



Personal MERLO, Paola

information Nationality: Italian, Swiss.

Languages: Italian, English, French, German (some).

URL: https://www.unige.ch/lettres/linguistique/collaborateurs/profs/home/

Current Professor (Associate) 2011–present

positions Head of the unit for Informatics in the Humanities.

Head of the research group Computational Learning and Computational Lin-

guistics.

 $Adjunct\ professor$  2020–2022

Linguistics, Uppsala University, Sweden

### Main research contributions

- Influential interdisciplinary work on automatic verb classification and argument structure and lexical aspects of sentence processing (Stevenson and Merlo 1997, Merlo and Stevenson, 2001, Merlo et al. 2002). Work has been translated in Chinese, was one of the most cited papers from the Computational Linguistics, MIT Press site for years.
- First joint models for both syntactic and argument structure further extended to multiple languages (Merlo and Musillo, 2005, 2008; Henderson, Merlo, Titov, and Musillo, 2013), uses a latent variable neural network architecture.
- Development of new theoretical line of corpus research in linguistics, quantitative computational syntax, which has produced several articles and two dissertations (one Latsis Prize) (Samardzic and Merlo 2012, Samardzic 2013, Gulordava and Merlo 2015, Gulordava and Merlo 2016, Merlo 2016, Merlo 2017, Gulordava 2018 (Latsis Prize), Merlo and Ouwayda 2018, Samo and Merlo 2019).

Positions University of Geneva 1999–2011

Held Maître d'Enseignement et de Recherche, Department of Linguistics.

University of Geneva 1998-1999

Maître Assistante, Department of Linguistics.

University of Pennsylvania 1996-1998

Research Associate, Institute for Research in Cognitive Science.

University of Zurich, winter 1995-1996

Guest instructor, Institute for Computational Linguistics.

University of Geneva

1993-98 (on leave from 1996 to 1998)

Maître Assistante,

Joint appointment, Department of Linguistics and Experimental Psycholinguistics Lab, Psychology.

University of Geneva

1992-93

Post-doctoral Assistant, Department of Linguistics and Experimental Psycholinguistics Lab, Psychology.

University of Maryland

1987-91

Research and Teaching Assistant, Institute for Advanced Computer Studies and Department of Linguistics.

Visiting Professor or Scholar Uppsala University, Linguistics

March-June 2019

Massachusetts Institute of Technology

March 2019

Brain and Cognitive Science

University of Edinburgh, Informatics

Fall/Winter 2018

Stanford University, Linguistics

Fall 2014

University of Edinburgh, Informatics

April-July 2004

Rutgers University, Cognitive Science

April 1995

### Education

Ph.D. University of Maryland at College Park, Institute for Advanced Computer Studies, 1992.

Major: Linguistics; Minor: Computer Science.

Laurea in Foreign Languages and Literatures, Università di Venezia, Ca' Foscari, 1986.  $(110/110\ e\ lode)$ .

### **Distinctions**

Fellow of the Association for Computational Linguistics

lifetime

(aclweb.org/aclwiki/ACL\_Fellows)

For pioneering research on the fundamental problem of verb predicate-argument structure and the automatic acquisition of the lexical, syntactic and lexical semantic properties of verbs, as well as for valuable service to ACL as editor of the CL journal.

## Other Qualifications

Abilitazione Italiana Nazionale, full professor

2018 - 2023

University of Heidelberg, Chair in Computational Linguistics

2015

(declined for family reasons)

### Current Grants

Co-PI and Deputy director for the university of Geneva - NCCR Evolving language: the Origins and Future of Language. (https://evolvinglanguage.ch/) Swiss NSF National Centre of Excellence in Research in the Language Sciences. PI: Prof. Balthasar Bickel, University of Zurich. Total budget: 34 millions, CHF 2020–2024. Renewable three times (for a total budget of roughly 100 millions).

### Completed Research Grants

Co-PI - Complexity, variation and frequency in natural languages: The interfaces between linguistic theory, experimental psycholinguistics and computational linguistics.

University of Geneva Research Network on Language and Communication, 2016–2018. approx 300'000 CHF.

PI - The Grammatical Basis of Linguistics Frequencies: Probabilistic Models of Language Universals.

Swiss NSF, 2013–2015.

257'858 CHF.

Co-PI - CLASSiC: Computational Learning in Adaptive Systems for Spoken Conversation, 2008–2011. European Commission.

Budget for the University of Geneva:

1'065'000 CHF.

Partners: University of Edinburgh (coordinator), Cambridge University, Ecole Supérieure d'Électricité (Metz), France Telecom.

Co-PI - Improving the coherence of machine translation output by modelling inter-sentential relations, 2009–2012.

Swiss NSF SINERGIA Project.

Partners: University of Geneva (Humanities and Sciences) and IDIAP, Martigny. 903'273 CHF.

 $\begin{tabular}{l} PI-Corpus-based\ Explorations\ of\ Cross-Linguistic\ Syntactic\ and\ Semantic\ Parallelism. \end{tabular}$ 

Swiss NSF, 2008–2011.

298'000 CHF.

PI - Learning Verb Meaning with Hidden Grammars.

Swiss NSF, 2006–2009.

104'000 CHF.

PI - Experiments in Parsing Recombination.

Hasler Foundation, 2006.

22'000 CHF.

PI - Weakly Supervised Learning of Verb Meaning.

Swiss NSF, 2004–2006.

82'000 CHF.

Co-PI - Combining Machine Learning and Natural Language Processing for Knowledge Discovery in Text Corpora: Automatic Summarization.

Swiss NSF, 2002–2004.

248'000 CHF.

In collaboration with the Department of Computer Science.

PI - Multi-lingual Automatic Lexical Acquisition: Computational Experiments. Swiss NSF, 2001–2003. 123'000 CHF.

Co-PI - Combining Machine Learning and Natural Language Processing for Knowledge Discovery in Text Corpora.

Swiss NSF, 2000-2002.

246'000 CHF.

In collaboration with the Department of Computer Science.

PI - A Stochastic Model of Syntactic Ambiguity Resolution in Principle-based Parsing.

Swiss NSF, 1995–1997.

147'000 CHF.

Co-PI - Conference on Lexical Representation and Sentence Comprehension: A Multidisciplinary Perspective. Conference grant.

