

Curriculum

Massimo Franceschet

September 22, 2016

1 Introduction

I graduated in Computer Science at the University of Udine in December 1996. I discussed a thesis entitled *The Modal Calculus of Events: Expressiveness and Complexity* in the context of the representation and reasoning about temporal knowledge. My advisor was Professor Angelo Montanari.

I later did a PhD in Computer Science, started in November 1997 at the same university. I received the PhD in March 2002, with the thesis *Dividing and Conquering the Layered Land* in the context of temporal and granular logics. The advisor was still Professor Angelo Montanari and supervisors were Professor Claudio Bettini of the University of Milan and Professor Maarten de Rijke of the University of Amsterdam.

During the PhD period I spent a semester at the Institute for Logic, Language and Computation of the University of Amsterdam where I collaborated with Maarten de Rijke on topics related to my doctoral thesis. After the PhD I did a post-doc at the Information and Language Processing Systems Group at the University of Amsterdam. The stay lasted four semesters during four years. I did research in model checking of hybrid logics and XML technologies collaborating with Maarten de Rijke, Maarten Marx, Balder ten Cate and Loredana Afanasiev.

After my PhD, and in conjunction with the Dutch period, I was hired as Assistant Professor at the University G. D'Annunzio of Chieti and Pescara. I taught in the Computer Economics degree program included in the Faculty of Economics. I have held this role from November 2001 to October 2006. I have been regularly confirmed in the position after three years. I then transferred, as of November 2006, at the Department of Mathematics and Computer Science, University of Udine, where I currently work.

In November 2016 I won the position of Associate Professor at the University of Udine.

2 Research

As it can be seen from the cloud of terms that visually summarizes my research (Figure 1), within the field of computer science I have dealt with various topics. This allowed me to dissect different aspects of information science without losing the enthusiasm and creativity, characteristics that I consider essential to make research. I also believe deeply in the concept of cross-pollination, that is,



Figure 1: My research in a word cloud.

the fertilization of disciplines with methods and tools borrowed from different disciplinary, even disparate.

In these years of research I have been involved in representation and temporal reasoning (Master), granular temporal logics (PhD), hybrid logic and model checking (post-doc), semi-structured data and XML, bibliometrics, network science, design and generative art. I presented my research through speeches and seminars at several international conferences, and at Italian and foreign universities.

Section 5 contains a bibliographical list of my publications. A brief bibliometric analysis of my research is presented in the next section 2.1. Finally, Section 2.2 speaks of the research projects that have involved me.

2.1 Bibliometrics

I have published 54 papers, including 30 articles in international journals, 23 papers at international conferences, and 1 book chapter. All works have been subject to peer review. I have published 13 single-author papers (no collaboration); in the remaining ones I worked with a total of 18 authors.

To 1 August 2016, my works have collected 1509 citations, with an average of 29 citations per article. Two-thirds of my citations are from papers published since 2011. My Hirsch index is 21. The source of this data is Google Scholar. According to the data source Elsevier Scopus, my scores for the three bibliometric indicators used in the National Scientific Enabling procedure (Abilitazione Scientifica Nazionale), namely number of journal publications, number of citations, contemporary Hirsch index, exceed the median of Italian full professors (as well as that of associate professors) in my field.

2.2 Research projects

The major international research project in which I participated was *Model Checking Methods and Tools for Hybrid Logics* lasted from 2002 to 2006. The project was funded by the Netherlands Organization for Scientific Research and

had a duration of three years. The research team included Maarten de Rijke and Maarten Marx (University of Amsterdam), Angelo Montanari (University of Udine), and Holger Schlingloff (University of Berlin).

I am currently working with the Digital Humanities Lab of the EPFL on the project *Venice Time Machine* which aims to digitize the libraries and the Venetian State Archives to build a historical and geographical information system open to the public of the city of Venice.

3 Teaching

Over the last 15 years I have taught 14 different courses (some repeated for several years), at Italian universities, foreign and international schools. The subjects taught are closely related with my research. I aim for a synergic effect between teaching and research. The main themes of my teaching were: algorithms, databases, XML technologies, network science as well as generative art.

4 Beyond academia

I attended several workshops in theater, dance and theater-dance performed by: Gary Brackett, Martin Reckhaus, Andrea Collavino, Maril Van Den Broek, Alessandro Mor, Claudio Girard, Csar Brie, Maria Grazia Solano, Arianna Romano, Michela Lucenti, Barbara High, Doriana Crema, Barbara Birds, Michele Abbondanza, Marta Bevilacqua, Valentina Saggin, Luca Zampar, Anna Savanelli, Virgilio Sieni, Olivia Grandville, Magali Gajan. Currently I study contemporary dance and contemporary circus.

