on Theoretical Issues in Natural Language Processing* (1978). Also published in *Journal of Computational Linguistics* (1978).

`Six Topics in Search of a Parser: An Overview of AI Language Research" (with W. Lehnert and M. Ringle), Proc. *Seventh Joint Conference on Artificial Intelligence* (1981).

``Word Sense and Case Slot Disambiguation" (with Graeme Hirst), Proc. 1982 *National Conference on Artificial Intelligence* (1982).

``The Bayesian Basis of Common Sense Medical Diagnosis," Proc. 1983 *National Conference on Artificial Intelligence* (1983).

``Time and Tense in English" (with Mary Harper), Proc. 1986 *Conference of the Association for Computational Linguistics*, pp. 3-9 (1986).

``A Neat Theory of Marker Passing," Proc. 1986 *National Conference on Artificial Intelligence*, pp. 584-589 (1986).

`A Connectionist Context-Free Parser Which is Not Context-Free, But Then It is Not Really Connectionist Either" (with Eugene Santos), *Proc. Ninth Annual Conference of the Cognitive Science Society* (1987).

`A Logic for Semantic Interpretation" (with Robert Goldman), Proc. 1988 *Conference of the Association for Computational Linguistics*, pp. 87-94 (1988).

`A Probabilistic ATMS for Plan Recognition" (with Robert Goldman), *Workshop on Plan Recognition*, AAAI Press (1988).

``A Semantics for Probabilistic Quantifier-Free First-Order Languages with Particular Application to Story Understanding" (with Robert Goldman), *Proc. 1989 International Joint Conference on Artificial Intelligence*, pp. 1074-1079 (1989).

``Plan Recognition in Stories and in Life" (with Robert Goldman), Proc. *Fifth Workshop on Uncertainty in Artificial Intelligence*, pp. 54-59 (1989).

``A Probabilistic Approach to Plan-Recognition and Text Understanding - Work in Progress" (with Robert Goldman), *Proc. Second Workshop on Plan Recognition*, IJCAI 1989 pp. 1-5 (1989).

``Probabilistic Semantics for Cost-Based Abduction" (with Solomon E. Shimony), *Proc. 1990 National Conference on Artificial Intelligence* (1990).

``A New Algorithm for Finding MAP Assignments to Belief Networks" (with Solomon E. Shimony), *Proc. Conference on Uncertainty in Artificial Intelligence*, (1990).

``A Probabilistic Approach to Text Understanding" (with Robert Goldman), *Third International Workshop on Artificial Intelligence and Statistics* (1991).

``A Probabilistic Model of Plan Recognition" (with Robert Goldman), Proc. 1991 *Conference of the American Association for Artificial Intelligence* (1991).

``A Probabilistic Analysis of Marker-Passing Techniques for Plan-Recognition" (with Glenn Carroll), *Proc. Conference on Uncertainty in Artificial Intelligence* (1991).

``A New Admissible Heuristic for Minimal-Cost Proofs" (with Saadia Husain), *Proc. 1991 Conference of the American Association for Artificial Intelligence* (1992).

``Two Experiments on Learning Probabilistic Dependency Grammars from Corpora" (with Glenn Carroll), *AAAI-92 Workshop on Statistically-Based NLP Techniques* , AAAI Press (1992).

``Dynamic MAP Calculations for Abduction" (with Eugene Santos), *Proc. Tenth National Conference on Artificial Intelligence*, AAAI Press/MIT Press (1992).

`Learning Probabilistic Dependency Grammars from Labelled Text" (with Glenn Carroll), *Working Notes, AAAI Fall Symposium Series* (1992).

`Equations for Part-of-Speech Tagging" (with C. Hendrickson, N. Jacobson, and M. Perkowitz), *Proc. Eleventh National Conference on Artificial Intelligence* (1993). Received AAAI best-written-paper award.

``Context-Sensitive Statistics for Improved Grammatical Language Models" (with Glenn Carroll), *Proc. Twelfth National Conference on Artificial Intelligence*, AAAI Press/MIT Press (1994).