US NSF, 1988–1999, (PI: Suzanne Stevenson, Rutgers University). USD 16'072.

Co-PI - Lexical Statistics: Measures for Effective Natural Language Processing. Travel grant.

Swiss NSF and British Council, 1995–1996 (Co-PI: Matthew Crocker, University of Edinburgh.)

6'000 CHF.

### Secondary Investigator

PARLANCE: Probabilistic Adaptive Real-Time Learning And Natural Conversational Engine, 2011-2014. European Commission.

Site leader: James Henderson, Computer Science. Partners: Cambridge, Heriot-Watt (coordinator), Yahoo! Iberia, Centrale Recherche, iSoco.

### Fellowships (selection)

Senior Researcher Fellowship, *Statistical Natural Language Processing*, spent at University of Pennsylvania. Swiss NSF. 1996-98, 65'000 CHF.

University of Geneva Career Fellowship. 1993-99,

150'000 CHF.

### Administration and service at the University of Geneva

### Faculty level (Lettres)

Committee on teaching and curricula

2015-present.

Advises and approves all teaching curricula, approves opening of new degrees.

Chair of the Linguistics Department

2011-2014

Planning, hiring and financial management of the department. Under my tenure we were spared any budget cuts, thanks to the submission of a large grant, which I led. Also, we received two full professor positions, paid by an ERC Advanced grant (Prof. L. Rizzi) who moved to Geneva from Siena.

Executive committee of department chairs at the Dean's office 2011-2014 Advises Dean and dean's office, approves all non-permanent appointments and approves attribution of doctoral degrees.

Faculty Planning and Development Committee

2011-2014

Develops the four year plan of the faculty for creation of chairs, appointments, promotions, successions and any kind of hiring and scientific development.

Chair of the Equal Opportunity Board

2002-2008

Inter-faculty

Committee on teaching and curricula

2015-present

level (University

Advisory board for the degree in information systems

2016-present

Centre for Informatics)

Extended Advisory Board

2004-2013

University level University committee in charge of reorganising the Equal Opportunity office at the University of Geneva, 2007.

Advises and approves all teaching curricula, approves opening of new degrees.

Worked in group that developed and run the inter-faculty course entitled "Carrière Académique et Projet de Vie", 2005-2007.

Member of the Advisory Board on High Performance Computing to the Informatics Committee.

### Professional recognition

### **Editorial** Responsibilities

Editor-in-chief for Computational Linguistics, MIT Press, 2013-2018.

Peer-nominated, peer-appointed position to the main journal in the field of computational linguistics and natural language processing, Class A European Science Foundation. Among the top journals in Linguistics. Manages a team of 24 editorial board members and one editorial assistant. Interfaces with the publisher and reviewers.

Associate editor for Journal of Logic, Language and Information, Springer Verlag, 2001-2006, Class A European Science Foundation.

Member of the editorial board of Computational Linguistics, MIT Press, 2003-2006.

### Commissions of Trust

Chair of the ERC evaluator panel, Consolidator Grant, panel SH4, The Human Mind and its Complexity, 2020. Twenty world-wide international experts as panel members and three assistants. The panel covers the areas of linguistics, cognitive science and cognitive neuroscience, psychology, philosophy of mind and evaluates around 100 grant submissions, with a budget of around 35 million Euros.

Member of the External Advisory Board of the Centre of Doctoral Training on NLP, University of Edinburgh, started Fall 2019.

Member of the ERC evaluator panel, Consolidator Grant, panel SH4, The Human Mind and its Complexity, 2018.

Member of the Executive Board for the Association for Computational Linguistics (elected world-wide), 2010-2012.

Member of the Executive Board for the Association for Computational Linguistics, 2013-2018, ex officio as editor of the main journal of the association.

Member of the Executive Board for the European Chapter of the Association for Computational Linguistics, elected, 2004-2008.

### Conference Chairs

General Chair of the 2021 Conference of the European Chapter of the Association for Computational Linguistics (EACL 2021).

General Chair of the 2011 Conference on Empirical Methods in Natural Language Processing (EMNLP 2011), July, Edinburgh, Scotland.

Programme Chair of the 10th International Conference on Parsing Technology (IWPT), Prague, July 2007.

Area chair for EMNLP'06, Sydney, Australia, July 2006. Area: Computational Semantics and Inference.

Co-chair of the tutorials' session of Coling 2004, Geneva, Switzerland, August 2004.

Area chair for ACL'03, Sapporo, Japan, July 2003. Areas: Computational Psycholinguistics; Lexical Semantics and Ontologies for NLP.

Co-chair of the tutorials' session of ACL/EACL 2001, Toulouse, France, July 2001.

Co-chair of the one-day special session Conference on Lexical Representation and Sentence Comprehension, Eleventh Annual CUNY Conference on Human Sentence Processing, March 1998, Rutgers University.

### Conference Programme Committees

Third Italian Conference on Computational Linguistics, Napoli.

Twenty-first International Joint Conference on Artificial Intelligence (IJCAI-09), Pasadena, CA.

Eleventh International Conference on Parsing Technologies (IWPT'09), Paris.

Thirteenth Conference on Computational Natural Language Learning (CoNLL'09), Boulder, CO.

Third ACL-SIGSEM Workshop on Prepositions, April 2006, Trento.

Second ACL-SIGSEM Workshop on the Linguistic Dimensions of Prepositions and their Use in Computational Linguistics Formalisms and Applications, April 2005, University of Essex.

Ninth International Workshop on Parsing Technologies (IWPT'05), Vancouver, Canada, October 2005.

Third International Workshop on Generative Approaches to the Lexicon, Geneva, May 2005.

International Conference on Linguistic Evidence: Empirical, Theoretical and Computational Perspectives, Tübingen, Germany, January 2004.

Empirical Methods in Natural Language Processing (EMNLP 2003), Sapporo, Japan, August 2003.

International Florida Artificial Intelligence Research Society (FLAIRS), Special Track: Recent Advances in Natural Language Processing, St. Augustine, Florida, May 2003.

Eighth International Workshop on Parsing Technologies (IWPT'03), Nancy, France, April 2003.

European ACL'03, Student Research Workshop (Faculty Member), Budapest, Hungary, April 2003.

