

## GIORGIO SATTA

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### Work:

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## Personal Data

**Born:** July 15th, 1960, in Battipaglia (Salerno), Italy  
**Citizenship:** Italian  
**Address:** via Ca' Nova 59, I-36030 Zugliano (Vicenza)

## Education

Ph.D., Computer Science. University of Padua, Padua, Italy. 1986 - 89  
Bachelor's Degree in Electronic Engineering. University of Padua, Padua, Italy. 1979 - 1985

## Professional Experience

Faculty Member at the Full Professor level, Department of Information Engineering, University of Padua, Italy. 2005 - Present  
Faculty Member at the Associate Professor level, Department of Information Engineering, University of Padua, Italy. 1998 - 2005  
Faculty Member at the Assistant Professor level, Department of Information Engineering, University of Padova, Italy. 1994 - 1998  
Visiting Scientist (invited) at Columbia University, New York, NY. 08/2014 - 09/2014  
Visiting Scientist (invited) at the 2014 Frederick Jelinek Memorial Workshop on Meaning Representations in Language and Speech Processing, Johns Hopkins University, Baltimore, MD and Charles University in Prague, Czech Republic. 07/2014  
Visiting Scientist (invited) at the *Institut National de Recherche en Informatique et en Automatique* (INRIA) Paris, Rocquencourt Research Centre, Paris, France. 04/2008 - 06/2008  
Visiting Scientist (invited) at the Institute for Research in Cognitive Science (IRCS), University of Pennsylvania, Philadelphia, PA. 05/2006

Visiting Scientist (invited) at the Institute for Research in Cognitive Science (IRCS), University of Pennsylvania, Philadelphia, PA.	10/1997 - 11/1997
Visiting Scientist (invited) at the Center for Language and Speech Processing (CLSP), Department of Electrical and Computer Engineering, Johns Hopkins University, Baltimore, MD.	10/1996 - 11/1996
Visiting Scientist (invited) at the Center for Language and Speech Processing (CLSP), Department of Electrical and Computer Engineering, Johns Hopkins University, Baltimore, MD.	09/1995 - 12/1995
Post-doctoral fellowship at the Department of Computer Science, University of Venice, Italy.	09/1993 - 03/1994
Post-doctoral fellowship at Institute for Research in Cognitive Science, University of Pennsylvania, Philadelphia PA.	09/1991 - 08/1993
Full-time research scientist at the Institute for Scientific and Technological Research (IRST), Trento, Italy.	05/1990 - 08/1991
Research Fellow at the “Centro Studi e Laboratori Telecomunicazioni” (CSELT), Turin, Italy.	11/1985 - 05/1986

## Professional Services

### Association Chairmanships

Chair, European Chapter of the Association for Computational Linguistics (EACL).	2009 - 2010
Chair-elect, European Chapter of the Association for Computational Linguistics (EACL).	2007 - 2008
Standing Committee of the Formal Grammar Conference.	2005 - 2008

### Editorial Boards

Editorial Board of the Transactions of the Association for Computational Linguistics.	2012 - 2014
Editorial Board of Research on Language and Computation (Springer).	2007 - 2010
Editorial Board of Grammars (Springer).	2001 - 2003
Editorial Board of Computational Linguistics (MIT Press).	1998 - 2000

### Program Committee Chairmanships

Co-chair of the Program Committee of the 11th International Workshop on Tree Adjoining Grammars and Related Formalisms (TAG+11), Paris, France.	2012
Area Chair for Syntax and Parsing, 13th Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT 2012), Montreal, Canada.	2011
Co-Chair of the Program Committee of the 13th Conference on Formal Grammars, Hamburg, Germany.	2008

