

Curriculum Vitae of Alberto Momigliano

1 Education

- Ph.D. in Pure and Applied Logic, Carnegie Mellon University. “Elimination of Negation in a Logical Framework”. Adviser: Frank Pfenning, thesis committee: Dale Miller, Dana Scott, August 2000.
- M.S. in Logic and Computation, Carnegie Mellon University. “Some Remarks on Uniform Proofs and Constructive Negation”. Advisers: Prof. Wilfried Sieg and Prof. Frank Pfenning.
- M.Sc. in Computation, Oxford University. “Prolog and Negation”, adviser: C.A.R. Hoare.
- Laurea in Philosophy, University of Milano, honor thesis: ”Implication and Deducibility in Formal Systems”. Advisers: Prof. C. Mangione (logic), Prof. A. Bonomi (philosophy of language).

2 Current Position

Honorary Fellow, LFCS, University of Edinburgh, UK.

3 Current and recent projects

- HYBRID (hybrd.dsi.unimi.it): Hybryd, a package for higher-order syntax in Isabelle and Coq (Co-PI).
- COOML (cooml.dsi.unimi.it): A Constructive Object Oriented Modelling Language (Co-PI).
- MOBIUS (mobius.inria.fr): Mobility, Ubiquity and Security. Enabling proof-carrying code for Java on mobile devices. Mobius is a European Integrated Project developing novel technologies for trustworthy global computing, using proof-carrying code to give users independent guarantees of the safety and security of Java applications for their mobile phones and PDAs (Research fellow).
- MRG (groups.inf.ed.ac.uk/mrg): The Mobile Resource Guarantees project has developed the infrastructure needed to endow mobile code with independently verifiable certificates describing its resource behaviour (space, time, etc.). Funded under the Global Computing pro-active initiative of the Future and Emerging Technologies part of the Information Society Technologies programme of the European Commission’s Fifth Framework Programme (Research fellow).
- TWELF (<http://twelf.plparty.org/>): Twelf is a research project concerned with the design, implementation, and application of logical frameworks funded by the National Science Foundation under grants Meta-Logical Frameworks, Efficient Logical Frameworks (PI: Frank Pfenning) and by DARPA (Ph.D student).

4 Previous Jobs

- Research Fellow, LFCS, University of Edinburgh, UK, and DSI, University of Milano (IT), July 2003 – December 2007.
- Research Associate, Department of Mathematics and Computer Science, University of Leicester (UK), July 2000–July 2003.
- Research Programmer at CEFRIEL/Polytechnic of Milano, Italy 1992.
- Research Programmer at Honeywell Bull, Expert Systems Group, Milano, Italy 1989-1991.

5 Teaching Experience

- Two lectures on “Introduction to Isabelle/HOL”, Bicocca, University of Milan 2008.
- Five lectures on “Programs Logics in Isabelle/HOL”, DSI, University of Milan 2005.
- Coordinator of the “Semantics Seminar”, University of Leicester:
 - 2001 “Operational and Denotational Semantics for Languages with Variable Bindings”.
 - 2002 “Co-inductive Techniques in Relational Semantics”.
- Teaching Assistant for Prof. B. Harper in Principles of Programming Languages, Carnegie Mellon University, Spring 2000
- Instructor for “Introduction to Logic”, Carnegie Mellon University, 1996-99.

6 Seminars and Invited Talks

- “Mechanized metatheory model-checking”. Department of Theoretical Computer Science IT University of Copenhagen, 8/2007.
- “A Practical Approach to Co-induction in Twelf”. Comète-Parsifal Seminar, École Polytechnique, Paris, 6/2006.
- “A Program Logic for Resources and its Application to Optimisation Validation”. Queen Mary, University of London, 12/2005.
- “Automatic Certification of Resource Consumption”. Comète-Parsifal Seminar, École Polytechnique, Paris. 5/2005.
- “Induction and Co-Induction in Sequent Calculus”. Heriot-Watt University, Edinburgh, 5/2003.
- “A Hybrid Logical Framework”. INRIA Futurs, Orsay Cedex (FR), 3/2003.
- “Simple Compiler Verification in a Hybrid Logical Framework”. University of Nottingham Theory Seminar, 2/2002
- “A Definitional Approach to Higher-Order Abstract Syntax”. Yale University, Carnegie Mellon University, Penn State University, 5/2002.
- “A Fresh Look to Uniform Proof Search”. Dagstuhl Seminar on *Semantics Foundations of Proof-search*, 4/ 2001.
- “Think Positive! Or Elimination of Negation in a Logical Framework”. Joint Theory Seminar, Queen Mary, University of London, 11/2000.