Workshop on Quantitative Investigations in Theoretical Linguistics, Osnabrueck, Germany, October 2002.

ESSLLI 2002, Workshop in Machine Learning Techniques for NLP, Trento, Italy, August 2002.

ACL'02, Workshop on Word Sense Disambiguation, Special session on Prepositions, Philadelphia, USA, July 2002.

ACL'02, Student Research Workshop (Faculty Member), Philadelphia, USA, July 2002.

Empirical Methods in Natural Language Processing (EMNLP 2002), Philadelphia, USA, July 2002.

ESSLI Workshop in Machine Learning Approaches in Computational Linguistics, Trento, Italy 2002.

Seventh International Workshop on Parsing Technologies (IWPT'01), Beijing, China, October 2001.

Conference on Empirical Methods in Natural Language Processing (EMNLP 2001), Pittsburgh, PA, June 2001.

Traitement Automatique des Langues Naturelles (TALN 2000), Lausanne-Geneva, October 2000.

Combinatorial Pattern Matching, 1998, DIMACS, Princeton.

ACL/EACL 1997, Student Research Workshop (Faculty Member), Madrid, Spain.

Conference on Architectures and Mechanisms in Sentence Processing, Edinburgh, 1997.

### Reviewing

Journal reviewer Language, Computational Linguistics, International Journal of Corpus Linguistics, Journal of Language Modelling, ACM Transactions in Speech and Language Processing, Computer Speech and Language, Research on Language and Computation, Linguistics, Linguistic Issues in Language Technology, Corpus Linguistics and Linguistic Theory, Journal of Psycholinguistics Research, Journal of Machine Translation, International Journal of Artificial Intelligence Tools, Cahiers de Linguistique Française.

### Conferences with full paper submission (selected)

Meetings of the Association for Computational Linguistics: Ethics in NLP ACL 2021; Semantics Section: ACL 2020, EMNLP 2019, ACL 2019, ACL 2013, ACL 2012, ACL 2011, ACL 2010, ACL 2009, EACL 2009 ACL 2008, ACL 2007, EACL 2006, ACL 2002; Syntax, Parsing and Morphology Sections: EACL 2012, ACL 2009, NAACL 2009, ACL 2005, EACL 2003, NAACL 2000; Machine Learning Section: ACL 2008; Workshop on Psycholinguistic Models of Acquisition: ACL 2005; Lexicon Section: ACL 2002; Word Segmentation, Tagging and Chunking Section: ACL 2002; Computational Psycholinguistics Section: ACL'99. Blackbox NLP 2019,2018. SyntaxFest 2019. International Joint Conference for Artificial Intelligence (IJCAI) 2009. International Joint Conference on NLP: IJCNLP 2005, 2004. International Conference on Computational Linguistics: COLING 2008, 2002, 2000, 1996, COLING/ACL'98. Conference on Architectures and Mechanisms in Language Processing: AM-LaP 1997, 1996. CUNY Conference on Human Sentence Processing: CUNY 2017, 2004, 1998. Meetings of the Cognitive Science Society: CogSci 2001, CogSci 1998;. Traitement Automatique des Langues Naturelles: TALN 2008, 2003, 2001, 2000. Italian Conference on Computational Linguistics: 2018, 2017, 2016.

Occasional book reviewer for Oxford University Press.

#### Grant reviewer

European Commission ERC Starting grants and Consolidator grants (panels SH4 and PE6). Swiss National Science Foundation, the U.S. NSF, German foundations.

### Keynote Presentations

Beyond the Benchmarks: Locality Properties in Neural Networks, Representations of language in brains and machines, Collège de France, June 2021.

Syntactic parsing in humans and machines, 19th International Conference on Parsing Technologies (IWPT 2020), Seattle, July.

Computational Quantitative Syntax: long-distance dependencies, SyntaxFest 2019, Paris, August 2019.

Mechanisms of argument structure realisation across languages of the world: treebank data and computational modelling, The shaping of transitivity and argument structure: theoretical and empirical perspectives, Pavia, Italy, October 2018.

Computational Quantitative Syntax: some initial results on Romance and other languages, Linguistics Symposium on Romance Languages, Delaware, April 2017.

The Quest for Language Universals: Multi-lingual Computational Results and Methods, TABUdag, Groeningen, June 2016.

The Quest for Language Universals: Multi-lingual Computational Results and Methods, Second Italian Conference for Computational Linguistics, Trento, December 2015,

Semantica, L'età della Parola, Internet Festival, Pisa, October 2013.

Issues in Learning Shallow Meaning, AI\*IA, Research challenges in speech and natural language processing, Milano, Bicocca, 2005.

Disambiguating Argument and Adjunct Prepositional Phrases, Second ACL-SIGSEM Workshop on the Linguistic Dimensions of Prepositions and their Use in Computational Linguistics Formalisms and Applications, April 2005, University of Essex.

Computational Experiments on Verb Classes, Interdisciplinary Workshop on the Identification and Representation of Verb Features and Verb Classes Saarland University, Saarbruecken, March 2005.

### Invited Presentations

Probing word and sentence embeddings for long-distance dependencies effects in French and English, Uppsala University, April 2019.

Computational Quantitative Syntax: some case studies, CompLang, Massachusetts Institute of Technology, March 2019.

Probing word and sentence embeddings for long-distance dependencies effects in French and English, Computational Psycholinguistics Lab, Massachusetts Institute of Technology, March 2019.

Two Case Studies in Computational Quantitative Syntax: universal 20 and intervention, University of Venice, November 2018.

Vectorial semantic spaces do not encode human judgements of intervention similarity, University of Edinburgh, October 2018.

Issues in Computational Quantitative Syntax, University of Edinburgh, March 2017.

The Quest for Language Universals: Computational Models and Evaluation Methods, University of Zurich, March 2016.

Linquistic Issues in Multilingual NLP, Stanford University, January 2015.

Universal Grammar meets NLP, Stanford University, October 2014.

Multilingual Issues in Syntactic and Semantic Processing, University of Saarlandes, May 2014.

Multilingual Issues in Syntactic and Semantic Processing, Heidelberg University, January 2014.

Computational Models of Universal 20, 19th International Congress of Linguists, Geneva, August 2013.

Multilingual Computational Models and their Relevance for Typology, Third Transalpine Typology Meeting, Zurich, May 2013.