``Figures of Merit for Best-First Probabilistic Chart Parsing" (with Sharon Caraballo), *Proc. Conference on Empirical Methods in Natural Language Processing*, pp. 127-132 (1996).

``Tree-bank Grammars," Proc. *Thirteenth National Conference on Artificial Intelligence*, AAAI Press/MIT Press, pp. 1031-1036 (1996).

``Statistical Parsing with a Context-free Grammar and Word Statistics" *Proc. of the Fourteenth National Conference on Artificial Intelligence* AAAI Press/MIT Press (1997), Best Paper Award.

``Edge-based Best-first Chart Parsing" (with Sharon Goldwater and Mark Johnson), *Proc. Sixth Workshop on Very Large Corpora*, pp. 127-133 (1998).

``Noun-phrase Co-occurrence Statistics for Semi-automatic Semantic Lexicon Construction" (with Brian Roark), *36th Annual Meeting of the Association for Computational Linguistics and 17th International Conference on Computational Linguistics* , pp.1110-1116 (1998).

``A Statistical Approach to Anaphora Resolution" (with Niyu Ge and John Hale), *Proc. Sixth Workshop on Very Large Corpora*, pp.161-171 (1998).

"Finding Parts in Very Large Corpora" (with Matthew Berland), *Proceedings of the ACL-1999*, pp. 57-64 (1999).

"Automatic Compensation for Parser Figure-of-merit Flaws" (with Don Blaheta), *Proceedings of the ACL-1999, pp. 513-518 (1999).*

"Determining the Specificity of Nouns from Text" (with Sharon Caraballo), *1999 Joint Sigdat Conference on Empirical Methods in Natural Language Processing and Very Large Corpora* pp. 63-70 (1999).

``Reading comprehension programs in a statistical-language-processing class" (with several co-authors) *Proceedings of the NAACL2000 Workshop on Reading Comprehension Tests As Evaluation for Computer-Based Language Understanding Systems, Association for Computational Linguistics (2000)*

``A maximum-entropy-inspired parser" *Proceedings of the 2000 Conference of the North American Chapter of the Assocation for Computational Linguistics, ACL* New Brunswick NJ (2000)

``Assigning function tags to parsed text" (with Don Blaheta) *Proceedings of the 2000 Conference of the North American Chapter of the Assocation for Computational Linguistics, ACL,* New Brunswick NJ (2000)

``Measuring efficiency in high-accuracy, broad-coverage statistical parsing" (with Brian Roark) *Proceedings of the COLING-2000 Workshop on Efficiency in Large-scale* Parsing *Systems* (2000)

"Immediate-head parsing for language models" *Proceedings of the Association for 2001 (2001 Computational Linguistics)* (Best paper award)

"Unsupervised learning of name structure from co-reference data" *Proceedings of the North American Association for Computational Linguistics* 2001, pp. 48-54 (2001)

"Edit detection and parsing for transcribed speech" (with Mark Johnson), *Proceedings of the North American Association for Computational Linguistics* 2001, pp. 118-126 (2001)

"Entropy Rate Constancy in Text" (with Dmitriy Genzel) *Proceedings of the Association for Computational Linguistics* 2002

"Parsing and Disfluency Placement" (with Donald Engel and Mark Johnson) *Proceedings of the Conference on Empirical Methods in Natural Language Processing*

“Syntax-based Language Models for Statistical Machine Translation” with Kevin Knight and Kenji Yamada, *Machine Translation Summit IX, 2003*.