Co-Chair of the Program Committee of the 12th Conference on Formal Grammars, Dublin, Ireland.	2007
Program Committee of the 10th International Workshop on Parsing Technologies (IWPT-07), Prague, Czech Republic.	2007
Area Chair for Syntax and Parsing, 11th Conference of the European Chapter of the Association for Computational Linguistics (EACL-06), Trento, Italy.	2006
Co-Chair of the Program Committee of the 11th Conference on Formal Grammars, Malaga, Spain.	2006
Area Chair for Language and Computation, 17th European Summer School in Logic, Language and Information (ESSLI 2005), Edimburgh, UK.	2005
Co-Chair of the Program Committee of the 39th Annual Meeting of the Association for Computational Linguistics (ACL-01), Toulouse, France.	2001
Chair of the Program Committee of the 7th International Workshop on Parsing Technologies (IWPT-01), Beijing, P.R. China.	2001
Area Chair for Syntax and Parsing, 38th Annual Meeting of the Association for Computational Linguistics (ACL-00), Hong Kong, P.R. China.	2000
Chair of the Poster Session and the Demo Session of the 9th Conference of the European Chapter of the Association for Computational Linguistics (EACL-99), Bergen, Norway.	1999

### **Organizing Committee Chairmanships**

Co-chair of the Organizing Committee of the 6th International Workshop on Tree Adjoining Grammars and Related Formalisms (TAG+6), Venice, Italy.	2002
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### **Invited Talks**

Invited Speaker at MOL 2009, Bielefeld, Germany.	2009
Invited Speaker at AutoMathA 2007, Palermo, Italy.	2007
Invited Speaker at the NAACL-06 Workshop on Computationally Hard Problems and Joint Inference in Speech and Language Processing, New York, USA.	2006
Invited Speaker at 7th International Workshop on Tree Adjoining Grammars and Related Formalisms (TAG+7), Vancouver, British Columbia, Canada.	2004
Invited Speaker at the Conference on Formal Grammars (FG-04), Nancy, France.	2004
Invited Speaker at 3rd AMAST Workshop on Algebraic Methods in Language Processing (AMiLP-03), Verona, Italy.	2003
Invited Speaker at the 6th International Workshop on Parsing Technologies (IWPT-00), Trento, Italy.	2000

### **Tutorials**

Tutorial on parsing algorithms, 25th European Summer School in Logic, Language and Information (ESSLI 2013), Düsseldorf, Germany.	2013
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Tutorial on parsing algorithms, 16th European Summer School in Logic, Language and Information (ESSLI 2004), Nancy, France.	2004
Tutorial on parsing algorithms, 7th International Workshop on Tree Adjoining Grammars and Related Formalisms (TAG+7), Vancouver, British Columbia, Canada.	2004
Tutorial on parsing algorithms, 4th International Workshop on Tree Adjoining Grammars and Related Formalisms (TAG+4), Philadelphia, PA.	1998
Tutorial on finite-state automata, Behavioral and Cognitive Neuroscience Summer School, Groningen, The Netherlands.	1996

## Publications

### Edited Books

Harry Bunt, John Carroll and Giorgio Satta, eds. *New Developments in Parsing Technology*, Kluwer. 2004

### Refereed Journals

Marco Kuhlmann and Giorgio Satta. A New Parsing Algorithm for Combinatory Categorical Grammar. *Transactions of the Association for Computational Linguistics*, 2(Oct): 405–418. 2014

Yoav Goldberg, Francesco Sartorio and Giorgio Satta. A Tabular Method for Dynamic Oracles in Transition-Based Parsing. *Transactions of the Association for Computational Linguistics*, 2(April): 119–130. 2014

Mark-Jan Nederhof and Giorgio Satta. Prefix Probabilities for Linear Context-Free Rewriting Systems. *Journal of Logic and Computation*. 24(2): 331–350. 2014

Giorgio Satta and Marco Kuhlmann. Efficient Parsing for Head-Split Dependency Trees. *Transactions of the Association for Computational Linguistics*, 1(July): 267–278. 2013

Anna Corazza, Alberto Lavelli and Giorgio Satta. An Information Theoretic Measure to Evaluate Parsing Difficulty Across Treebanks. *ACM Transactions on Speech and Language Processing*, 9(4): 7:1–7:31. 2013

Marco Kuhlmann and Giorgio Satta. Tree-Adjoining Grammars are not Closed Under Strong Lexicalization. *Computational Linguistics*, 38(3): 617–629. 2012

