

SANDIWAY FONG

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The University of Arizona
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EMPLOYMENT

- 9/03 – **Assistant Professor of Linguistics and Computer Science**
The University of Arizona, Tucson, Arizona
- Joint appointment in the departments of Linguistics and Computer Science*
Member of the Cognitive Science Program.
Joint Linguistics-Anthropology Ph.D Program faculty member.
- 11/02 – 9/03 **Research Staff Member**
NEC Laboratories America, Inc., Princeton, New Jersey
- Technology Group Project Leader:** Research for Machine Translation Evaluation.
NEC Research Institute/NEC Laboratories America.
- 9/02 – 1/03 **Visiting Lecturer**
Linguistics Program, Princeton University, Princeton, New Jersey
Course: LIN/COS 380, Computational Linguistics.
- 9/94 – 10/02 **Research Scientist**, Computer Science Division.
NEC Research Institute, Inc., Princeton, New Jersey
- 9/91 – 8/94 **Provisional Research Scientist**, Computer Science Division.
NEC Research Institute, Inc., Princeton, New Jersey

INTERNSHIPS

- 1987, 1986 **IBM T.J. Watson Research Center.** Hawthorne. N.Y.
Prototype qualitative reasoning system for computer system performance diagnosis.
- 1983 **Daresbury Nuclear Physics Laboratory.**
Science and Engineering Research Council of Great Britain (SERC).
Warrington. England.
Implementation of relational database management package.

GRANTS AND CONTRACTS

- 2004 – 2009 **Co-chercheur** (Co-PI) Traitement computationnel
Grant: *Asymmetry at the Interfaces* (CDN\$2.5M)
Social Sciences and Humanities Research Council of Canada (SSHRC).

Project Director: Anna Maria Di Sciullo, University of Québec at Montréal (UQAM), Québec, Canada.

2000 – 2003 **Collaborateur** (Consultant) Computational Morphology
Grant: *Les asymétries des langues naturelles et leur traitement par les systèmes de performance* (CDN\$1.8M)
Social Sciences and Humanities Research Council of Canada (SSHRC).
Project Director: Anna Maria Di Sciullo, University of Québec at Montréal (UQAM), Québec, Canada.

1998 – 2000 **Cooperative Member** (Consultant) Natural Language Parsing in Japanese
Grant: *Researching and Verifying an Advanced Theory of Human Language*
Grant-in Aid for Center of Excellence (COE) Research
Japanese Ministry of Education, Science and Culture (MONBUSHO)
Research Leader: Kazuko Inoue. Graduate School of Language Sciences, Kanda University of International Studies (KUIS), Chiba, Japan.

EDUCATION

GRADUATE EDUCATION

1984–1991 **Massachusetts Institute of Technology.**
Artificial Intelligence Laboratory,
Dept. of Electrical Engineering and Computer Science. Cambridge MA.

June 1991 Ph.D. in Artificial Intelligence. Minor in Linguistics.
Thesis title “Computational Properties of Principle-Based Grammatical Theories.”
Thesis advisor: Robert C. Berwick.

June 1986 S.M. (Master of Science). Thesis title “Specifying Coordination in Logic.”

AWARDS AND HONOURS

1987–1990 IBM Graduate Fellow Award.
1984–1986 J.F. Kennedy Scholar. Kennedy Memorial Trust. (*1 of 12 scholars at MIT and Harvard.*)

UNDERGRADUATE EDUCATION

1981–1984 **Imperial College of Science and Technology.**
University of London. London, England.

June 1984 B.Sc(Eng) in Computing Science, First Class Honours. University of London.
Associateship of the City and Guilds of London Institute (ACGI). Imperial College.

AWARDS AND HONOURS

1984 Governors’ Prize in Computing Science.
(*1st place in graduating class.*)

1984 IBM Prize in Computing Science.
(*1st place, undergraduate project.*)

1983 Arthur Anderson Prize in Computing Science.
(*1st place, Part 2 of university examinations.*)

PUBLICATIONS

(Organized thematically)