The Linguistic Relevance of Multi-lingual Computational Results and Methods, Swiss Society of Linguistics, September 2012.

Synchronised Parsing of Syntactic Dependencies and Semantic Roles for Several Languages, University of Edinburgh, December 2010.

Computational Models of the Syntax-Semantics Interface and its Multilingual Applications, Cornell University, April 2010.

A Synchronous Model of Syntactic and Semantic Parsing and its Multilingual Applications, University of Toronto, April 2010.

Exploiting Language Parallelism: Automatic Construction of a French Semantic Role Labeller, University of Paris 7, November 2009.

Learning Facets of Verb Meaning, University of Heidelberg, July 2009.

Semantic Role Labelling and Verb Classification, LORIA, Nancy, June 2009.

Synchronous Models of Syntactic and Semantic Parsing, Neuchâtel, SWIGG Conference, April 2009.

Issues in Joint Syntactic and Semantic Parsing, LORIA, Nancy, December 2008.

Semantic Parsing for High-precision Semantic Role Labelling, University of Heidelberg, May 2008.

Joint Syntactic Parsing and Semantic Role Labelling, University of Gothenborg, May 2008.

Accurate Learning of Shallow Verb Meaning, Psychology, University of Milano, February 2007.

Accurate Parsing of the Proposition Bank, Statistical NLP Seminar, University of Edinburgh, February 2006.

Learning the Interface between Syntax and Semantics, Artificial Intelligence Labs, Massachusetts Institute of Technology, September 2005.

Issues on Learning Shallow Semantics, Workshop on Future Challenges in NLP, Italian Association for Artificial Intelligence, September 2005. Issues in Multi-lingual Automatic Verb Classification, Departments of Informatics, University of Sussex, May 2004.

Issues in Multi-lingual Automatic Verb Classification, Departments of Informatics, University of Edinburgh, April 2004.

Multi-lingual Automatic Lexical Acquisition, Departments of Linguistics and Computer Science, University of Arizona, March 2003.

A Multi-lingual Framework for Automatic Lexical Acquisition, Department of Linguistics, Georgetown University, December 2002.

A Multi-lingual Paradigm for Verb Classification, Computational Linguistics, Université de Paris 7, Paris, October 2002.

A Multi-lingual Framework for Verb Classification, Institute for Logic, Language and Computation, University of Amsterdam, May 2002.

A Multi-lingual Paradigm for Automatic Lexical Acquisition, Institute for Computational Linguistics (IMS), University of Stuttgart, Germany, April 2002.

Automatic Lexical Acquisition based on Statistical Distributions, Institute for Computational Linguistics (IMS), University of Stuttgart, Germany, October 2001.

Automatic Distinction of Arguments and Modifiers: the Case of Prepositional Phrases, German Research Centre for Artificial Intelligence, (DFKI), Saarbruecken, Germany, September 2001.

Corpus-based Approaches to Automatic Lexical Acquisition and Text Mining, Computer Science Department, University of Essex, UK, June 2001.

Automatic Verb Classification based on Statistical Distributions of Argument Structure, IRCS, University of Pennsylvania, October 2000.

Acquisition of Argument Structure Based on Statistical Indicators, Computational Linguistics, Université de Paris 7, Paris, May 2000.

Lexical Acquisition based on Statistical Distributions, Xerox Research Centre Europe, Grenoble, April 2000.

Language Acquisition and Ambiguity Resolution: the Role of Frequency Distributions, Computational Linguistics, University of Saarbruecken, June 1999.

Architecture and Experience in Sentence Processing: The Source of Lexical Effects in Parsing Reduced Relative Clauses, Linguistics seminar, University of Geneva, 1998.

The Role of Lexical Information in Reduced Relative Clauses, Institute for Advanced Computer Studies, University of Maryland, 1997.

Lexical Information in Sentence Processing, Institute for Research in Cognitive Science, University of Pennsylvania, 1997.

The Source of Lexical Effects in Parsing Reduced Relative Clauses, Computer Science Colloquium, University of Turin, 1995.

On the Use of Information-theoretic Measures for Syntactic Processing, Brain and Cognitive Science, Massachusetts Institute of Technology, 1995.

Corpus-based Analysis and its Relevance to Experimentation, Research Seminar in Cognitive Psychology, University of Geneva, 1995.

Towards an Efficient Use of Modular Principles in Parsing, University of Venice, 1993.

Principles and Parameters in GB-Parsing, University of Stuttgart, Institute for Computational Linguistics (IMS), Germany, 1992.

Principle-based Parsing and Foreign Language Training, NATO Conference on Computer-Aided Instruction, McLean, VA (with Azadegan, Martin, Weinberg), 1990.

### Participation in hiring and examination committees

### Hiring committees

External expert for senior lecturer hiring: Uppsala University, 2016; The Hebrew University in Jerusalem, 2019, Full professor promotions, external expert: Postdam, MIT, Linkoping.

Hiring committee for a chair in philosophy of science, Geneva, 2013-2014.

Hiring committee for an instructor in phonetics and phonology, Geneva, 2012.

# Ph.D. and habilitation committees

Computer Science: EPFL, June 2018; Edinburgh, Informatics, June 2021; Edinburgh, Informatics, December 2010; Edinburgh, Informatics, March 2000. Geneva: Information systems, June 2018; Computer Science, March 2017; Computer Science, December 2013; Computer Science, January 2008.

Linguistics, Zurich, 2021; Linguistics, Uppsala, November 2019; Linguistics; Toulouse, June 2018; Linguistics, Paris 7, January 2016; Linguistics, Uppsala, June 2014; Habilitation, Linguistics, Toulouse, November 2010; Ph.D. opponent, Linguistics, Gothenborg, May 2008. Geneva: Linguistics, December 2012; Linguistics, June 2011; Linguistics, June 2008; Translation School, April 2007.

#### Others

Google Faculty Summit, February 2010. One-hundred professors and scientists invited, four from Switzerland, five women.

### Professional Associations

Association for Computational Linguistics (ACL, SIGPARSE, SIGLEX, SIGNLL, SIGDAT), Mathematics of Language (MOL), Society for Computation in Linguistics (SCiL), Cognitive Science Society (past).