Mark-Jan Nederhof and Giorgio Satta. Splittability of Bilexical Context-Free Grammars is Undecidable. *Computational Linguistics*, 37(4): 867–879. 2011

Rebecca Nesson, Giorgio Satta and Stuart Shieber. Complexity, Parsing, and Factorization of Tree-Local Multi-Component Tree-Adjoining Grammars. *Computational Linguistics*, 36(3), 443–480. 2010

Alberto Apostolico and Giorgio Satta. Discovering Subword Associations in Strings in Time Linear in the Output Size. *Journal of Discrete Algorithms*, 7(2), 227–238. 2009

Mark-Jan Nederhof and Giorgio Satta. Computing partition functions of PCFGs. *Research on Language and Computation*, 6(2), 139–162. 2008

Mark-Jan Nederhof and Giorgio Satta. Computation of Distances for Regular and Context-Free Probabilistic Languages. *Theoretical Computer Science*, 395(2-3), 235–254. 2008

Anna Corazza and Giorgio Satta. Probabilistic Context-Free Grammars Estimated from Infinite Distributions. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 29(8), 1379–1393. 2007

Mark-Jan Nederhof and Giorgio Satta. Probabilistic Parsing Strategies. *Journal of the Association for Computing Machinery*, 53(3), 406–436. 2005

Mark-Jan Nederhof and Giorgio Satta. The Language Intersection Problem for Non-Recursive Context-Free Grammars. *Information and Computation*, 192, 172–184. 2004

Mark-Jan Nederhof and Giorgio Satta. IDL-Expressions: A Formalism for Representing and Parsing Finite Languages in Natural Language Processing. *Journal of Artificial Intelligence Research*, 21, 287–317. 2004

- Amihood Amir, Alberto Apostolico, Gad Landau and Giorgio Satta. Efficient Text Fingerprinting Via Parikh Mapping. *Journal of Discrete Algorithms*, 1, 409–421. 2003
- Owen Rambow and Giorgio Satta. Independent Parallelism in Finite Copying Parallel Rewriting Systems. *Theoretical Computer Science*, 223, 87–120. 1999
- Robert Frank and Giorgio Satta. Optimality Theory and the Generative Complexity of Constraint Violability. *Computational Linguistics*, 24(2), 307–316. 1998
- Giorgio Satta. Trading Independent for Synchronized Parallelism in Finite Copying Parallel Rewriting Systems. *Journal of Computer and System Sciences*, 56(1), 27–45. 1998
- Filomena Ferrucci, Giuliano Pacini, Giorgio Satta, Maria Sessa, Genoveffa Tortora, Maurizio Tucci and Giuliana Vitiello. Symbol-Relation Grammars: a Formalism for Graphical Languages. *Information and Computation*, 131(1), 1–46. 1996
- Anna Corazza, Renato De Mori, Roberto Gretter and Giorgio Satta. Optimal Probabilistic Evaluation Functions for Search Controlled by Stochastic Context-Free Grammars. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 16(10), 1018–1027. 1994
- Giorgio Satta and Oliviero Stock. BiDirectional Context-Free Grammar Parsing for Natural Language Processing. *Artificial Intelligence*, 69, 123–164. 1994
- Giorgio Satta. Tree Adjoining Grammar Parsing and Boolean Matrix Multiplication. *Computational Linguistics*, 20(2), 173–192. 1994
- Anna Corazza, Renato De Mori, Roberto Gretter and Giorgio Satta. Language Modeling using Stochastic Context-Free Grammars. *Speech Communication*, 13(1-2), 163–170. Also in G. Fant, K. Hirose, S. Kiritani, eds., *Analysis, Perception and Processing of Spoken language*, Elsevier, 163–170. 1993
- Anna Corazza, Renato De Mori, Roberto Gretter and Giorgio Satta. Computation of Probabilities for an Island-Driven Parser. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 13(9), 936–950. 1991

