

CURRICULUM VITAE ET STUDIORUM

Mauro Ferrari

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Personal Information

- Born 30 October 1965, Varese
- Address: via Frasconi 12, 21100, Varese

Education

- Ph.D. in Computer Science, September 1997, Università degli Studi di Milano, Italy
Thesis: Strongly Constructive Formal Systems. Supervisor: Prof. Pierangelo Miglioli
- Bachelor of Science with distinction in Computer Science, December 1990. Università degli Studi di Milano, Italy
Thesis: Logiche intermedie costruttive massimali (Maximal Intermediate Constructive Logics). Supervisor: Prof. Pierangelo Miglioli

Employment

- **Associate professor (December 2004 – Present)**
Università degli Studi dell'Insubria, Dipartimento di Scienze Teoriche e Applicate
- **Assistant professor (June 2004 – December 2004)**
Università degli Studi dell'Insubria, Dipartimento di Scienze Teoriche e Applicate
- **Assistant professor (April 2000 – May 2004)**
Università degli Studi di Milano, Dipartimento di Scienze dell'Informazione
- **Postdoctoral fellow (May 1998 – April 2000)**
Università degli Studi di Milano, Dipartimento di Scienze dell'Informazione

Research Interests

His research activities concern non-classical logics and their application to Computer science. On these topics he has published more than 30 scientific publications in international journals and conference proceedings. Current research interests includes:

- Proof theory of intuitionistic logic.
- Proof-search in tableau and sequent calculi for intuitionistic, intermediate and modal logics.
- Automated theorem proving: theory and implementation.
- Constructive logics and its applications to program synthesis and ADT specification.
- Complexity of proofs.
- Intuitionistic modal logics and constructive description logics.

Publications

Refereed Journal Publications

- [1] M. Ferrari and C. Fiorentini. Goal-oriented proof-search in natural deduction for intuitionistic propositional logic. *Journal of Automated Reasoning*, in press (pubblicato on-line su SpringerLink, agosto 2017).
- [2] M. Ferrari, C. Fiorentini, and G. Fiorino. JTabWb: a Java framework for implementing terminating sequent and tableau calculi. *Fundamenta Informaticae*, 150:119–142, 2017.
- [3] M. Ferrari, C. Fiorentini, and G. Fiorino. An evaluation-driven decision procedure for G3i. *ACM Transactions on Computational Logic (TOCL)*, 6(1):8:1–8:37, 2015.
- [4] M. Ferrari, C. Fiorentini, and G. Fiorino. Contraction-free linear depth sequent calculi for intuitionistic propositional logic with the subformula property and minimal depth countermodels. *Journal of Automated Reasoning*, 51(2):129–149, 2013.
- [5] M. Ferrari, C. Fiorentini, and G. Fiorino. Simplification rules for intuitionistic propositional tableaux. *ACM Transactions on Computational Logic (TOCL)*, 13(2):14:1–14:23, 2012.
- [6] M. Ferrari, C. Fiorentini, and G. Fiorino. BCDL: Basic constructive description logic. *Journal of Automated Reasoning*, 44(4):371–399, 2010.
- [7] L. Bozzato, M. Ferrari, and P. Villa. Actions over a constructive semantics for description logics. *Fundamenta Informaticae*, 96:1–17, 2009.
- [8] M. Ferrari, C. Fiorentini, and G. Fiorino. A tableau calculus for propositional intuitionistic logic with a refined treatment of nested implications. *Journal of Applied Non-Classical Logics*, 19(2):149–166, 2009.
- [9] M. Ferrari, C. Fiorentini, and G. Fiorino. On the complexity of the disjunction property in intuitionistic and modal logics. *ACM Transactions on Computational Logic (TOCL)*, 6(3):519–538, 2005.
- [10] M. Ferrari, C. Fiorentini, and G. Fiorino. A secondary semantics for second order intuitionistic propositional logic. *Mathematical Logic Quarterly*, 50(2):202–210, 2004.
- [11] M. Ferrari, P. Miglioli, and M. Ornaghi. On uniformly constructive and semiconstructive formal systems. *Logic Journal of the IGPL*, 11(1):1–49, 2003.