### Teaching and Supervising Experience

### Master's and Post-graduate

Readings on Natural Language, Readings on current topics in computational explanations of language. Example topics: Ethics and bias in NLP, grammar induction in children, semantic role labelling, modelling of language universals, issues in corpus annotation. Linguistics, 2005–present.

Empirical and Linguistic Methods in Natural Language Processing. Example topics: Corpora and large-scale data, quantitative properties of language, machine learning techniques in language models, syntactic and semantic parsing, verb classification, distributional semantics. Lettres and Sciences, University of Geneva. 1999—present.

Empirical Methods in Natural Language Processing: Applications. Example topics: Machine translation, distributional semanticss for low-resource languages, sentiment analysis. Lettres and Sciences, University of Geneva. 1999–present.

Structured Programming for Linguists, Linguistics, University of Geneva, 1999-2001.

### Lecture Series and Tutorials

The Merlo Lectures: computational quantitative syntax, CRISSP, KU Leuven, November 2017. Nine hours of lectures on computational quantitative and machine learning methods in computational linguistics and my recent results.

Lecture Series (1 week): Human and Automatic Classification and Disambiguation. Guest professor, Department of Communication Science, University of Siena, March 2004.

Lecture Series (1 week): Empirical Methods in (Computational) Linguistics. Guest professor, Department of Language Sciences, University of Venice, February 2004.

Lecture Series (1 week): Automatic Acquisition of Argument Structure. Guest professor, GraduiertenKolleg (Graduate School), Institute for Computational Linguistics (IMS), University of Stuttgart, October 2001.

Lecture Series (1 week): Machine Learning Techniques for Automatic Lexical Acquisition. Guest professor, Europaeisch GraduiertenKolleg (European Graduate School), University of Saarbruecken and University of Edinburgh, Saarbruecken, September 2001.

Tutorial: Symbolic and Hybrid Models of Human Sentence Processing. Post-graduate program in Neuroscience. Departments of Linguistics, Psychology and Medicine, Geneva, 1996.

Tutorial: Introduction to Statistical Approaches to Natural Language Processing, Seminar of the Pole Rhône-Alpes, Archamps, France, 1996.

Parsers and Grammars, Guest instructor, Computational Linguistics, University of Zurich, 1995-1996.

### Undergraduate

Introduction to Programming and Algorithms, Computer Science for the Humanities, Geneva, 2015-present.

Introduction to Data Structures and Object-oriented Programming, Computer Science for the Humanities, Geneva, 2005-2006, 2015-present.

Introduction to Empirical Methods, Computer Science for the Humanities, Geneva. 2002-present.

*Prolog and Natural Language Processing*, Linguistics and Computer Science, University of Geneva, 1993-96, 1998-2002.

Introduction to Functional Programming, Computer Science for the Humanities, University of Geneva, 1998-2001.

Module: Human Sentence Processing (in the framework of the course Experimental Psycholinguistics, Prof. Uli Frauenfelder), Department of Psychology, University of Geneva, 1992-93, 1993-94, 1994-95, 1995-96.

Module: Advanced Parsing Techniques (in the framework of the course Automatic Language Processing, Prof. Eric Wehrli), Department of Linguistics, University of Geneva, 1992-93.

Laboratory sessions on lexical statistics and lexical databases, University of Geneva, Department of Psychology, 1992-93.

Introduction to Linguistics, Linguistics, University of Maryland at College Park, 1988. (Course taught in English.)

### Ph.D. Student Supervisions

Ph.D. co-supervisor (with Bickel), Linguistics, University of Zurich.

Eva Huber, Computational models of Acquisition of Semantic Role Labelling (provisional title), 2021–.

Ph.D. supervisor, Linguistics, University of Geneva.

Maria Rodriguez, Computational models of categorisation in language (provisional title), 2019—.

Ph.D. supervisor, Linguistics, University of Geneva.

Haozhou Wang, Adversarial Learning for Cross-lingual Word Embeddings (provisional title), 2016—.

Ph.D. supervisor, Linguistics, University of Geneva.

Kristina Gulordava, Word Order Variation and Dependency Length Minimisation: a computational modelling approach 2013–2018. Currently: postdoc in ERC Starting grant AMORE, PI: Dr. Gemma Boleda, Barcelona. Latsis Prize 2019 University of Geneva

Ph.D. supervisor, Linguistics, University of Geneva.

Tanja Samardzic, Dynamics, Causation and Duration in the Predicate-Argument Structure of Verbs: A Computational Approach based on Parallel Corpora, 2008-2013.

Currently: Director of CorpusLab, University of Zurich.

Ph.D. supervisor, Computer Science, University of Geneva.

Gabriele Musillo, Natural Language Grammar Induction.

2007-2008: FNS Fellow, Visiting Scientist at MIT CSAI Labs, Hosting Professor: Michael Collins. February 2010.

Currently: Employee of dMetrics, MIT start-up, New York, NY. Previously IRST, Trento.

Ph.D. co-supervisor, Computational Linguistics, University of Zurich (with Michael Hess).

Gerold Schneider, Dependency Parsing, 2006.

Currently: Researcher, University of Zurich.

### Postdocs Supervision

Aixiu An, Ph.D. Paris 7.

Corentin Ribeyre, Ph.D. Paris 7, 2016-2018, currently at Etermind.

Sarah Ouwayda, Ph.D University of Southern California, 2013–2015, currently at Google, Los Angeles.

Effi Georgala, Ph.D. Cornell, 2012-2013, currently Nuance Technologies, Zurich.

Lonneke Van Der Plas, Ph.D Groeningen, In the context of the project Classic, 2008-2011. Assistant professor at IMS, University of Stuttgart, currently university of Malta.

(jointly with Dr. James Henderson) Joel Lang, Ph.D. Edinburgh in computer science, supervisor Mirella Lapata, PARLANCE project, December 2011–.

### Master's Students Supervision

Maria Andueza Rodriguez, Cross-lingual word embeddings reflect L1-L2 interactions in bilingual speakers, June 2019.

Axel Moeschler, Désambiquisation des toponymes, June 2018.

Enzo Poggio, Tenter la Fake News Challenge, June 2018.

Christophe Moor, Multilingual Dependency Parsing, June 2018.

Francesco Ackermann, Semantic Similarity and Hyponymy, June 2018.