## Refereed Conference Proceedings

- Carlos Gómez-Rodríguez, Francesco Sartorio and Giorgio Satta. A Polynomial-Time Dynamic Oracle for Non-Projective Dependency Parsing. In *Proceedings of the 2014 Conference on Empirical Methods in Natural Language Processing (EMNLP 2014)*, Doha, Qatar. To appear. 2014
- Francesco Sartorio, Giorgio Satta and Joakim Nivre. A Transition-Based Dependency Parser Using a Dynamic Parsing Strategy. In *Proceedings of the 51th Conference of the Association for Computational Linguistics (ACL 2013)*, Sofia, Bulgaria, 135–144. 2013
- Shay Cohen, Giorgio Satta and Michael Collins. Approximate PCFG Parsing Using Tensor Decomposition. In *Proceedings of the Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL 2013:HLT)*, Atlanta, Georgia, 487–496. 2013
- Andrea Gesmundo, Giorgio Satta and James Henderson. Heuristic Cube Pruning in Linear Time. In *Proceedings of the 50th Conference of the Association for Computational Linguistics (ACL 2012)*, Jeju Island, Korea, 296–300. 2012
- Shay Cohen, Carlos Gomez-Rodriguez and Giorgio Satta. Exact Inference for Generative Probabilistic Non-Projective Dependency Parsing. In *Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing (EMNLP 2011)*, Edinburgh, UK, 1234–1245. 2011

- Mark-Jan Nederhof and Giorgio Satta. Computation of Infix Probabilities for Probabilistic Context-Free Grammars. In *Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing (EMNLP 2011)*, Edinburgh, UK, 1213–1221. 2011
- Mark-Jan Nederhof and Giorgio Satta. Prefix Probability for Probabilistic Synchronous Context-Free Grammars. In *Proceedings of the 49th Conference of the Association for Computational Linguistics (ACL 2011)*, Portland, Oregon, 460–469. 2011
- Pierluigi Crescenzi, Daniel Gildea, Andrea Marino, Gianluca Rossi and Giorgio Satta. Optimal Head-Driven Parsing Complexity for Linear Context-Free Rewriting Systems. In *Proceedings of the 49th Conference of the Association for Computational Linguistics (ACL 2011)*, Portland, Oregon, 450–459. 2011
- Marco Kuhlmann, Carlos Gomez-Rodriguez and Giorgio Satta. Dynamic Programming Algorithms for Transition-Based Dependency Parsers. In *Proceedings of the 49th Conference of the Association for Computational Linguistics (ACL 2011)*, Portland, Oregon, 673–682. 2011
- Benoit Sagot and Giorgio Satta. Optimal Rank Reduction of LCFRSs with Fan-Out 2. In *Proceedings of the 48th Conference of the Association for Computational Linguistics (ACL 2010)*, Uppsala, Sweden, 525–533. 2010
- Marco Kuhlmann, Alexander Koller and Giorgio Satta. The Importance of Rule Restrictions in CCG. In *Proceedings of the 48th Conference of the Association for Computational Linguistics (ACL 2010)*, Uppsala, Sweden, 534–543. 2010
- Carlos Gomez-Rodriguez, Marco Kuhlmann and Giorgio Satta. Efficient Parsing of Well-Nested Linear Context-Free Rewriting Systems. In *Proceedings of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies Conference (NAACL 2010:HLT)*, Los Angeles, California, 276–284. 2010
- Laura Kallmeyer and Giorgio Satta. A Polynomial-Time Parsing Algorithm for TT-MCTAG. In *Proceedings of the Joint Conference of the 47th Annual Meeting of the Association for Computational Linguistics and the 4th International Joint Conference on Natural Language Processing of the Asian Federation of Natural Language Processing (ACL-IJCNLP 2009)*, Singapore, 994–1002. 2009
- Carlos Gomez-Rodriguez and Giorgio Satta. An Optimal-Time Binarization Algorithm for Linear Context-Free Rewriting Systems with Fan-Out Two. In *Proceedings of the Joint Conference of the 47th Annual Meeting of the Association for Computational Linguistics and the 4th International Joint Conference on Natural Language Processing of the Asian Federation of Natural Language Processing (ACL-IJCNLP 2009)*, Singapore, 985–993. 2009
- Carlos Gomez-Rodriguez, Marco Kuhlmann, Giorgio Satta and David Weir. Optimal Reduction of Rule Length in Linear Context-Free Rewriting Systems. In *Proceedings of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies Conference (NAACL 2009:HLT)*, Boulder, Colorado, 539–547. 2009
- Marco Kuhlmann and Giorgio Satta. Treebank Grammar Techniques for Non-Projective Dependency Parsing. To appear in *Proceedings of the 12th Conference of the European Chapter of the Association for Computational Linguistics (EACL 2009)*, Athens, Greece. 2009
- Rebecca Nesson, Giorgio Satta and Stuart Shieber. Optimal  $k$ -arization of Synchronous Tree-Adjoining Grammar. In *Proceedings of the 46th Conference of the Association for Computational Linguistics (ACL 2007:HLT)*, Columbus, Ohio, 604–612. 2008
- Libin Shen, Giorgio Satta and Aravind Joshi. Guided Learning for Bidirectional Sequence Classification. In *Proceedings of the 45th Conference of the Association for Computational Linguistics (ACL 2007)*, Prague, Czech Republic, 760–767. 2007