Lexical Semantics

- “Obstacles and Regions.” Fellbaum, C. & S. Fong. To appear in *The Acquisition and Representation of Verb Meaning*. Eds. Lenci, A. and S. Montemagni and V. Pirrelli. Kluwer.
- 2001 “Ghosts, Shadows and Resultatives: The Lexical Representation of Verbs.” Fong, S., C. Fellbaum & D. Lebeaux. In *Traitement Automatique des Langues (TAL)* journal, issue 43:3, 2001.
- 2001 “Shadows: A Type of Non-Subcategorized Object.” Fong, S., C. Fellbaum & D. Lebeaux. In Proceedings of the First International Workshop on Generative Approaches to the Lexicon (GL-2001), April 26–28 2001, Geneva, Switzerland.
- 2000 “Verb Classes and Resultative Selection in a Computational Lexicon.” Fong, S., C. Fellbaum & D. Lebeaux. In Proceedings of the 1st Meeting on Speech Technology, Seville, Spain, November 8th.
- 2000 “Semantic Templates and Transitivity Alternations in the Lexicon.” Fong, S., C. Fellbaum & D. Lebeaux. In Proceedings of the 7th Conference on Automatic Natural Language Processing (TALN-2000), pp. 167–176, October 16–18, Lausanne, Switzerland.
- 2000 “The PAPPI System: Lexical Semantics and Morpho-Syntax.” Fong, S. Refereed demonstration note in Proceedings of the Student Research Workshop, Tutorial Abstracts, and Demonstration Notes, 38th Annual Meeting of the Association for Computational Linguistics (ACL-2000), pp. 24-25, October 3–6, Hong Kong.
- 2000 “The Representation of Verbs and Resultatives in a Computational Lexicon.” Fong, S., C. Fellbaum & D. Lebeaux. In Proceedings of the Workshop on Computational Lexicography and Multimedia Dictionaries (COMLEX-2000), pp. 67-70, September 22–23, Patras, Greece.

WordNet

- 2004 “Semantic Opposition and WordNet.” Fong, S. *Journal of Logic, Language and Information*. **13**: 159–171
- 2002 “On the Ontological Basis for Logical Metonymy: Telic/Agentive Roles and WordNet.” Fong, S. Proceedings of OntoLex 2002, 27th May 2002, Las Palmas, Canary Islands, Spain.
- 2002 “What does it mean to be a Shelf? Semantic Bleaching and WordNet.” Fong, S. Proceedings of the 1st Global WordNet Conference (GWN), pp. 351–359, January 22–25, Mysore, India.
- 2001 “The Color of Semantic Opposition in WordNet.” Fong, S. Proceedings of the 3rd Workshop on Inference in Computational Semantics (ICoS-3), June 18–19th, Siena, Italy.
- 2001 “On Mending a Torn Dress: The Frame Problem and WordNet.” Fong, S. Proceedings of the Workshop on WordNet and Other Lexical Resources, North American Chapter of the Association for Computational Linguistics (NAACL), June 2–7 2001, Carnegie Mellon University, Pittsburgh.

Morphology

- 2001 “Efficient Parsing for Word Structure.” Di Sciullo, A.M. & S. Fong. In Proceedings of the 6th Natural Language Processing Pacific Rim Symposium (NLPRS2001), pp. 741-748, November 27–79, Tokyo, Japan.
- 2001 “Asymmetry, Zero Morphology and Tractability.” Di Sciullo, A.M. & S. Fong. In Proceedings of the 15th Pacific Asia Conference on Language, Information and Computation (PACLIC-15), pp. 61–72, February 1–3, Hong Kong, China.

Languages

- 2001 “A Modular Approach to Turkish Noun Compounding: The Integration of a Finite-State Model.” Birturk, A. & S. Fong. In Proceedings of the 6th Natural Language Processing Pacific Rim Symposium (NLPRS2001), pp. 525–531, November 27–79, Tokyo, Japan.
- 2001 “Japanese PAPPI.” Fong, S. In Researching and Verifying an Advanced Theory of Human Language, Report (5), pp. 445–464, Kanda University of International Studies (KUIS), March 2001, Chiba, Japan.
- 1998 “Dealing with Nominalization in Mandarin Chinese Using a Principles and Parameters Parser.” Lin, Koong H.C., V.W. Soo & S. Fong. , CPOL (International Journal of Computer Processing of Oriental Languages), Vol 11(3), pp. 291–310, Jan. 1998.
Expanded version of “Dealing with Nominalization in Mandarin Chinese Using a Principles and Parameters Parser.” Lin, Koong H.C., S. Fong and V.W. Soo. ICCPOL '97, April 2nd–4th, Hong Kong.
- 1995 “Madama Butterfly Redux: Parsing English and Japanese with a Principles-and-Parameters Approach.” Berwick, R.C. & S. Fong. In *Japanese Sentence Processing*, Eds. R. Mazuka *et al.* pp.177–208. Lawrence Erlbaum.
- 1994 “Towards a Proper Linguistic and Computational Treatment of Scrambling: An Analysis of Japanese.” Fong, S. Proceedings of the sixteenth International Conference on Computational Linguistics (COLING-94). August 5–9. Kyoto, Japan.
- 1992 “Isolating Cross-linguistic Parsing Complexity with a Principles-and-Parameters Parser: A Case Study of Japanese and English.” Fong S., & R.C. Berwick. Proceedings of the fifteenth International Conference on Computational Linguistics (COLING-92). Nantes, France.