- [12] M. Ferrari and C. Fiorentini. A proof-theoretical analysis of semiconstructive intermediate theories. *Studia Logica*, 73(1):21–49, 2003.
- [13] M. Ferrari, C. Fiorentini, and P. Miglioli. Extracting information from intermediate semi-constructive HA-systems (extended abstract). *Mathematical Structures in Computer Science*, 11:589–696, 2001.
- [14] A. Ciabattoni and M. Ferrari. Hypersequent calculi for some intermediate logics with bounded Kripke models. *Journal of Logic and Computation*, 11(2):283–294, 2001.
- [15] A. Avellone, M. Ferrari, P. Miglioli, and U. Moscato. A tableau calculus for Dummett predicate logic. In Walter A. Carnielli and Itala M. D’Ottaviano, editors, *Advances in Contemporary Logic and Computer Science*, volume 235 of *Contemporary Mathematics*, pages 135–151. AMS, 1999.
- [16] A. Avellone, M. Ferrari, and P. Miglioli. Duplication-free tableau calculi and related cut-free sequent calculi for the interpolable propositional intermediate logics. *Logic Journal of the IGPL*, 7(4):447–480, 1999.
- [17] M. Ferrari. Cut-free tableau calculi for some intuitionistic modal logics. *Studia Logica*, 59(3):303–330, 1997.
- [18] M. Ferrari and P. Miglioli. A method to single out maximal propositional logics with the disjunction property, 2. *Annals of Pure and Applied Logic*, 76(2):117–168, 1995.
- [19] M. Ferrari and P. Miglioli. A method to single out maximal propositional logics with the disjunction property, 1. *Annals of Pure and Applied Logic*, 76(1):1–46, 1995.
- [20] M. Ferrari and P. Miglioli. Counting the maximal intermediate constructive logics. *Journal of Symbolic Logic*, 58(4):1365–1401, 1993.

Refereed Conference and Workshop Publications

- [1] C. Fiorentini and M. Ferrari. A forward unprovability calculus for intuitionistic propositional logic. In R. A. Schmidt and C. Nalon, editors, *TABLEAUX 2017*, volume 10501 of *Lecture Notes in Computer Science*, pages 114–130. Springer, 2017.
- [2] M. Ferrari, C. Fiorentini, and G. Fiorino. Proof-search in hilbert calculi. In *Proceedings of the 32nd Italian Conference on Computational Logic*, volume 1949 of *CEUR Workshop Proceedings*, pages 301–305. CEUR-WS.org, 2017.
- [3] M. Ferrari and C. Fiorentini. Proof-search in natural deduction calculus for classical propositional logic. In H. De Nivelle, editor, *TABLEAUX 2015*, volume 9323 of *Lecture Notes in Computer Science*, pages 237–252. Springer International Publishing, 2015.
- [4] M. Ferrari, C. Fiorentini, and G. Fiorino. Towards a tableau-based procedure for pltl based on a multi-conclusion rule and logical optimizations. In *Proceedings of the 30th Italian Conference on Computational Logic, Genova, Italy, July 1-3, 2015*, volume 1459 of *CEUR Workshop Proceedings*, pages 117–121. CEUR-WS.org, 2015.
- [5] M. Ferrari, C. Fiorentini, and G. Fiorino. A new refutation calculus with logical optimizations for PLTL. In IARIA, editor, *COMPUTATION TOOLS 2015*, pages 39–41, 2015.
- [6] M. Ferrari, C. Fiorentini, and G. Fiorino. JTabWb: a Java framework for implementing terminating sequent and tableau calculi. In L. Giordano, V. Gliozzi, and G. L. Pozzato, editors, *CILC*, volume 1195 of *CEUR Workshop Proceedings*, pages 46–53. CEUR-WS.org, 2014.