- Daniel Gildea, Giorgio Satta, and Hao Zhang. Factoring Synchronous Grammars by Sorting. In *Proceedings of the Joint Conference of the Association for Computational Linguistics and the International Conference on Computational Linguistics (COLING/ACL 2006)*, Sydney, Australia, 279–286. 2006
- Anna Corazza and Giorgio Satta. Cross-Entropy and Estimation of Probabilistic Context-Free Grammars. In *Proceedings of the Human Language Technology Conference and the Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2006:HLT)*, New York, USA, 335–342. 2006
- Mark-Jan Nederhof and Giorgio Satta. Estimation of Consistent Probabilistic Context-free Grammars. In *Proceedings of the Human Language Technology Conference and the Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2006:HLT)*, New York, USA, 343–350. 2006
- Giorgio Satta and Enoch Peserico. Some Computational Complexity Results for Synchronous Context-Free Grammars. In *Proceedings of Human Language Technology Conference and Conference on Empirical Methods in Natural Language Processing (HLT/EMNLP 2005)*, Vancouver, British Columbia, 803–810. 2005
- Mark-Jan Nederhof and Giorgio Satta. Probabilistic Parsing Strategies. In *Proceedings of the 42nd Conference of the Association for Computational Linguistics (ACL 2004)*, Barcelona, Spain, 543–550. 2004
- Mark-Jan Nederhof and Giorgio Satta. An Alternative Method of Training Probabilistic LR parsers. In *Proceedings of the 42nd Conference of the Association for Computational Linguistics (ACL 2004)*, Barcelona, Spain, 551–558. 2004
- Dan Melamed, Giorgio Satta and Benjamin Wellington. Generalized Multitext Grammars. In *Proceedings of the 42nd Conference of the Association for Computational Linguistics (ACL 2004)*, Barcelona, Spain, 563–569. 2004
- Mark-Jan Nederhof and Giorgio Satta. Kullback-Leibler Distance between Probabilistic Context-Free Grammars and Probabilistic Finite Automata. In *Proceedings of the 20th International Conference on Computational Linguistics (COLING 2004)*, Geneva, Switzerland, 71–77. 2004
- Alberto Apostolico, Cinzia Pizzi and Giorgio Satta. Optimal Discovery of Subword Associations in Strings. In *Proceedings of the 7th International Conference on Discovery Science (DS 2004)*, Padua, Italy. 2004
- Mark-Jan Nederhof and Giorgio Satta. Parsing Non-Recursive Context-Free Grammars. In *Proceedings of the 40th Conference of the Association for Computational Linguistics (ACL 2002)*, Philadelphia, Pennsylvania, 112–119. 2002
- Fabio Ciravegna, Alberto Lavelli and Giorgio Satta. Bringing Information Extraction out of the Labs: the Pinocchio Environment. In *Proceedings of the 14th European Conference on Artificial Intelligence (ECAI 2000)*, Amsterdam, The Netherlands, 416–420. 2000
- Mark-Jan Nederhof and Giorgio Satta. Left-To-Right Parsing and Bilexical Context-Free Grammars. In *Proceedings of the 1st Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2000)*, Seattle, Washington, 272–279. 2000
- Jason Eisner and Giorgio Satta. Efficient Parsing for Bilexical Context-Free Grammars and Head Automaton Grammars. In *Proceedings of the 37th Conference of the Association for Computational Linguistics (ACL 1999)*, College Park, Maryland, 457–464. 1999
- Mark-Jan Nederhof, Anoop Sarkar and Giorgio Satta. Prefix Probabilities from Stochastic Tree Adjoining Grammars. In *Proceedings of the 36th Conference of the Association for Computational Linguistics (ACL 1998)*, Montreal, Canada, 953–959. 1998