5 Publication list

1. G. Colavizza and Massimo Franceschet. Clustering citation histories in the Physical Review. *Journal of Informetrics* (forthcoming).
2. E. Bozzo and M. Franceschet. A theory on power in networks. *Communications of the ACM* (forthcoming).
3. M. Franceschet. Complex beauty. *Complex Systems*, 24(3), 249-259, 2015.
4. E. Bozzo, M. Franceschet, and F. Rinaldi. Vulnerability and power on networks. *Network Science*, 3 (2), 196-226, 2015.
5. E. Bozzo and M. Franceschet. Resistance distance, closeness, and betweenness. *Social Networks*, 35 (3), 460-469, 2013
6. M. Franceschet, D. Gubiani, A. Montanari, and C. Piazza. A graph-theoretic approach to map conceptual designs to XML schemas. *ACM Transactions on Database Systems*, 38 (1), 2013
7. E. Bozzo and M. Franceschet. Approximations of the generalized inverse of the graph Laplacian matrix. *Internet Mathematics*, 8 (4), 1-26, 2012

8. M. Franceschet. The large-scale structure of journal citation networks. *Journal of the American Society for Information Science and Technology*, 63 (4), 837-842, 2012
9. M. Franceschet. Collaboration in computer science: a network science approach. *Journal of the American Society for Information Science and Technology*, 62 (10), 1992-2012, 2011
10. M. Franceschet. PageRank: standing on the shoulders of giants. *Communications of the ACM*, 54(6), 92-101, 2011.
11. M. Franceschet and A. Costantini. The first Italian research assessment exercise: a bibliometric perspective. *Journal of Informetrics*, 5(2), 275-291, 2011.
12. M. Franceschet. The skewness of computer science. *Information Processing & Management*, 47(1), 117-124, 2011.
13. M. Franceschet. The role of conference publications in computer science: a bibliometric view. *Communications of the ACM*, 53(2), 129-132, 2010.
14. M. Franceschet and A. Costantini. The effect of scholar collaboration on impact and quality of academic papers. *Journal of Informetrics*, 4(4), 540-553, 2010.
15. M. Franceschet. Ten good reasons to use the Eigenfactor metrics. *Information Processing & Management*, 46(5), 555-558, 2010.
16. M. Franceschet e G. Abbattista. Bibliometria vs. peer review? Dialogo tra un informatico e uno storico sulla valutazione della ricerca (in Italian). A cura di Andrea Zannini. *Cyber Review of Modern Historiography*, 15, 1-6, 2010.
17. M. Franceschet. Journal influence factors. *Journal of Informetrics*, 4(3), 239-248, 2010.
18. M. Franceschet. The difference between popularity and prestige in the sciences and in the social sciences: a bibliometric analysis. *Journal of Informetrics* 4(1), 55-63, 2010.
19. M. Franceschet. A comparison of bibliometric indicators for computer science scholars and journals on Web of Science and Google Scholar. *Scientometrics* 83(1), 243-258, 2010.
20. M. Franceschet. A cluster analysis of scholar and journal bibliometric indicators. *Journal of the American Society for Information Science and Technology* 60(10), 1950-1964, 2009.
21. M. Franceschet, D. Gubiani, Angelo Montanari, and Carla Piazza. From Entity Relationship to XML Schema: a graph-theoretic approach. *International XML Database Symposium (XSYM)*, LNCS 5679, pages 145-159, 2009.

22. M. Franceschet, D. Gubiani and A. Montanari. Modeling and Validating Spatio-Temporal Conceptual Schemas in XML Schema. Workshop on XML Data Management Tools & Techniques, pages 25-29, 2007.
23. M. Franceschet. XPathMark: Functional and Performance Tests for XPath. Dagstuhl Seminar Proceedings on XQuery Implementation Paradigms, 2007.
24. L. Afanasiev, M. Franceschet, M. Marx and E. Zimuel. XCheck: a platform for benchmarking XQuery engines. International Conference on Very Large Databases (VLDB), pages 1247-1250, 2006.
25. M. Franceschet and E. Zimuel. A logic-based approach to cache answerability for XPath queries. International XML Database Symposium (XSYM), pages 46-60, 2006.
26. M. Franceschet and M. de Rijke. Model checking for hybrid logics (with an application to semistructured data). Journal of Applied Logic, 4(3), pages 279-304, 2006.
27. M. Franceschet, A. Montanari, A. Peron and G. Sciavicco. Definability and decidability of binary predicates for time granularity. Journal of Applied Logic, 4(2), pages 168-191, 2006.
28. M. Franceschet and E. Zimuel. Modal logic and navigational XPath: an experimental comparison. In proceedings of the Workshop Methods for Modalities (M4M), pages 156-172, 2005.
29. M. Franceschet and B. ten Cate. Guarded fragments with constants. Journal of Logic, Language and Information, 14(3), pages 281-288, 2005.
30. M. Franceschet and B. ten Cate. On the complexity of hybrid logics with binders. In proceedings of the Annual Conference of the European Association for Computer Science Logic (CSL), pages 339-354, 2005.
31. M. Franceschet. XPathMark. An XPath benchmark for XMark generated data. In proceedings of the International XML Database Symposium (XSYM), pages 129-143, 2005.
32. C. Combi, M. Franceschet, and A. Peron. Representing and reasoning about temporal granularities. Journal of Logic and Computation, 4(1), pages 51-77, 2004.
33. M. Franceschet and A. Montanari. Temporalized logics and automata for time granularity. Theory and Practice of Logic Programming, special issue on Verification and Computational Logic, 4(5-6), pages 621-658, 2004.
34. M. Franceschet, A. Montanari and M. de Rijke. Model checking for combined logics with an application to mobile systems. Automated Software Engineering, special issue on Distributed and Mobile Software Engineering, 11(3), pages 287-319, 2004.