Sebastien Mettral, Geotagging Documents, September 2015.

Ksenia Belyatskaya, Probabilistic Models of Syntactic Extraction, June 2011.

Tanja Samardzic, Light Verbs and the Lexical Category Bias of their Complement, September 2008.

Alexander Radzievskiy, Corrective Models for Parsing with Semantic Role Labelling, February 2008.

Eric Zosso, Experiments in Factored Machine Translation between Italian and English, February 2008.

Jonathan Salfati, Arabic Segmentation in a Factored Model of Translation, October 2007.

Cécile Grivaz, Experiments in Parser Recombination, June 2007.

Yves Scherrer, Automatic Lexicon Induction for Languages with Scarce Resources, June 2007.

### Best student paper award at TALN 2008.

Michael Röösli, Multilingual Semi-supervised Learning of German and English Verb Classes, March 2004.

Eva Esteve Ferrer, Corpus-based Automatic Lexicon Construction for Spanish, September 2003.

Matthias Leybold, Automatic Distinction of PP-Arguments and PP-Modifiers based on Statistical Implementation of Linguistic Criteria, February 2001.

Gianluca Allaria, Lexical Acquisition of Verb Argument Structure for Italian, November 2001.

Co-supervisor, Cathy Berthouzoz, Object-oriented implementation of a GB parser, 1995.

Undergraduate theses and final projects Olga Correll, September 2008, Computational Linguistics. Joint supervision with Eric Wehrli. External supervisor: Michael Collins, MIT.

Liliana Kulenovic, October 2005, Computational Linguistics.

Joanna Blochowiak, September 2004, Computational Linguistics.

Michael Röösli, February 2002, Computational Linguistics.

Sylvie Lanthaume and Sophie Siegrist, project, Psychology, 1994-96.

Nathalie Niederberger and Dorothee Jouannou, project, Psychology, 1992–94.

Geneva, October 4, 2021

Rabllelo

Paola Merlo

#### **Publications**

### **Books**

Harry Bunt, **Paola Merlo** and Joakim Nivre, Eds. (2010) *Trends in Parsing Technology*. Text, Speech and Language Technologies 43, Springer.

**Paola Merlo** and Suzanne Stevenson, Eds. (2002). The Lexical Basis of Sentence Processing: Formal, Computational and Experimental Issues. Natural Language Processing 4, Amsterdam: John Benjamins.

**Paola Merlo** (1996). Parsing with Principles and Classes of Information. Studies in Linguistics and Philosophy 63, Dordrecht: Kluwer Academic Publishers (reviewed in Computational Linguistics, 1998, 24(1), 167–172.)

### Conference Proceedings

**Paola Merlo**, Jorg Tiedemann and Reut Tsarfaty (2021). Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics, online.

Regina Barzilay, Mark Johnson and **Paola Merlo** (2011). Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing. Edinburgh, Scotland.

Harry Bunt and **Paola Merlo** (2007). Proceedings of the Tenth International Conference for Parsing Technology. Prague, Czech Republic.

### Refereed First-rank Conference and Journal Papers

In computational linguistics, first-rank conference proceedings are archival publications and their acceptance rates are around 20-25%. All submissions are always double-blind, full papers describing novel, finished, unpublished work. Also, I have included book chapters here, following the practice in linguistics.

Tanja Samardzic and **Paola Merlo** (to appear), "Aspect-based Learning of Event Duration Using Parallel Corpora", In Mona Diab and Aline Villavicencio, Eds. Essays in Lexical Semantics in Honor of Adam Kilgarriff, Springer.

Giuseppe Samo and **Paola Merlo** (under revision), "Intervention effects in clefts: a case study in quantitative computational syntax", *Glossa*.

Haozhou Wang, James Henderson and **Paola Merlo**, "Multi-Adversarial Learning for Cross-Lingual Word Embeddings", *Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL 2021)*, June, 2021.

Maria A. Rodriguez and **Paola Merlo** (2020), "Word associations and the distance properties of context-aware word embeddings", *Proceedings of the Conference on Natural Language Learning (CONLL'20)*, online.

Kristina Gulordava and **Paola Merlo** (2020), "Computational Quantitative Syntax: The Case of Universal 18", Collection from LSRL 47, John Benjamins.

**Paola Merlo** (2019), "Probing word and sentence embeddings for long-distance dependencies effects in French and English", *Proceedings of the 2019 ACL Workshop BlackboxNLP: Analyzing and Interpreting Neural Networks for NLP*, pp. 158-172.

Paola Merlo and Maria A. Rodriguez (2019), "Cross-lingual word embeddings and the structure of the human bilingual lexicon", *Proceedings of the Conference on Natural Language Learning (CONLL'19)*, Brussels.

Haozhou Wang, James Henderson and **Paola Merlo** (2019), "Weakly-Supervised Concept-based Adversarial Learning for Cross-lingual Word Embeddings", *Proceedings of the conference on Empirical Methods in Natural Language Processing and 9th International Joint Conference on Natural Language Processing*, November, Hong Kong.

**Paola Merlo** and Francesco Ackermann (2018), "Vectorial semantic spaces do not encode human judgments of intervention similarity", *Proceedings of the Conference on Natural Language Learning (CONLL'18)*, Brussels.

**Paola Merlo** and Sarah Ouwayda (2018), "Movement and structure effects on Universal 20 word order frequencies: A quantitative study", *Glossa*, 3(1), 84, 1-35.

Tanja Samardzic and **Paola Merlo** (2018), "Probability of external causation: an empirical account of cross-linguistic variation in lexical causatives", *Linguistics*, 56(5), 895-938.

Kristina Gulordava and **Paola Merlo** (2016). "Multi-lingual Dependency Parsing Evaluation: a Large-scale Analysis of Word Order Properties using Artificial Data", Transactions of the Association for Computational Linguistics.

**Paola Merlo** (2016), "Quantitative Computational Syntax", *Italian Journal of Computational Linguistics*, Vo. 2, No. 1.

**Paola Merlo** (2016), "Some Recent Results on Cross-linguistic, Corpus-based Quantitative Modelling of Word Order and Aspect", In Joanna Blochowiak, Cristina Grisot, Eds. Formal models in the study of language: A festschrift for Jacques Moeschler, Springer.