Parsing

- 2004 “Prosodic Phrasing in Japanese and Parsing in the Minimalist Program.” Fong, S. & Y. Hirose. In Proceedings of the 21st Annual Meeting of the Japanese Cognitive Science Society, pp. 314–315, July 30th – August 1st, Tokyo, Japan
- 2004 “Computation with Probes and Goals: A Parsing Perspective.” Fong S. In *UG and External Systems*, Eds. Di Sciullo, A. M. and R. Delmonte, John Benjamins. (In press).

- “Verbal Inflection, Head Movement and LR Parsing”, Fong S. To appear in *Principle-Based Parsing: from Theory to Practice*, ed. R.C. Berwick, Kluwer Academic.
- 1999 “Parallel Principle-Based Parsing”, Fong, S. Sixth International Workshop on Natural Language Understanding and Logic Programming (NLULP '99), pp. 45–57, International Conference on Logic Programming (ICLP), Las Cruces, New Mexico.
- 1995 “A Quarter Century of Computation with Transformational Grammar” Berwick, R.C. & S. Fong. In *Linguistics and Computation*, Eds. Cole, J. *et al.*, pp. 103–143. CSLI Lecture Notes No. 52, Stanford University.
- 1995 “Cartesian Computation: The Pappi Project, S. Fong. Fifth International Workshop on Natural Language Understanding and Logic Programming/NLULP'95, May 29-31. Lisbon, Portugal.
- 1991 “The Computational Implementation of Principle-Based Parsers.” Fong, S. In *Principle-Based Parsing: Computation and Psycholinguistics*, pp. 65–82. Ed. Berwick, R.C. et al. Studies in Linguistics and Philosophy 44. Kluwer. 1991.
- 1991 “Principle-Based Parsing and Type Inference.” S. Fong. In *Natural Language and Logic Programming, III*. Eds. Brown, C. & G. Koch, pp. 43–60, Elsevier Science Publishers B.V. (North Holland). 1991.
- 1990 “Principle-Based Parsing: Natural Language Processing for the 1990s.” R.C. Berwick & S. Fong. Chapter 12 in *Artificial Intelligence at MIT: Expanding Frontiers*. Volume 1. pp. 286–325. Ed. P.H. Winston. MIT Press.
- 1990 “Free Indexation: Combinatorial Analysis and a Composition Algorithm.” S. Fong. Proceedings of the 28th Annual Meeting of the Association for Computational Linguistics, U. of Pittsburg, August 1990.
- 1989 “The Computational Implementation of Principle-Based Parsers.” S. Fong, R.C. Berwick. Proceedings of the 1st International Workshop on Parsing Technologies, Carnegie Mellon University.
Paper also appears in the book *Current Issues in Parsing Technologies*. Ed. Tomita, Kluwer. 1990.
- 1985 “New Approaches to Parsing Conjunctions using Prolog.” S. Fong, R.C. Berwick. Proceedings of the 23rd Annual Meeting of the Association for Computational Linguistics, pp. 118–126. University of Chicago.
- 1985 (Revised version of above paper.) Proceedings of the 9th International Joint Conference on Artificial Intelligence (IJCAI-85), UCLA.

Machine Translation

- 2002 “Getting “Just” and “Right” just right.” S. Fong, C. Tenny & D. Lebeaux, NEC Research Institute Technical Report 2002-066.

Miscellaneous

- 2000 *Natural Language Grammatical Inference with Recurrent Neural Networks*, S. Lawrence, C.L. Giles, S. Fong. IEEE Trans. on Knowledge and Data Engineering. January/February 2000, Vol. 12, No. 1, pp. 126–40.