- [7] M. Ferrari and C. Fiorentini. Proof-search in natural deduction calculi for IPL. In *PSC 2014*, 2014.
- [8] M. Ferrari, C. Fiorentini, and G. Fiorino. A terminating evaluation-driven variant of G3i. In D. Galmiche and D. Larchey-Wendling, editors, *Automated Reasoning with Analytic Tableaux and Related Methods - 22th International Conference, TABLEAUX 2013, Nancy, France, September 16-19, 2013. Proceedings*, volume 8123 of *Lecture Notes in Computer Science*, pages 104–118. Springer, 2013.
- [9] M. Ferrari, C. Fiorentini, and G. Fiorino. Fcube: An efficient prover for intuitionistic propositional logic. In C. G. Fermüller and A. Voronkov, editors, *LPAR 2010*, volume 6397, pages 294–301. Springer, 2010.
- [10] L. Bozzato and M. Ferrari. Composition of semantic web services in a constructive description logic. In P. Hitzler and T. Lukasiewicz, editors, *Web Reasoning and Rule Systems - Fourth International Conference, RR 2010*, volume 6333 of *Lecture Notes in Computer Science*, pages 223–226. Springer, 2010.
- [11] L. Bozzato, M. Ferrari, C. Fiorentini, and G. Fiorino. A decidable constructive description logic. In T. Janhunen and I. Niemelä, editors, *Logics in Artificial Intelligence, JELIA 2010*, volume 6341, pages 51–63. Springer, 2010.
- [12] M. Ferrari, C. Fiorentini, A. Momigliano, and M. Ornaghi. Snapshot generation in a constructive object-oriented modeling language. In A. King, editor, *Logic Based Program Synthesis and Transformation, LOPSTR 2007, Selected Papers*, volume 4915 of *Lecture Notes in Computer Science*, pages 169–184. Springer-Verlag, 2008.
- [13] L. Bozzato, M. Ferrari, and P. Villa. Actions over a constructive semantics for ALC. In F. Baader, C. Lutz, and B. Motik, editors, *2008 International Workshop on Description Logics*, volume 353 of *CEUR Proceedings*, 2008.
- [14] L. Bozzato, M. Ferrari, and A. Trombetta. Building a domain ontology from glossaries: a general methodology. In A. Gangemi, J. Keizer, V. Presutti, and H. Stoermer, editors, *Semantic Web Applications and Perspectives, SWAP 2008*, volume 426 of *CEUR Proceedings*, pages 1–10, 2008.
- [15] L. Bozzato, M. Ferrari, C. Fiorentini, and G. Fiorino. A constructive semantics for ALC. In D. Calvanese, E. Franconi, V. Haarslev, D. Lembo, B. Motik, A.-Y. Turhan, and S. Tessaris, editors, *2007 International Workshop on Description Logics*, volume 250 of *CEUR Proceedings*, pages 219–226, 2007.
- [16] A. Avellone, M. Ferrari, C. Fiorentini, G. Fiorino, and U. Moscato. ESBC: an application for computing stabilization bounds. In *Constructive Logic for Automated Software Engineering*, volume 153 of *Electronic Notes in Theoretical Computer Science*, pages 23–33, 2006.
- [17] M. Ornaghi, M. Benini, M. Ferrari, C. Fiorentini, and A. Momigliano. A Constructive Modeling Language for Object Oriented Information Systems. In *Constructive Logic for Automated Software Engineering*, volume 153 of *Electronic Notes in Theoretical Computer Science*, pages 55–75, 2006.
- [18] M. Ferrari, C. Fiorentini, and M. Ornaghi. Extracting exact time bounds from logical proofs. In A. Petterossi, editor, *Logic Based Program Synthesis and Transformation, 11th International Workshop, LOPSTR 2001, Selected Papers*, volume 2372 of *Lecture Notes in Computer Science*, pages 245–265. Springer-Verlag, 2002.

- [19] M. Ferrari, C. Fiorentini, and G. Fiorino. Tableau calculi for the logics of finite k-ary trees. In *TABLEAUX 2002, Automated Reasoning with Analytic Tableaux and Related Methods*, volume 2381 of *Lecture Notes in Artificial Intelligence*, pages 115–129. Springer-Verlag, 2002.
- [20] M. Ferrari, C. Fiorentini, and G. Fiorino. On the complexity of disjunction and explicit definability properties in some intermediate logics. In *LPAR 2002: Logic for Programming Artificial Intelligence and Reasoning*, number 2514 in *Lecture Notes in Artificial Intelligence*, pages 175–189. Springer-Verlag, 2002.
- [21] A. Avellone, M. Ferrari, and C. Fiorentini. A formal framework for synthesis and verification of logic programs. In K.-K. Lau, editor, *Logic Based Program Synthesis and Transformation, 10th International Workshop, LOPSTR 2000, Selected Papers*, volume 2042 of *Lecture Notes in Computer Science*, pages 1–17. Springer-Verlag, 2001.
- [22] A. Ciabattini and M. Ferrari. Hypertableau and path-hypertableau calculi for some families of intermediate logics. In R. Dyckhoff, editor, *TABLEAUX 2000, Automated Reasoning with Analytic Tableaux and Related Methods*, volume 1947 of *Lecture Notes in Artificial Intelligence*, pages 160–174. Springer-Verlag, 2000.
- [23] M. Ferrari, C. Fiorentini, and P. Miglioli. Goal oriented information extraction in uniformly constructive calculi. In *Argentinian Workshop on Theoretical Computer Science (WAIT'99)*, pages 51–63. Sociedad Argentina de Informática e Investigación Operativa, 1999.
- [24] A. Avellone, M. Ferrari, and P. Miglioli. Synthesis of programs in abstract data types. In *8th International Workshop on Logic-based Program Synthesis and Transformation*, volume 1559 of *Lecture Notes in Computer Science*, pages 81–100. Springer-Verlag, 1999.
- [25] A. Avellone and M. Ferrari. Almost duplication-free tableaux calculi for propositional Lax logics. In P. Miglioli, U. Moscato, D. Mundici, and M. Ornaghi, editors, *Proceedings of the 5th Workshop on Theorem Proving with Analytic Tableaux and Related Methods*, volume 1071 of *Lecture Notes in Artificial Intelligence*, pages 48–64. Springer-Verlag, 1996.