- Giorgio Satta and William Schuler. Restrictions on Tree Adjoining Languages. In *Proceedings of the 36th Conference of the Association for Computational Linguistics (ACL 1998)*, Montreal, Canada, 1176–1182. 1998
- Mark-Jan Nederhof and Giorgio Satta. A Variant of Earley Parsing. In *Proceedings of the 5th Congress of the Italian Association for Artificial Intelligence (AI\*IA 1997)*, Lecture Notes in Artificial Intelligence 1321, Springer-Verlag, Berlin, Germany, 84–95. 1997
- Giorgio Satta and John Henderson. String Transformation Learning. In *Proceedings of the 35th Conference of the Association for Computational Linguistics (ACL 1997)*, Madrid, Spain, 444–451. 1997
- Giorgio Satta. The Membership Problem for Unordered Vector Languages. In J. Dassow, G. Rozenberg, A Salomaa, eds., *Developments in Language Theory II. At the Crossroads of Mathematics, Computer Science and Biology*. Proceedings of the 2nd International Conference on Developments in Language Theory, July 1995, Magdeburg, Germany. World Scientific Publishing, Singapore. 1996
- Mark-Jan Nederhof and Giorgio Satta. Efficient Tabular LR Parsing. In *Proceedings of the 34th Conference of the Association for Computational Linguistics (ACL 1996)*, Santa Cruz, CA, 239–246. 1996
- Owen Rambow and Giorgio Satta. Synchronous Models of Language. In *Proceedings of the 34th Conference of the Association for Computational Linguistics (ACL 1996)*, Santa Cruz, CA, 116–123. 1996
- Giorgio Satta and Eric Brill. Efficient Transformation-Based Parsing. In *Proceedings of the 34th Conference of the Association for Computational Linguistics (ACL 1996)*, Santa Cruz, CA, 255–262. 1996
- Anna Corazza, Renato De Mori, Roberto Gretter and Giorgio Satta. Language Models for Automatic Speech Recognition. In A. J. Rubio and S. López eds., *New Advances and Trends in Speech Recognition and Coding*, NATO ASI Series, Springer-Verlag, Berlin, Germany, 157–173. 1995
- Anna Corazza, Renato De Mori, Roberto Gretter, Roland Kuhn and Giorgio Satta. Recent Results on Stochastic Language Modeling. In H. Niemann, R. De Mori, G. Hanrieder, eds., *Progress and Prospects of Speech Research and Technology*. Proceedings in Artificial Intelligence, INFIX, Munchen, Germany, 45–52. 1994
- Mark-Jan Nederhoff and Giorgio Satta. An Extended Theory of Head-Driven Parsing. In *Proceedings of the 32nd Conference of the Association for Computational Linguistics (ACL 1994)*, Las Cruces, New Mexico, 210–217. 1994
- Owen Rambow and Giorgio Satta. A Rank Hierarchy for Deterministic Tree-Walking Transducers. In S. Tison ed., *Proceedings of CAAP'94 – Trees in Algebra and Programming*, Lecture Notes in Computer Science 787, Springer-Verlag, Berlin, Germany, 308–321. 1994
- Owen Rambow and Giorgio Satta. A Rewriting System for Free Word Order Syntax that is Non-Local and Mildly Context Sensitive. In C. Martin-Vide ed., *Current Issues in Mathematical Linguistics*, North-Holland Linguistic series, Vol. 56, Elsevier-North Holland, Amsterdam, The Netherlands, 121–130. 1994
- Anna Corazza, Renato De Mori and Giorgio Satta. Computation of Upper-Bounds for Stochastic Context-Free Languages. In *Proceedings of the 10th National Conference on Artificial Intelligence (AAAI 1992)*, San Jose, California, 344–349. 1992
- Giorgio Satta. Recognition of Linear Context-Free Rewriting Systems. In *Proceedings of the 30th Meeting of the Association for Computational Linguistics (ACL 1992)*, Newark, Delaware, 89–95. 1992