7 Professional Services

- Conferences:
 - **PC member:**
 - * *LFMTP 2009: Logical Frameworks and Metalanguages. Theory and Applications*, in association with CADE-22, McGill University, Montreal, Canada, 2009.
 - * *LFMTP 2008: Logical Frameworks and Metalanguages. Theory and Applications*, in association with LICS, Pittsburgh, June 2008.
 - * *ICTCS 2007: Italian Conference on Theoretical Computer Science*, Rome, September 2007.

- * *LFMTP 2006: Logical Frameworks and Metalanguages. Theory and Applications*, in association with FLOC, Seattle, July 2006.
- * *MERLIN 2005: MEchanized Reasoning about Languages with variable bInding and Names*, in association with ICFP 2005, Tallin, Estonia, August 2005.
- * *PPDP 2003: 5th International Conference on Principles and Practises of Declarative Programming Languages*, Uppsala, Sweden, August 2003.

– **Organizer:**

- * *LFMTP 2006: Logical Frameworks and Metalanguages. Theory and Applications*.
- * *MERλIN 2005: MEchanized Reasoning about Languages with variable bInding and Names*.
- * Tutorial Chair: *European Joint Conferences on Theory and Practice of Software (ETAPS 2005)*, April 2005 Edinburgh, Scotland.
- * *MERλIN 2003*, in association with *PPDP 2003*, Uppsala, Sweden, August 2003;
- * *MERλIN 2001*, in association con *IJCAR 2001, International Joint Conference on Automated Reasoning*, Siena, Italy, June 2001;
- * *Post-Conference Workshop on Proof-Theoretical Extensions of Logic Programming*, Santa Margherita Ligure, June 1994, in association with *1994 International Conference on Logic Programming (ICLP'94)*.

• Refereeing:

- Journals: *Theoretical Computer Science*, *Journal of Automated Reasoning*, *Journal of Higher Order and Symbolic Computation*, *Journal of Functional Programming*, *Annals of Pure and Applied Logic*.
- Conferences: *POPL*, *CSL*, *ICALP*, *APLAS*, *ESOP*, *PPDP*, *ICLP*, *LOPSTR*, *TLCA*, *TABLEAUX*, ...

8 Awards/Honors

- Winner of the CNR (Italian Council for Research) fellowship in Mathematics, 1993.
- “Best Paper Award”, 1st International Conference on Practical Applications of Prolog, London, 1992.
- Invited panelist at the panel about “Prolog in the real world” that concluded the 20th *Joint International Conference on Logic Programming (ICLP'92)*, Washington, 11/1992.

9 Publications

9.1 International Journals

1. Alwen Tiu & Alberto Momigliano. Induction and Co-induction in Sequent Calculus. Dec. 2008, *arXiv:0812.4727*, 39 pages.
2. Amy Felty & Alberto Momigliano. Hybrid: A Definitional Two Level Approach to Reasoning with Higher-Order Abstract Syntax. University of Ottawa Tech. Report, number TR-2008-03. Sept. 2008, *arXiv:0811.4367*, 49 pages.
3. D. Aspinall, L. Beringer, H.W. Loidl, M. Hoffman & A. Momigliano. A Program Logic for Resources, *Theoretical Computer Science*, 389(3):411– 445, Dec 2007.
4. Alberto Momigliano & Frank Pfenning. Higher-Order Pattern Complement and the Strict Lambda-Calculus. *ACM Transactions on Computational Logic*, 493 - 529, Vol. 4 Issue 4, Oct. 2003.
5. Alberto Momigliano & Mario Ornaghi. Regular Search Spaces and Constructive Negation. *Journal of Logic and Computation*, 7(3):367–403, 1997.