"Variation of Entropy and Parse Trees of Sentences as a Function of the Sentence Number" with Dmitriy Genzel, *2003 Conference on Empirical Methods in Natural Language Processing.*

A TAG-based noisy-channel model of speech repairs, *2004 Conference of the Association for Computational Linguistics* (with Mark Johnson)

``Coarse-to-fine n-best Parsing and MaxEnt
Discriminative Reranking", by Eugene Charniak and Mark Johnson,
*Proceedings of the 2005 Meeting of the Association for
Computational Linguistics, 2005*

``Supervised and Unsupervised Learning for Sentences
Compression",
by Jenine Turner and Eugene Charniak,
*Proceedings of the 2005 Meeting of the Association for
Computational Linguistics, 2005*

Parsing Biomedical Literature, by Matt Lease and Eugene Charniak
International Joint Conference on Natural-Language Processing, 2005

Effective Use of Prosody in Parsing Conversational Speech
Jeremy G. Kahn, Matthew Lease, Eugene Charniak, Mark Johnson and Mari Ostendorf, 2005

Human Language Technology/Empirical Methods in Natural Language Processing (HLT/EMNLP), 2005

Parsing and its Applications for Conversational Speech

Technical Reports

``CARPS, A Program Which Solves Calculus Word Problems," MAC-TR-51 (Thesis), Project MAC, M.I.T. (1968).

``Micro-Planner Reference Manual" (with G.J. Sussman and T. Winograd), A.I. Memo 203A, M.I.T. Artificial Intelligence Laboratory (1971).

``Toward a Model of Children's Story Comprehension," TR-266, M.I.T. Artificial Intelligence Laboratory (1972).

``He Will Make You Take it Back, A Study in the Pragmatics of Language," Technical Report 6, Institute of Semantic and Cognitive Studies, Castagnola, Switzerland (1974).

``A Brief on Case," Technical Report 22, Institute for Semantic and Cognitive Studies, Castagnola, Switzerland (1975).

``On the Referential/Attributive Distinction," Technical Report 24, Institute for Semantic and Cognitive Studies, Geneva, Switzerland (1976).

``Micro-SAM and Micro-ELI: Exercises in Popular Cognitive Mechanics" (with C. Riesbeck), Research Report 139, Yale University Artificial Intelligence Project (1978).

``Type Checking in LISP," Technical Report No. CS-58, Department of Computer Science, Brown University (1979).

``The Frail/Nasl Reference Manual" (with Michael K. Gavin and James Hendler), Technical Report No. CS-83-06, Department of Computer Science, Brown University (1983).

`Knowledge Representation and the Plan-Recognition-as-Planning Theory," Technical Report No. CS-85-01, Department of Computer Science, Brown University (1985).

``Probabilistic Semantics for Cost-Based Abduction" (with Solomon E. Shimony), Technical Report No. CS-90-02, Department of Computer Science, Brown University (1990).

``A New Admissible Heuristic for Minimal-Cost Proofs" (with Saadia Husain), Technical Report No. CS-91-11, Department of Computer Science, Brown University (1991).

``Probabilistic Abduction for Plan Recognition" (with Robert Goldman), Technical Report No. CS-91-12, Department of Computer Science, Brown University (1991).

`A Probabilistic Analysis of Marker-Passing Techniques for Plan Recognition" (with Glenn Carroll), Technical Report No. CS-91-44, Department of Computer Science, Brown University (1991).

``Two Experiments on Learning Probabilistic Dependency Grammars from Corpora" (with Glenn Carroll), Technical Report No. CS-92-16, Department of Computer Science, Brown University (1992).

`Taggers for Parsers" (with J. Adcock, G. Carroll, A. Cassandra, Y. Gotoh, J. Katz, M. Littman, J. McCann), Technical Report No. CS-94-06, Department of Computer Science, Brown University (1994).

`Context-Sensitive Statistics for Improved Grammatical Language Models" (with Glenn Carroll), Technical Report No. CS-94-07, Department of Computer Science, Brown University (1994).

``Parsing with Context-Free Grammars and Word Statistics," Technical Report No. CS-95-28, Department of Computer Science, Brown University (1995).

``A Statistical Syntactic Disambiguation Program and What it Learns" (with Murat Ersan), Technical Report No. CS-95-29, Department of Computer Science, Brown University (1995).

``Expected-Frequency Interpolation," Technical Report No. CS-96-37, Department of Computer Science, Brown University (1996).

Book Reviews

``How to Register Dissatisfaction with AI," \fIThe Behavioral and Brain Sciences 1 (1) (1979).