Paola Merlo (2015), "Predicting Word Order Universals", Journal of Language Modelling, Vo. 3, No. 2.

Paola Merlo (2015), "Evaluation of Two-level Dependency Representations of Argument Structure in Long-Distance Dependencies", *Proceedings of the International Conference on Dependency Linguistics*, Uppsala, 2015.

Kristina Gulordava, **Paola Merlo** and Benoit Crabbé (2015), "Dependency length minimisation effects in short spans: a large-scale analysis of adjective placement in complex noun phrases", *Proceedings of the Annual Meeting of the Association for Computational Linguistics (ACL 2015)*, Beijing.

Kristina Gulordava and **Paola Merlo** (2015), "Structural and lexical factors in adjective placement in complex noun phrases across Romance languages", *Proceedings of the Conference on Natural Language Learning (CONLL'15)*, Bejing.

Kristina Gulordava and **Paola Merlo** (2015), "Diachronic Trends in Word Order Freedom and Dependency Length in Dependency-Annotated Corpora of Latin and Ancient Greek", *Proceedings of the International Conference on Dependency Linguistics*, Uppsala.

James Henderson, **Paola Merlo**, Ivan Titov and Gabriele Musillo (2013), "Multi-lingual Joint Parsing of Syntactic and Semantic Dependencies with a Latent Variable Model", *Computational Linguistics*, 39(4).

Samardzic Tanja and **Paola Merlo** (2012), "The Meaning of Lexical Causatives in Cross-Linguistic Variation", *Linguistic Issues in Language Technology - LiLT*, 7(12).

Lonneke van der Plas, **Paola Merlo** and James Henderson (2011), "Scaling up Cross-Lingual Semantic Annotation Transfer", *Proceedings of ACL/HLT*, Portland, OR.

**Paola Merlo**, Harry Bunt, Joakim Nivre (2010). "Current Trends in Parsing Technology". Introduction to the volume Bunt H, P. Merlo, J. Nivre *Trends in Parsing Technology*, Springer.

**Paola Merlo** and Lonneke Van der Plas (2009), "Abstraction and Generalisation in Semantic Role Labels: PropBank, VerbNet or both?", *Proceedings of ACL-IJCNLP 2009*, Singapore.

Ivan Titov, James Henderson, **Paola Merlo** and Gabriele Musillo (2009), "Online Graph Planarisation for Synchronous Parsing of Semantic and Syntactic Dependencies", *Proceedings of IJCAI 2009*, Pasadena, CA.

Gesmundo Andrea, James Henderson, **Paola Merlo** and Ivan Titov (2009) "A Latent Variable Model of Synchronous Syntactic-Semantic Parsing for Multiple Languages", *Proceedings of the Conference on Natural Language Learning (CONLL 2009)*, Shared Task, Boulder, CO.

Lonneke Van der Plas, James Henderson and **Paola Merlo** (2009) "Domain adaptation with artificial data for semantic parsing of speech", *Proceedings of NAACL 2009*, short paper, Boulder, CO.

**Paola Merlo** and Gabriele Musillo (2008) "Semantic Parsing for High-Precision Semantic Role Labelling", *Proceedings of the Conference on Natural Language Learning (CONLL 2008)*, 1–8, Manchester, UK.

Henderson James, **Paola Merlo**, Gabriele Musillo and Ivan Titov (2008) "A Latent Variable Model of Synchronous Parsing for Syntactic and Semantic Dependencies", *Proceedings of the Conference on Natural Language Learning (CONLL 2008)*, 178–182, Manchester, UK.

Musillo Gabriele and **Paola Merlo** (2008), "Unlexicalised Hidden Variable Models of Split Dependency Grammars", *Proceedings of the Annual Conference of the Association for Computational Linguistics (ACL 2008)*, 213–215, Columbus, OH

Musillo Gabriele and **Paola Merlo** (2006). "Accurate Parsing of the Proposition Bank" *Proceedings of the Human Language Technology Conference of the North American Chapter of the ACL (NAACL'06)*, 101–104, New York, NY.

**Paola Merlo** and Eva Esteve-Ferrer (2006), "PP Attachment and the Notion of Argument", *Computational Linguistics*, 32(3), 341–378.

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**Paola Merlo** and Gabriele Musillo (2005). "Accurate Function Parsing" *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP 2005)*, 620–627, Vancouver, Canada.

Gabriele Musillo and **Paola Merlo** (2005). "Lexical and Structural Biases for Function Parsing" *Proceedings of the International Workshop on Parsing Technologies (IWPT 2005)*, 83–92, Vancouver, Canada.

Gabriele Musillo and **Paola Merlo** (2005). "Assigning Function Labels to Unparsed Text" *Proceedings of the Conference on Recent Advances in NLP* (RANLP 2005), 340–346, Borovetz, Bulgaria.

**Paola Merlo**, James Henderson, Gerold Schneider and Eric Wehrli (2003), "Learning Document Similarity using NLP", *Linguistik-online*.

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Vivian Tsang, Suzanne Stevenson and **Paola Merlo** (2002). "Cross-linguistic Transfer in Automatic Verb Classification." 19th International Conference on Computational Linguistics (COLING-2002), 1023–1029, Taipei, Taiwan.

James Henderson, **Paola Merlo**, Ivan Petroff, and Gerold Schneider (2002). "Using Syntactic Analysis to Increase Efficiency in Visualizing Text Collections." 19th International Conference on Computational Linguistics (COLING-2002), 335–341, Taipei, Taiwan.

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Suzanne Stevenson and **Paola Merlo** (2000). "Acquisition of Argument Structure Based on Statistical Indicators." 18th International Conference on Computational Linguistics (COLING-2000), 815–821. Saarbruecken, July/August 2000.

**Paola Merlo** and Suzanne Stevenson (2000). "Establishing the Upper Bound and Inter-judge Agreement of a Verb Classification Task." *Linguistics Resources and Evaluation Conference (LREC 2000)*, 1659–1663. Athens, Greece, June 2000.

**Paola Merlo** and Suzanne Stevenson (1999). "Language Acquisition and Ambiguity Resolution: The Role of Frequency Distributions." *Proceedings of the 21st Annual Conference of the Cognitive Science Society (CogSci'99)*, 399–404. Vancouver, Canada, August, 1999.