6. Massimo Paltrinieri, Alberto Momigliano & Franco Torquati. Aircraft Routing as Constraints Satisfaction. *International Journal of Expert Systems: Research & Applications*, Volume 8, No. 4, 1995, 26 pages.

9.2 Electronic Journals

1. Alberto Momigliano, Alan Martin & Amy Felty. Two-Level Hybrid: A System for Reasoning Using Higher-Order Abstract Syntax. *Electr. Notes Theor. Comput. Sci. (ENTCS)* 196:85-93 (2008). Proceedings of the Second International Workshop on Logical Frameworks and Meta-Languages: Theory and Practice (LFMTP 2007).
2. Alberto Momigliano, David Aspinall & Lennart Beringer. Optimisation Validation. *Electr. Notes Theor. Comput. Sci. (ENTCS)* 176(3):37-59 (2007). Proceedings of the 5th International Workshop on Compiler Optimization meets Compiler Verification (COCV 2006).
3. Mario Ornaghi, Marco Benini, Mauro Ferrari, Camillo Fiorentini & Alberto Momigliano. A Constructive Modeling Language for Object Oriented Information Systems. *Electr. Notes Theor. Comput. Sci. (ENTCS)* 153(1):55-75 (2006). Proceedings of the Workshop on the Constructive Logic for Automated Software Engineering (CLASE 2005).
4. A. Momigliano & Jeff Polakow. A Formalisation of an Ordered Logical Framework in Hybrid with Applications to Continuation Machines. *Proceedings of Eighth ACM SIGPLAN International Conference on Functional Programming, Workshop on Mechanized reasoning about languages with variable binding, (MERLIN 2003)*. ACM Digital Library 2003.
5. Simon Ambler, Roy Crole & A. Momigliano. A Definitional Approach to Primitive Recursion over Higher Order Abstract Syntax. *Proceedings of Eighth ACM SIGPLAN International Conference on Functional Programming, Workshop on Mechanized reasoning about languages with variable binding, (MERLIN 2003)*. ACM Digital Library 2003.
6. Alberto Momigliano, Simon Ambler & Roy Crole. A Hybrid Encoding of Howe's Method for Establishing Congruence of Bisimilarity. *Electr. Notes Theor. Comput. Sci. (ENTCS)* 70(2) (2002). Proceedings of the International Workshop on Logical Frameworks and Meta-Languages, (LFM'02).

9.3 International Conferences

1. Amy Felty and A. Momigliano. Reasoning with Hypothetical Judgments and Open Terms in Hybrid. In: Francisco J. Lopez-Fraguas, & Antnio Porto (Eds.): *Proceedings of the 11th International ACM SIGPLAN Conference on Principles and Practice of Declarative Programming (PPDP 2009)*, Sept. 2009.
2. Camillo Fiorentini, Mario Ornaghi, A. Momigliano & Francesco Pagano. Applying ASP to UML Model Validation. In: Fangzhen Lin and Torsten Schaub (Eds.): *Tenth International Conference on Logic Programming and Nonmonotonic Reasoning*, Lecture Notes in Computer Science, Vol. ?, Springer-Verlag, Sept. 2009
3. Camillo Fiorentini, Mario Ornaghi & A. Momigliano. Towards a type discipline for Answer Set Programming. In: Stefano Berardi, Ferruccio Damiani, Ugo de Liguoro (Eds.): *Types for Proofs and Programs; TYPES 2008 Post-Proceedings*, Series: LNCS, Vol 5497, 2009.
4. Mauro Ferrari, Camillo Fiorentini, Mario Ornaghi & A. Momigliano. Snapshot generation in a constructive object-oriented modeling language. In: Andy King (Ed.): *Proceedings of LOPSTR 2007, Revised Selected Papers*. Series: Lecture Notes in Computer Science, Vol. 4915, Springer-Verlag, January 2008.
5. James Cheney & A. Momigliano. Mechanized MetaTheory Model Checking. In: Michael Leuschel & Andreas Podelski (Eds.): *Proceedings of the 9th International ACM SIGPLAN Conference on Principles and Practice of Declarative Programming (PPDP 2007)*, July 2007.