Books

- [1] M. Ferrari and G. Pighizzini. *Dai fondamenti agli oggetti. Corso di programmazione Java*. 4rd ed., Pearson Italia, ISBN 978 88 6518 899 6, 2015.
- [2] M. Ferrari and G. Pighizzini. *Dai fondamenti agli oggetti. Corso di programmazione Java*. 3rd ed., Pearson Addison-Wesley, ISBN 978 88 7192 448 9, 2008.
- [3] M. Ferrari and G. Pighizzini. *Dai fondamenti agli oggetti. Corso di programmazione Java*. 2nd ed., Pearson Education Italia, ISBN 88 7192 250 6, 2005.
- [4] M. Ferrari and G. Pighizzini. *Dai fondamenti agli oggetti. Corso di programmazione Java*. Pearson Education Italia, ISBN 88 7192 205 0, 2003.

Technical Reports

- [1] L. Bozzato and M. Ferrari. A note on semantic web services specification and composition in constructive description logics. *CoRR*, abs/1007.2364 [cs.AI], 2010.
- [2] M. Ferrari, C. Fiorentini, A. Momigliano, and M. Ornaghi. Snapshot generation in a constructive object-oriented modeling language. In A. King, editor, *Logic Based Program Synthesis and Transformation, LOPSTR 2007, Pre-proceedings*, volume <http://www.cs.kent.ac.uk/events/conf/2007/lopstr/pre-proceedings.pdf>, pages 145–159, 2007.

- [3] M. Ferrari, C. Fiorentini, and G. Fiorino. A tableau calculus for propositional intuitionistic logic with a refined treatment of nested implications. Technical Report 314-07, Dipartimento di Scienze dell'Informazione, Università degli Studi di Milano, Italy, 2007.
- [4] M. Ferrari, C. Fiorentini, and M. Ornaghi. Extracting exact time bounds from logical proofs. In A. Pettorossi, editor, *Pre-Proceedings of LOPSTR'01: Logic-Based Program Synthesis and Transformation*, pages 132–140, 2001.
- [5] M. Ferrari, P. Miglioli, and M. Ornaghi. Foundations of uniformly constructive and uniformly semiconstructive formal systems. Technical Report 256/00, Dipartimento di Scienze dell'Informazione, Università degli Studi di Milano, Italy, 2000.
- [6] M. Ferrari, C. Fiorentini, and P. Miglioli. Extracting information from intermediate semiconstructive HA-systems. Technical Report 253-00, Dipartimento di Scienze dell'Informazione, Università degli Studi di Milano, Italy, 2000.
- [7] M. Ferrari, C. Fiorentini, and P. Miglioli. Extracting information from intermediate T-systems. Technical Report 252-00, Dipartimento di Scienze dell'Informazione, Università degli Studi di Milano, Italy, 2000.
- [8] A. Avellone, M. Ferrari, and C. Fiorentini. A formal framework for synthesis and verification of logic programs (extended abstract). Technical Report UMCS-00-6-1, Department of Computer Science, University of Manchester, 2000.
- [9] A. Avellone, M. Ferrari, and P. Miglioli. Synthesis of programs in abstract data types (extended abstract). In *Pre-Proceedings of LOPSTR'98*. Depart. of Computer Science, University of Manchester, UMCS-98-6-1, 1998.
- [10] A. Avellone, M. Ferrari, and P. Miglioli. Duplication-free tableau calculi together with cut-free and contraction free sequent calculi for the interpolable propositional intermediate logics. Technical Report 210-97, Dipartimento di Scienze dell'Informazione, Università degli Studi di Milano, Italy, 1997.
- [11] M. Ferrari. Cut-free tableau calculi for some intuitionistic modal logics. Technical Report 133-95, Dipartimento di Scienze dell'Informazione, Università degli Studi di Milano, Italy, 1995.