- Anna Corazza, Renato De Mori, Roberto Gretter and Giorgio Satta. Computation of Upper-Bounds for Island-Driven Stochastic Parsers. In *Proceedings of the European Conference on Speech Communication and Technology*, Genova, Italy, 215–218. 1991
- Alberto Lavelli and Giorgio Satta. BiDirectional Parsing of Lexicalized Tree Adjoining Grammars. In *Proceedings of the 5th Conference of the European Chapter of the Association for Computational Linguistics (EACL 1991)*, Berlin, Germany, 27–32. 1991
- Giorgio Satta and Oliviero Stock. A Tabular Method for Island-Driven Context-Free Grammar Parsing. In *Proceedings of the 9th National Conference on Artificial Intelligence (AAAI 1991)*, Los Angeles, California, 143–148. 1991
- Alessandra Giorgi, Fabio Pianesi and Giorgio Satta. A Computational Approach to Binding Theory. In *Proceedings of the 13th International Conference on Computational Linguistics (COLING 1990)*, Helsinki, Finland, 120–125. 1990
- Anna Corazza, Renato De Mori, Roberto Gretter and Giorgio Satta. Computation of Probabilities for Island-Driven Parsers. In *Proceedings of the International Conference on Spoken Language Processing*, Kobe, Japan. 1990
- Giorgio Satta and Oliviero Stock. Formal Properties and Implementation of BiDirectional Charts. In *Proceedings of the 11th International Joint Conference on Artificial Intelligence (IJCAI 1989)*, Detroit, Michigan, 1480–1485. 1989

## International Workshops

- Mark-Jan Nederhof and Giorgio Satta. Prefix Probabilities for Linear Context-Free Rewriting Systems. In *Proceedings of the 12th International Conference on Parsing Technologies (IWPT 2011)*, Dublin, Ireland, 151–162. 2011
- Andreas Maletti and Giorgio Satta. Parsing and Translation Algorithms Based on Weighted Extended Tree Transducers. In *Proceedings of the ACL 2010 Workshop on Applications of Tree Automata in Natural Language Processing (ATANLP)*, Uppsala, Sweden. 2010
- Giorgio Satta. Synchronous Rewriting for Natural Language Processing. **invited talk**. *11th Meeting on Mathematics of Language (MOL 2009)*, Bielefeld, Germany. 2009
- Andreas Maletti and Giorgio Satta. Parsing Algorithms based on Tree Automata. In *Proceedings of the 11th International Workshop on Parsing Technologies (IWPT 2009)*, Paris, France. 2009
- Laura Kallmeyer, Wolfgang Maier and Giorgio Satta. Synchronous Rewriting in Treebanks. In *Proceedings of the 11th International Workshop on Parsing Technologies (IWPT 2009)*, Paris, France. 2009
- Giorgio Satta. Natural Language Parsing: New Trends and Open Problems. **invited talk**. *Automata: from Mathematics to Applications (AutoMathA 2007)*, Palermo, Italy. 2007
- Ryan McDonald and Giorgio Satta. On the Complexity of Non-Projective Data-Driven Dependency Parsing. In *Proceedings of the 10th International Workshop on Parsing Technologies (IWPT 2007)*, Prague, Czech Republic, 121–132. 2007
- Giorgio Satta. Structure and Complexity of Grammar-Based Machine Translation. **Invited talk**. In *Proceedings of the NAACL 2006 Workshop on Computationally Hard Problems and Joint Inference in Speech and Language Processing*, New York, USA. 2006
- Anna Corazza, Alberto Lavelli, Giorgio Satta and Roberto Zanolì. Analyzing an Italian Treebank with State-of-the-Art Statistical Parsers. In *Proceedings of the 3rd Workshop on Treebanks and Linguistic Theories (TLT 2004)*, Tuebingen, Germany. 2004