Review of ``Readings in Uncertain Reasoning," \fICanadian Artificial Intelligence (28), pp. 25-27 (1991).

Invited Lectures

1972	Stanford University Rutgers University
1973	Carnegie-Mellon Workshop on the Representation of Knowledge Milan Polytech
1973,74,75	IBM European Advanced Education Institute
1974	Zurich Polytech Lausanne Polytech Artificial Intelligence and Simulation of Behavior (AISB) Conference, Sussex
1975	NATO Summer School on the Representation of Knowledge, Santa Cruz AISB Summer School, Cambridge, England University of Edinburgh University of Amsterdam Catholic University, Nijmegen University of Leyden
1976	University of Bern University of Bielefeld University of Cologne Workshop on Semantic Representation, Bonas, France
1977	Psycholinguistics Seminar, University of Geneva French National Research Center, Paris Conference on Artificial Intelligence, Bad Honeff, Germany Massachusetts Institute of Technology University of Maryland
1978	University of Rochester Bolt, Beranek and Newman
1979	Raytheon Corporation Massachusetts Institute of Technology University of New Hampshire
1980	Carnegie-Mellon University University of Connecticut
1981	Hewlett-Packard Bolt, Beranek and Newman
1982	Natural Language Parsing Workshop, Essex, England Conference on the Philosophy of Computation, Brown University
1983	Rhode Island College Yale University National Conference on Artificial Intelligence Workshop on Unsupervised Image Classification, Brown University University of Rochester
1984	National Conference on Artificial Intelligence Hudson Valley SIGART and Vassar College

	Ohio SIGART and Air Force Institute of Technology
1985	Central Florida State University (Distinguished Lecture Series) Columbia University Digital Equipment Corporation New Mexico State University
1986	St. John's College Carnegie-Mellon University Boston University National Conference on Artificial Intelligence Mitre Corporation Fall Joint Computer Conference
1987	Theoretical Issues in Natural Language Processing-3 Yale University Digital Equipment Corporation ACM Computer Science Conference (Keynote Speaker)
1988	Philosophy of Cognitive Science Series - Brown University University of California, Berkeley Xerox Parc SRI International University of California, Irvine University of California, Los Angeles Workshop on Planning Recognition, AAAI 1988 Rochester Planning Workshop Rome Connectionist Natural Language Workshop
1989	General Electric University of Sussex Conference of the British Society for the Philosophy of Science Imperial College - London Penn State University (Distinguished Lecture Series) IJCAI Workshop on Plan Recognition Workshop on Uncertainty in Artificial Intelligence
1990	University of Chicago Northwestern University Florida Artificial Intelligence Research Symposium Connectionism Workshop, University of Pennsylvania
1991	Curriculum Workshop, M.I.T. University of Rochester Second International Colloquium on Cognitive Science, San Sebastian, Spain AI Curriculum Workshop, Holy Cross US Navy Center for Applied Research in Artificial Intelligence, Washington, DC
1992	Louisiana State University Tulane University
1993	AAAI Invited Lecture AAAI Tutorial

1994	University of Toronto Carnegie-Mellon University Brown University Department of Cognitive Science
1995	Cornell University Florida Artificial Intelligence Research Symposium Southern Methodist University International Joint Conference on Artificial Intelligence, Montreal, Canada IJCAI Workshop on New Methods in Language Learning University of Massachusetts at Amherst Third Natural Language Processing Pacific-Rim Symposium, Seoul, Korea
1996	University of Pennsylvania
1997	University of Utah (Distinguished Lecture Series) University of Rochester Uncertainty in Artificial Intelligence (Banquet Speaker) Johns Hopkins University
1998	University of Maryland Machines that Think Conference (Snowbird) Neural Information Processing Systems (NIPS)
1999	Johns Hopkins University ASIS 1999 Annual Conference Brown Humanities Institute CUNY Sentence Processing Conference
2000	International Biometric Society East North America Region (AR) Stanford University AI'2000 - The Canadian Artificial Intelligence Conference for 2000 Johns Hopkins Summer Workshop Microsoft Institute for Mathematics and its Applications
2001	University of Saarbruken University of Bonn AT&T Labs Uncertainty in Artificial Intelligence Conference
2002	Educational Testing Service Brown SUMS Conference (Undergraduate Mathematics). Johns Hopkins (CLSP Summer School) Columbia University Distinguished Lecture Series
2003	Fourth International Conference on Parsing Technology University of Rochester
2004	Massachusetts Institute of Technology
2005	Google Matesius Lecture Speaker - Charles University, Prague