35. L. Afanasiev, M. Franceschet, M. Marx and M. de Rijke, CTL Model Checking for Processing Simple XPath Queries, Proceedings of the International Symposium on temporal representation and reasoning (TIME), pages 117-124, 2004.
36. M. Franceschet and A. Montanari. Branching within time: an expressively complete and elementarily decidable temporal logic for time granularity. Research on Language and Computation, 1(3-4), pages 229-263, 2003.
37. M. Franceschet and M. de Rijke. Model Checking for Hybrid Logics. In proceedings of the Workshop Methods for Modalities (M4M), pages 109-124, 2003.
38. M. Franceschet, A. Montanari, A. Peron and G. Sciavicco. Definability and decidability of binary predicates for time granularity. In proceedings of the International Symposium on temporal representation and reasoning - International Conference on Temporal Logic (TIME-ICTL), pages 192-202, 2003.
39. M. Franceschet, M. de Rijke, and Holger Schlingloff. Hybrid Logics on Linear Structures: Expressivity and Complexity. In proceedings of the International Symposium on temporal representation and reasoning - International Conference on Temporal Logic (TIME-ICTL), pages 166-173, 2003.
40. C. Combi, M. Franceschet, and A. Peron. A logical approach to represent and reason about calendars. In proceedings of the International Symposium on temporal representation and reasoning (TIME), pages 134-140, 2002.
41. M. Franceschet and A. Montanari. A combined approach to temporal logics for time granularity. In proceedings of the Workshop Methods for Modalities (M4M), 2001.
42. M. Franceschet and A. Montanari. Towards an automata-theoretic counterpart of combined temporal logics. In proceeding of the International Workshop on Verification and Computational Logic (VCL), pages 55-74, 2001.
43. I. Cervesato, M. Franceschet and A. Montanari. A Guided Tour through some Extensions of the Event Calculus. Computational Intelligence, 16(2), pages 307-347, 2000.
44. M. Franceschet and A. Montanari. A Graph-Theoretic Approach to Efficiently Reason about Partially Ordered Events in (Modal) Event Calculus. Annals of Mathematics and Artificial Intelligence, 20(1-4), pages 93-118, 2000.
45. M. Franceschet, A. Montanari and M. de Rijke. Model Checking for Combined Logics. In proceedings of the International Conference on Temporal Logic (ICTL), pages 65-73, 2000.

46. I. Cervesato, M. Franceschet and A. Montanari. A Hierarchy of Modal Event Calculi: Expressiveness and Complexity. *Advances in Temporal Logic*, pages 1-20, 2000.
47. M. Franceschet and A. Montanari. A graph-theoretic approach to efficiently reason about partially ordered events in the Event Calculus. In *proceedings of the International Workshop on Temporal Representation and Reasoning (TIME)*, pages 55-66, 1999.
48. C. Combi, G. L. Foresti, M. Franceschet, A. Montanari. Indexing by Shape of Image Databases Based on Extended Grid Files. In *proceedings of the IEEE International Conference on Multimedia Computing and Systems (ICMCS)*, pages 230-234, 1999.
49. M. Franceschet and A. Montanari. Pairing Transitive Closure and Reduction to Efficiently Reason about Partially Ordered Events. In *proceedings of the Congress of the Italian Association for Artificial Intelligence (AI*IA)*, pages 208-217, 1999. *Lecture Notes on Artificial Intelligence 1792*, pages 131-142, 2000.
50. I. Cervesato, M. Franceschet and A. Montanari. The Complexity of Model Checking in Modal Event Calculi with Quantifiers. *Electronic Transactions on Artificial Intelligence*, 2, pages 1-23, 1998.
51. I. Cervesato, M. Franceschet and A. Montanari. Event Calculus with Explicit Quantifiers. In *proceedings of the International Workshop on Temporal Representation and Reasoning (TIME)*, pages 81-88, 1998.
52. I. Cervesato, M. Franceschet and A. Montanari. The Complexity of Model Checking in Modal Event Calculi with Quantifiers. In *proceedings of the International Conference on Principles of Knowledge Representation and Reasoning (KR)*, pages 368-379, 1998.
53. I. Cervesato, M. Franceschet and A. Montanari. Modal Event Calculi with Preconditions. In *proceedings of the International Workshop on Temporal Representation and Reasoning (TIME)*, pages 38-45, 1997.
54. I. Cervesato, M. Franceschet and A. Montanari. The Complexity of Model Checking in Modal Event Calculi (poster). In *proceedings of the International Conference on Logic Programming (ICLP)*, page 419, 1997.