- Giorgio Satta. Local Parallel Rewriting: Theory and Applications. **Invited talk.** In *7th International Workshop on Tree Adjoining Grammar and Related Formalisms (TAG+ 2004)*, Vancouver, Canada. 2004
- Giorgio Satta. Local Parallel Rewriting: Theory and Practice. **Invited talk.** In *9th Conference on Formal Grammars (FG 2004)*, Nancy, France. 2004
- Mark-Jan Nederhof and Giorgio Satta. Probabilistic Parsing Strategies. **Invited talk.** In *Proceedings of the 3rd AMAST Workshop on Algebraic Methods in Language Processing (AMiLP 2003)*, Verona, Italy, 19–32. 2003
- Mark-Jan Nederhof, Stuart Shieber and Giorgio Satta. Partially Ordered Multiset Context-Free Grammars and Free-Word-Order Parsing. In *Proceedings of the 8th International Workshop on Parsing Technologies (IWPT 2003)*, Nancy, France, 171–182. 2003
- Mark-Jan Nederhof and Giorgio Satta. Probabilistic parsing as intersection. In *Proceedings of the 8th International Workshop on Parsing Technologies (IWPT 2003)*, Nancy, France, 137–148. 2003
- Mark-Jan Nederhof and Giorgio Satta. IDL-Expressions: A Compact Representation for Finite Languages in Generation Systems. In *Proceedings of the 7th Conference on Formal Grammars (FG 2002)*, Trento, Italy, 125–136. 2002
- Mark-Jan Nederhof and Giorgio Satta. Probabilistic Parsing Strategies. In *Proceedings of the 4th Workshop on Descriptive Complexity of Formal Systems (DCFS 2002)*, London, Ontario, Canada, 216–230. 2002
- Jason Eisner and Giorgio Satta. A Faster Parsing Algorithm for Lexicalized Tree-Adjoining Grammars. In *Proceedings of the 5th International Workshop on Tree Adjoining Grammars (TAG+ 2000)*, Paris, France, 79–84. 2000
- Giorgio Satta. Parsing Techniques for Lexicalized Context-Free Grammars. **Invited talk.** In *Proceedings of the 6th International Workshop on Parsing Technologies*, Trento, Italy, 10–14. 2000
- Mark-Jan Nederhof, Anoop Sarkar and Giorgio Satta. Prefix Probabilities for Linear Indexed Grammars. *4th International Workshop on Tree Adjoining Grammars (TAG+ 1998)*, Philadelphia, Pennsylvania. 1998
- Robert Frank, Markus Hiller and Giorgio Satta. Optimality Theory and Generative Complexity. *5th Meeting on Mathematics of Language (MOL 1997)*, August 1997, Wadern, Germany. 1997
- Robert Frank and Giorgio Satta. The Generative Complexity of Constraint Violability. *Hopkins Optimality Theory Workshop*, May 1997, Baltimore, MD. 1997
- Giorgio Satta. String Transformation Systems for Natural Language Processing. *Italian-Israeli Workshop on Artificial Intelligence*, December 1996, Venice, Italy. 1996
- Owen Rambow and Giorgio Satta. Synchronous String Rewriting. *4th Meeting on Mathematics of Language (MOL 1997)*, October 1995, Philadelphia, PA. 1995
- Giorgio Satta. The Recognition Problem for Linear Tree Adjoining Grammars. *3rd International Workshop on Tree Adjoining Grammar*, Paris, France. 1994
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