Miscellaneous

- [1] M. Ferrari, C. Fiorentini, and G. Fiorino. Towards the use of simplification rules in intuitionistic tableaux. In Marco Gavanelli and Fabrizio Riguzzi, editors, *CILC09: 24-esimo Convegno Italiano di Logica Computazionale*, Ferrara, Italy, 2009. GULP.
- [2] L. Bozzato, M. Ferrari, and P. Villa. A note on constructive semantics for description logics. In M. Gavanelli and F. Riguzzi, editors, *CIL09: 24-esimo Convegno Italiano di Logica Computazionale*. GULP, 2009.
- [3] M. Ferrari, C. Fiorentini, and G. Fiorino. A refined calculus for intuitionistic propositional logic. In *23-esimo Convegno Italiano di Logica Computazionale*, 2008.
- [4] L. Bozzato, M. Ferrari, and P. Villa. Actions over a constructive semantics for description logics. In *23-esimo Convegno Italiano di Logica Computazionale*, 2008.
- [5] A. Avellone, M. Ferrari, P. Miglioli, and U. Moscato. A tableau calculus and a cut-free sequent calculus for Dummett predicate logic. In H.C.M. de Swart, editor, *Position Papers*, pages 1–18. International Conference TABLEAUX'98, Analytic Tableaux and Related Methods, Katholieke Universiteit Brabant, 1998.

- [6] M. Ferrari. *Sistemi Formali Fortemente Costruttivi*. PhD thesis, Dipartimento di Scienze dell'Informazione, Università degli Studi di Milano, Italy, 1997.
- [7] M. Ferrari. *Strongly Constructive Formal Systems*. PhD thesis, Dipartimento di Scienze dell'Informazione, Università degli Studi di Milano, Italy, 1997. Available at <http://web.crii.uninsubria.it/~ferram>.
- [8] M. Ferrari and P. Miglioli. Counting the maximal intermediate constructive logics. *AILA Preprint n. 11 - gennaio/giugno*, 1992.
- [9] M. Ferrari. Logiche intermedie costruttive massimali. Master's thesis, Dipartimento di Scienze dell'Informazione, Università degli Studi di Milano, Italy, 1990.

Teaching and Advising

Current courses

- AUTOMI E LINGUAGGI (Automata and formal languages)
6cfu, corso fondamentale, III anno, Corso di laurea triennale in informatica.
- PROGRAMMAZIONE FUNZIONALE (Functional programming)
6cfu, corso complementare, Corso di laurea triennale in informatica.

Previous courses

- FONDAMENTI DEI LINGUAGGI DI PROGRAMMAZIONE (Fundamentals of programming languages)
6cfu, corso complementare, Corso di laurea triennale in informatica.
- INFORMATICA TEORICA (Theoretical computer science)
9cfu, corso fondamentale, III anno, Corso di laurea triennale in informatica.
- INFORMATICA TEORICA (Theoretical computer science)
6cfu, corso fondamentale, I anno, Corso di laurea specialistica in informatica.
- LABORATORIO DI ALGORITMI E STRUTTURE DATI (Algorithm and data structures lab)
- LOGICA COMPUTAZIONALE (Computational logic)
6cfu, corso fondamentale, I anno, Corso di laurea specialistica in informatica.
- METODI FORMALI DELL'INFORMATICA (Formal methods)
6cfu, corso complementare, II anno, Corso di laurea specialistica in informatica.
- PROGRAMMAZIONE (Computer programming)
12cfu, corso fondamentale, I anno, Corso di laurea triennale in informatica.

Supervision of Ph.D. students (graduated)

- Loris Bozzato. Kripke semantics and tableau procedures for constructive description logics. 2011
- Paola Villa. Semantics foundations for constructive description logics. 2010.

Current Research Projects and Collaborations

- 2012–Present. Member of the “Knowledge and Service Management for Business Applications” of University of Insubria.
- MI-FIDO (Made-in-Italy Fashion IDentity and Originality), Italian Ministry of Economic Development, PI, 2010-2013.
- 2006–Present: COOML (cooml.dsi.unimi.it): A Constructive Object Oriented Modelling Language.

Departmental and University Service at Università degli Studi dell’Insubria

- Present: Director of the Bachelor and Master degrees in Computer Science.
- 2006–2010: Director of the Bachelor and Master degrees in Computer Science.

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