ISI/UCLA Distinguished Lecture Series
Johns Hopkins

Invited Workshop Papers:

2004	An enhanced model for recognizing disfluencies in conversational speech Rich-Text Worshop 2004 (with Mark Johnson and Matt Lease)

Papers Read

1967	First Joint International Conference on Artificial Intelligence
1972	Conference on Natural Language Processing, NYU
1973	Third Joint International Conference on Artificial Intelligence
1975	Workshop on Theoretical Issues in Natural Language Processing, MIT
1977	Fifth International Joint Conference on Artificial Intelligence
1978	Second Workshop on Theoretical Issues in Natural Language Processing, U. Illinois
1979	Workshop on ``Dense Representations," University of California, San Diego Twelfth Annual Mathematical Psychology Meeting, Providence, RI Representation des connaissances et raisonnement dans les sciences de l'homme et de la socie 'te ', Saint-Maximin ACM National Conference
1981	Seventh International Joint Conference on Artificial Intelligence
1982	Cognitive Science Curriculum Conference, U. Rochester Conference of the Philosophy of Computation, Brown U.
1983	National Conference on Artificial Intelligence
1985	Workshop on Connectionist Symbol Processing
1986	National Conference on Artificial Intelligence
1988	Conference of the Association for Computational Linguistics
1989	Eleventh International Joint Conference on Artificial Intelligence, Workshop on Uncertainty in Artificial Intelligence
1990	Informatics Curricula for the 1990's National Conference on Artificial Intelligence Conference on Uncertainty in Artificial Intelligence
1993	AAAI
1994	AAAI

6. Research in Progress

Eugene Charniak's research has always concerned computer comprehension of natural language. Lately he has been concentrating on the problem of language learning through statistical methods. The statistical analysis of language has become more and more interesting with the increases in computer power/memory and the increasing availability of on-line corpora. Currently, Charniak and his students are conducting experiments in learning probabilistic context-free grammars (PCFG) for English from such corpora. A PCFG is a context-free grammar which also has a probability associated with each rule that is interpreted as the probability of the left-hand side non-terminal being expanded using this rule (as opposed to the other rules that could be used to expand it). There is a standard technique for ``tuning'' PCFGs so that the associated probabilities match the data as closely as possible. This technique, along with restrictions on the possible form of a rule, allow one in effect to propose all possible rules and then eliminate the ones that after tuning have zero probability. Unfortunately, the tuning technique only finds a locally optimal set of probabilities, and thus one needs further information, the ``bias,'' so that the locally optimal set is the desired set. This research is interesting both because of the light it may shed on how much bias is actually required and because the end product, a reasonably robust grammar for English, is a prerequisite for further research in the area. In particular, given a robust parsing scheme, we can now start to look at more semantic issues like selectional restrictions on the arguments of verbs or of adjectives. That is, we develop semantic classes such as the things which can be the direct object of ``eat'' (presumably these would be mostly food). The end result of such experimentation is statistical language models that can be used to improve speech-comprehension programs, help ``stuff'' databases with information from news articles, or translate languages.

7. Service

To the University

1978-1980	Colloquia Chairman, Program in Computer Science
1978-1980	Co-organizer, Artificial Intelligence Lecture Series
1980-1986	Executive Committee, Center for Cognitive Science
1980-1981	Freshman Advisor, Department of Computer Science
1981-1984	Graduate Advisor, Department of Computer Science
1981-1988	Chairman, Graduate Admissions Committee
1988-1990	Deans Scholarship Committee
1988-1991	Graduate Advisor

1989-1991	Committe on Nominations
1991-1997	Chair, Department of Computer Science
1999-	Lectureship Committee
2003	Chair, Undergraduate Recruitment Committee
2004	Chair, Undergraduate Recruitment Committee
2005	Undergraduate recruitment. Faculty search committee. Facilities committee.