Also see “Natural language grammatical inference: a comparison of recurrent neural networks and machine learning methods” Lawrence, S. & S. Fong & C. L. Giles. In “Connectionist, statistical, and symbolic approaches to learning for natural language processing.” Eds: Wermter, S. & E. Riloff & G. Scheler. Lecture Notes in Artificial Intelligence. p. 33-47, Springer-Verlag. March 1996.

Also see “Can Recurrent Neural Networks Learn Natural Language Grammars?” Steve Lawrence, C. Lee Giles, S. Fong, IEEE International Conference on Neural Networks, p. 1853, IEEE Press (1996).

Also see “On the applicability of neural network and machine learning methodologies to natural language processing.” Lawrence, S., S. Fong & C. L. Giles. IJCAI-95 Workshop on New Approaches to Learning for Natural Language Processing. August 21st. Montreal.

RECENT TALKS

- 2004 “Minimalist Parsing: SOV Languages and Relative Clauses”
Fourth Annual Conference of the Federation on Natural Language Processing: Interfaces Conference. IPSI-2004. July 30th – August 1st. Pescara, Italy.
- 2004 “Traitement relationnel des composés” (with co-author Anna Maria Di Sciullo)
Fondements Relationnels du Traitement des Langues Naturelles, ACFAS Conference, UQAM, Montreal, Canada. May 10th. 2004.
- 2004 “Parsing in the Minimalist Program.”
Invited lecture. Joint Geneva-Lausanne doctoral program workshop. University of Geneva, Switzerland. April 29th 2004.
- 2004 “Parsing and Grammar: Some Basic Issues.”
Invited lecture. Joint Geneva-Lausanne doctoral program workshop. University of Geneva, Switzerland. April 29th 2004.
- 2004 “Current Research Topics in Computational Linguistics.”
Arizona Center for Information Science and Technology (ACIST) Collaboration Symposium. University of Arizona, Tucson AZ. April 8th 2004.
- 2004 “What’s in Your Mind?” (with Cecile McKee and Mary Peterson)
Expanding Your Horizons. Women in Science and Engineering (WISE) program. University of Arizona, Tucson AZ. March 27th 2004.
- 2004 “The Computational Lexicon: Verbs and Levels of Representation”
AI Seminar, Department of MIS, University of Arizona, Tucson AZ. March 12th 2004.
- 2003 “Japanese to English Machine Translation Evaluation.”
Language Technologies Institute (LTI), CMU, Pittsburgh. November 21st 2003.
- 2003 “Obstacles and Regions” (with co-author Christiane Fellbaum).
Workshop on Ontological Knowledge and Linguistic Coding at the 25th annual meeting of the German Linguistics Society (Deutsche Gesellschaft für Sprachwissenschaft), Munich, February 26th, 2003

- 2003 “Fixed Expressions, Body Parts and Machine Translation.”
Berlin-Brandenburg Academy of Sciences and Humanities, Berlin, Germany. February 25th. 2003.
- 2003 “The Structuring of Knowledge: Three Views from Inferencing and WordNet.”
Berlin-Brandenburg Academy of Sciences and Humanities, Berlin, Germany. February 24th. 2003.
- 2003 “The Verb Lexicon and Event Template Design.”
Institute for Linguistics, University of Potsdam, Potsdam, Germany. February 24th 2003.
- 2002 “Resultatives and Shadows”
Verb Meeting, IRCS, University of Pennsylvania. November 21st. 2002.
- 2002 “Minimalist Parsing”
CUNY Psycholinguistics Supper Club, CUNY Graduate Center, New York. November 12th. 2002.
- 2002 “Verb Classes and WordNet: Obstacles and Regions”
Institute for Systems Science and Biomedical Engineering of the Italian National Research Council (LADSEB-CNR), Padua, Italy. October 8th. 2002
- 2002 “Semantic Inference and WordNet”
Istituto per la Ricerca Scientifica e Tecnologica (IRST), Trento, Italy. October 7th. 2002.
- 2002 “Computation with Probes and Goals: A Parsing Perspective ”
The 2nd Conference of the Federation on Natural Language Processing: Language, Brain and Computation. October 3–5th. University of Venice, Venice, Italy.
- 2002 “Three Views on WordNet from Semantic Inference”
MIT Artificial Intelligence Laboratory, March 15th.
- 2002 “WordNet: Three Views on Semantic Inference”
University of Montreal, Canada. February 28th.
- 2002 “The PAPPi System: Languages and Parameterization”
International Institute of Information Technology, Hyderabad, India, January 28th.
- 2001 “PAPPi: A Logic-Based System for Multilingual Parsing”
Miyagi Gakuin Women’s College, Sendai, Japan, December 6th.
- 2001 “Semantic Inference and WordNet”
Yokohama National University, Yokohama, Japan, November 16th.
- 2001 “The PAPPi System: Languages and Parameterization”
Colloquium on Language Issues, Rabat, Morocco, October 24-26th.
- 2001 “Efficient Parsing for Word Structure” (with co-author A.M. Di Scullo),
Conference on Grammar and NLP, UQAM, Montréal, Canada, October 14th.
- 2001 “Lexical Semantics, Semantic Opposition and WordNet”
Math Linguistics seminar, Department of Linguistics, UCLA, July 24th.
- 2001 “Morphology and Tractability” (with co-author A.M. Di Scullo),