Suzanne Stevenson and **Paola Merlo** (1999). "Automatic Verb Classification Using Grammatical Features." Proceedings of the Ninth Conference of the European Chapter of the Association for Computational Linguistics (EACL'99), 45–52. Bergen, Norway, June, 1999.

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**Paola Merlo** (1996). "Grammatica Modulare e Parsing." (Modular Grammars and Parsing.) *Sistemi Intelligenti*, 8(1), 99–121.

Amy Weinberg, Joe Garman, Jeffrey Martin, and **Paola Merlo** (1995). "A Principle-based Parser for Foreign Language Training in German and Arabic". In M. Holland, J. Kaplan and M. Sams, Eds. *Intelligent Language Tutoring. Theory Shaping Technology*, 23–44. Laurence Erlbaum.

**Paola Merlo** (1995). "Modularity and Information Content Classes in Principle-based Parsing." Computational Linguistics, 21(4), 515–541.

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**Paola Merlo** (1993). "For an Incremental Computation of Intrasentential Coreference." *Proceedings of the International Joint Conference in Artificial Intelligence (IJCAI-93)*, 1216–1221. Chambery, France.

Joe Garman, Jeffrey Martin, **Paola Merlo**, and Amy Weinberg (1993). "A Parameterised Principle-Based Parser for Foreign Language Training in German and Arabic." *Proceedings of the 3rd International Workshop on Parsing Technologies (IWPT-3)*, 73–88. Tilburg, The Netherlands.

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**Paola Merlo** (1991). "Information Structure, Parameters and Word Order." *Proceedings of the Eastern States Conference in Linguistics (ESCOL'91)*, 254–264. Baltimore, Maryland.

**Paola Merlo** (1989), "Risultative in Italiano ed Inglese." *Rivista di Grammatica Generativa*, 14, 29–55.

**Paola Merlo** (1988). "Secondary Predication in Italian and English." *Proceedings of the Eastern States Conference in Linguistics (ESCOL'88)*, 338–348. Philadelphia, PA.

### Refereed Workshop Papers

Giuseppe Samo and **Paola Merlo** (2019), "Intervention effects in object relatives in English and Italian: a study in quantitative computational syntax", *Proceedings of SyntaxFest*, August, Paris, France.

Christophe Moor, **Paola Merlo**, James Henderson, Haozhou Wang (2017), "CLCL (Geneva) DINN Parser: a Neural Network Dependency Parser Ten Years Later", *Proceedings of the CoNLL 2017 Shared Task: Multilingual Parsing from Raw Text to Universal Dependencies*, 228-236.

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Lonneke van der Plas, Tanja Samardzic, and **Paola Merlo** (2010) "Crosslingual Validity of PropBank in the Manual Annotation of French", In *Proceedings of the 4th Linguistic Annotation Workshop (The LAW IV)*, Uppsala.

Tanja Samardzic, Lonneke Van der Plas, **Paola Merlo** and Goljian Kachaeva (2010). "The Scope and the Sources of Variation in Verbal Predicates in English and French", *Proceedings of the Ninth International Workshop on Treebanks and Linguistic Theories (TLT9)*, Tartu, Estonia.

Tanja Samardzic and **Paola Merlo** (2010), "Cross-lingual variation of light verb constructions: using parallel corpora and automatic alignment for linguistic research", *Proceedings of the ACL 2010 Workshop on NLP and Linguistics: Finding the Common Ground*, Uppsala, Sweden.

Gabriele Musillo and **Paola Merlo** (2006). "Robust Parsing of the Proposition Bank" *Proceedings of the Workshop on Robust Methods in the Analysis of Natural Language Data (ROMAND'06)*, 11–18, Trento, Italy.

James Henderson, **Paola Merlo**, Ivan Petroff, and Gerold Schneider (2002). "Using NLP to Efficiently Visualize Text Collections with SOMs." *Workshop on Natural Language and Information Systems (NLIS'02)*, Aix-en-Provence, France.

Suzanne Stevenson, **Paola Merlo**, Nikola Kariaeva, and Karim Whitehouse (1999). "Supervised Learning of Lexical Semantic Verb Classes Using Frequency Distributions." *Proceedings of SigLex99: Standardizing Lexical Resources*, 15–21. College Park, Maryland, June, 1999.

**Paola Merlo** and Suzanne Stevenson (1998). "What Grammars Tell Us About Corpora: The Case of Reduced Relative Clauses." *Proceedings of the Sixth Workshop on Very Large Corpora (WVLC-6)*, 134–142. Montreal, Canada, August, 1998.

Cristina Barbero, Vincenzo Lombardo, Leonardo Lesmo and **Paola Merlo** (1998). "Integration of Syntactic and Lexical Information in a Hierarchical Dependency Grammar." *Proceedings of the Workshop on Processing of Dependency-based Grammars*, 58–67. Montreal, CA.

### Other Articles

Haozhou Wang, James Henderson and **Paola Merlo**, (2019), "Weakly-Supervised Concept-based Adversarial Learning for Cross-lingual Word Embeddings" arXiv:1904.09446.

**Paola Merlo** (2018), "Festina lente: A farewell from the editor", Computational Linguistics, 44 (2), 379-385.

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Paola Merlo (1992). Review of Hans van de Koot, An Essay on Grammar-Parser Relations. Foris, Dordrecht, 1990 (in Language, 68(1).)

### Refereed Conference Abstracts

**Paola Merlo** and Suzanne Stevenson (2002). "Structure and Frequency of Lexical Semantic Classes: Consequences for Learning." *Quantitative Investigations in Theoretical Linguistics (QITL)*. Osnabrueck, Germany, October 2002. (Refereed abstract on conference web site.)

**Paola Merlo** and Suzanne Stevenson (2001). "Unsupervised Learning of Verb Classes from Lexical Statistics." *Architectures and Mechanisms in Language Processing (AMLaP-2001)*. Saarbruecken, Germany, September 2001. (Refereed abstract in conference proceedings.)

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Paola Merlo and Suzanne Stevenson (1996). "Differential Difficulty of Reduced Relative Clauses: A Structural Complexity Account." *The Ninth Annual CUNY Conference on Human Sentence Processing*. New York, NY, March, 1996. (Refereed abstract in conference proceedings.)

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Geneva, October 4, 2021

Populler

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