To the profession

1969-	Referee, International Joint Conferences on Artificial Intelligence
1977-	Associate Commentator, The Behavioral and Brain Sciences
1977-1984	Editor, Cognitive Science
1978-NSF	Reviewer, Intelligent Systems
1979-1984	Editorial Advisory Board, Cognition and Brain Theory
1980-	NSF Reviewer, Information Science and Technology
1980-1981	Program Committee, Seventh International Joint Conference on Artificial Intelligence
1982-1986	Editorial Board, Studies in Natural Language Processing Cambridge University Press
1983-1986	Board, American Association for Artificial Intelligence
1984-1996	Editorial Board, \fICognitive Science
1988	ACL Conference Program Committee AAAI Conference Program Committee Editorial Board, Computational Linguistics
1988-1989	Knowledge Representation Conference Program Committee
1989	Reviewer, International Joint Conference on Artificial Intelligence
1990	Site Reviewer, New York State Education Department, Doctoral Evaluation Project
1992	Reviewer, NSF 1993 Undergraduate Course and Curriculum Development Program

1994	Program Committee, AAAI Best Paper Committee, AAAI
1996	Evaluation Panel Member for the Presidential Faculty Fellows Program, NSF Program Committee, Conference on Empirical Methods in Natural Language Processing Site Reviewer, Linguistic Data Consortium
1997	Editorial Board, Journal of AI Research
1997	Local Arrangements Chair EMNLP-97 Program Committee ACL 97
1998	Program Chair, Workshop on Very Large Corpora
1999	ACL99 Reviewer NSF Site visitor
2001	Program Co-chair ACL-2002 Program Co-chair Conference of the Association for Computational Linguistics 2002 (ACL-2002) Reviewer Conference on Empirical Methods in Natural-Language Processing 2002 (EMNLP-02)
2003	Program committees: 2003 Meeting of the North American Chapter of the Association for Computational Linguistics, 2003 Conference on Empirical Methods in Natural Language Processing, 2003 Conference of the Association for Computational Linguistics. Advisory committee, Johns Hopkins Summer Workshop.
2004	Program committees: 2004 Meeting of the North American Chapter of the Association for Computational Linguistics, 2004 Conference on Empirical Methods in Natural Language Processing, 2004 Conference of the Association for Computational Linguistics.
2005	ACL reviewer Disfluency In Spontanious Speech Conference reviewer Conference on Natural-Language Learning (CONLL) reviewer

8. Academic Honors, Research Grants, Fellowships and Honorary Societies

Honors

1967	A.B. with Honors, University of Chicago National Science Foundation Fellowship Sigma Xi
1990	Fellow of the American Association for Artificial Intelligence, founding member