- Asymmetry Conference, Montréal, Canada, May 7–10th.
- 2001 “Ghosts, Shadows and Resultatives: The Lexical Representation of Verbs ” (with co-author C. Fellbaum),
Colloquium on Computational Linguistics, University of Maryland at College Park, May 2nd.
- 2000 “The PAPPI System: Overview and Recent Developments”
Department of Computer Science, University of Tokyo, Tokyo, Japan, December 12th.
- 2000 “The PAPPI System: Overview and Demonstration”
Princeton University Linguistics Program Seminar, Princeton, NJ, November 30th.
- 2000 “Two Types of Non-Subcategorized Objects: Shadows and Ghosts”
The Eleventh Computational Linguistics in the Netherlands Meeting (CLIN-2000), Tilburg, Holland, November 3rd.
- 2000 “The Verb Lexicon and Semantic Templates”
Institute for Language and Speech Processing (ILSP), Athens, Greece, September 19th.
- 1999 “Semantic Templates and Transitivity Alternations” with C. Fellbaum and D. Lebeaux,
(NECI TR#99-164), Colloquium on Computational Linguistics, University of Maryland at College Park, December 7th.
- 1999 “Linguistics and Computation”
Computing Research Laboratory (CRL), New Mexico State University. December 6th.
- 1999 “Word Syntax” Innovation Canada, Ottawa, Canada, December 3rd.
- 1999 “Principles-and-Parameters Parsing: The PAPPI System”
Department of Linguistics, University of Québec at Montréal (UQAM), Canada, May 27th.
- 1998 “NLP in the Principles-and-Parameters Framework”
COE International Workshop. Graduate School of Language Sciences, Kanda University of International Studies, Chiba, Japan. November 19th.
- 1998 “The PAPPI System: Parsing with Principles and Parameters”
Tsukuba University, Tsukuba, Japan, February 6, 1998.
- 1998 “The PAPPI Project: A Parser for the Principles and Parameters Framework”
Verb Meeting, University of Pennsylvania, Philadelphia, PA, March 10, 1998.
- 1997 “The Computation of Movement”
Invited talk. International Workshop on Parsing Technologies '97 (IWPL97), September 1997. Cambridge MA.

DUTIES

- 2004 Program committee member for 3rd International Workshop on Generative Approaches to the Lexicon (GL-2005). University of Geneva, Switzerland.
- 2004 Program committee member for Logical Aspects of Computational Linguistics (LACL-2005), Fifth International Conference. Bordeaux, France.
- 2004 Book proposal reviewer for John Wiley and Sons, Inc.
- 2003 (National Science Foundation) NSF Panel Member.
- 2003 Program committee member for ACL '93. Area: Lexical Semantics and Ontologies for NLP.
- 2002 Program committee member for the International Workshop on Generative approaches to the Lexicon (GL-2003), May 15–17th 2003, Geneva, Switzerland.
- 2001 Program committee member for NLULP-02, Copenhagen, Denmark.
- 2001 Program committee member for 1st Global Wordnet Conference. January 2002.
- 1999 Conference Co-chair for *Natural Language and Logic Programming* (NLULP '99), Dec 3–4th 1999, Las Cruces, New Mexico.
- 1995 Program committee member for NLULP5.
- 1993 Program committee member for NLULP4. September 1993. Nara, Japan.

PERSONAL

Status Permanent Resident (Green Card holder), United States. British Citizen.