Research Grants

1979-1980	NSF, ``Computer Science and Computer Engineering Research Equipment", $55,096.
1979-1988	ONR, ``The Computer Solution of Word Problems in Inventory Control as a First Step Toward a Program Which Learns from Textbooks", $464,626.
1980-1985	ONR, ``Automated Technical Documentation and Assistance" (Co-Principal Investigator with A. van Dam), $891,084.
1981-1984	NSF, ``Research on Natural Language Processing (Frame Selection)", $131,920.
1982-1987	NSF, ``An Integrated Experimental Environment for Research in Computer Science' (Co-principal investigator with A. van Dam, J.E. Savage, P. Wegner, R. Sedgewick, T.W. Doeppner, S.P. Reiss, J.S. Vitter and P.C. Kanellakis), $2,771,311.
1983-1985	DARPA/ONR, ``Ideographics" (Co-principal investigator with J.E. Savage, A. van Dam, G.M. Baudet, B.M. Chazelle, T.W Doeppner, P.C. Kanellakis, S.P. Reiss,R. Sedgewick, J.S. Vitter and P. Wegner), $700,000.
1983-1986	ITT, ``Digital Design Understanding as Motivation Comprehension," $49,600.
1986-1989	NSF, ``A Single-Semantic-Process Theory of Parsing," $295,240.
1985-1987	NSF, ``An Approach to Abductive Inference in Artificial Intelligence Systems," $120,818.
1988-1990	ONR, ``Language Comprehension," $171,895.
1988-1993	NSF, ``Multiparadigm Design Environments," $3,469,574 (Co-PI).
1989-1992	NSF, ``A Probabilistic Approach to Natural Language Understanding," $180,000.
1990-1993	ONR, ``A Probabilistic Approach to Text Understanding," $277,879.
1991-1994	DARPA, ``High-Performance Computing Environments," $2,697,175.
1994-1997	NSF, ``Improved Statistical Language Models," $224,914.
1996-1999	ONR, ``AI Approaches to Statistical Language Models," $304,384.
1997-2000	NSF, ``Structured Statistical Learning"(with M. Johnson, J. Donoghue, S. Geman, and D. Mumford), $775,420.
2000-2004	NSF, "Robust Knowledge Discovery from Parallel Speech and Text" (with large group from Brown, Johns Hopkins, etc.) $300,000.
2001-2004	NSF-ITR Learning Syntastic Semantic Knowledge for Parsing ($500,000)

9. Teaching

1993-94	Natural Language Understanding (CS241) (6)
1994-95	Statistical Models in Natural-Language Processing (CS241) (8)
1995-96	Statistical Models in Natural-Language Processing (CS241) (10)
1996-97	Statistical Models in Natural-Language Processing (CS241) (11)
	Syllabus: http://www.cs.brown.edu/courses/cs241
1997-98	Statistical Models in Natural-Language Processing (CS241) (12)
1998-99	Concepts & Challenges of Computer Science (CS2)
	My home page is http://www.cs.brown.edu/~ec
2003-04	CS148: Robotics CS241: Introduction to Statistical Language Processing
2004-05	CS051 Theory of Computation CS148 Robotics CS241 Introduction to Statistical Language Processing
2005-06	CS051 CS241

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Theses Directed

1981	Douglas Wong, ``On the Unification of Language Comprehension with Problem Solving"
1983	Graeme Hirst, ``Semantic Interpretation Against Ambiguity"
1985	James Hendler, ``Integrating Marker-Passing and Problem-Solving: A Spreading-Activation Approach to Improved Choice in Planning"
1987	Robert McCartney, ``Synthesizing Algorithms with Performance Constraints"
1989	Mary Harper, ``The Representation of Noun Phrases in Logical Form"
1990	Randall J. Calistri, ``Classifying and Detecting Plan-Based Misconceptions for Robust Plan Recognition"
	Robert P. Goldman, ``A Probabilistic Approach to Language Understanding"
	Felix W. Yen, ``CI-2, A Logic for Plural Representation"
1991	Solomon E. Shimony, ``A Probabilistic Framework for Explanation"
1992	Eugene Santos, ``A Linear Constraint Satisfaction Approach for Abductive Reasoning"

1995	Glenn A. Carroll, ``Learning Probabilistic Grammars for Language Modeling"
2000	Niyu Ge, "An Approach to Anaphoric Pronouns"
2001	Sharon A. Caraballo, "Automatic Construction of a Hypernym-Labeled Noun Hierarchy from Text"
2004	Donald P. Blaheta, “Function Tagging”
2005	Dmitriy Genzel “Creating Algorithms for Parsers and Tagers for Resource Poor Languages Using a Related Resource-Rich Language"

10. Corpora and Research Materials

"BLLIP 1987-89 WSJ Corpus Release 1"
A two CD-ROM corpus consisting of a complete, Treebank-style parsing of the three-year WSJ archive from the ACL/DCI corpus -- about 30 million words of text. Distributed by the Linguistic Data Consortium (LDC). Together with Don Blaheta, Niyu Ge, Keith Hall, John Hale and Mark Johnson

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