6. Kung-Kiu Lau, Alberto Momigliano & Mario Ornaghi. Constructive Specifications for Compositional Units. In: Etalle, Sandro (Ed.): *Proceedings of the Logic Based Program Synthesis and Transformation 14th International Symposium LOPSTR 2004*, Verona Italia, August 26-28, 2004, Revised Selected Papers. Series: Lecture Notes in Computer Science, Vol. 3618, Springer-Verlag, Feb. 2005.
7. L. Beringer, M. Hofmann, A. Momigliano & O. Shkaravska. Automatic Certification of Heap Consumption. In: Franz Baader & Andrei Voronkov (Eds.): *Proceedings of the 11th International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR2004)*, Montevideo, Uruguay, March 14-18th, 2005. Volume 3452 of Lecture Notes in Artificial Intelligence, Springer-Verlag.
8. Alberto Momigliano et. al. Mobile Resource Guarantees, (project evaluation paper). In: Marko C. J. D. van Eekelen (Ed.): Revised Selected Papers from the Sixth Symposium on Trends in Functional Programming, TFP 2005, Tallinn, Estonia, 23-24 September 2005. Trends in Functional Programming 6, Intellect, 211-226, 2007.
9. D. Aspinall, L. Beringer, M. Hofmann, H-W. Loidl & A. Momigliano. A Program Logic for Resource Verification. In: Konrad Slind, Annette Bunker, & Ganesh C.Gopalakrishnan (Eds.): *Proceedings of the 17th International Conference on Theorem Proving in Higher Order Logics (TPHOLs2004)*, Park City, Utah, September 14-17, 2004. pp.34-49, Volume 3223 of Lecture Notes in Computer Science, Springer-Verlag.
10. A. Momigliano & A. Tiu. Induction and Co-induction in Sequent Calculus. In: Berardi, Stefano; Coppo, Mario; Damiani, Ferruccio (Eds.): *Types for Proofs and Programs International Workshop, TYPES 2003*, Torino, Italy, April 30 - May 4, 2003, Revised Selected Papers Series: pp. 293 -308, Lecture Notes in Computer Science, Vol. 3085, 2004.
11. Simon Ambler, Roy Crole & A. Momigliano. A Combinator and Presheaf Topos Model for Primitive Recursion over Higher Order Abstract Syntax. In: Matthias Baaz, Johann Makowski & Andrei Voronkov: *Collegium Logicum (Proceedings of the Kurt Godel Society) vol. VIII*, pp. 83 - 91, Computer Science Logic/8th Kurt Godel Colloquium, Vienna, August, 2003.
12. A. Momigliano & Simon Ambler. Multi-Level Meta-Reasoning with Higher Order Abstract Syntax. In: Gordon, Andrew D. (Ed.): *Foundations of Software Science and Computational Structures 6th International Conference, FOSSACS 2003*, Warsaw, Poland, April 7-11, 2003, pp. 375 -391, Lecture Notes in Computer Science, Vol. 2620, 2003 (27%acc. rate).
13. Simon Ambler, Roy Crole & Alberto Momigliano. Combining Higher Order Abstract Syntax with Tactical Theorem Proving and (Co)Induction. In: V. A. Carreño editor, *15th International Conference on Theorem Proving in Higher Order Logics (TPHOLs02)*, Hampton, VA, 1-3 August 2002, pages 327-343, Springer Verlag LNCS 2342, Berlin, 2002.
14. Alberto Momigliano, Simon Ambler & Roy Crole. A Comparison of Formalizations of the Meta-Theory of a Language with Variable Binding in Isabelle. In: R.J. Boulton & P. Jackson (Eds.), *14th International Conference on Theorem Proving in Higher Order Logics (TPHOLs01)*, Supplemental Proceedings, 3-6 September 2001, Edinburgh, Scotland, pages 267-282, Informatics Research Report EDI-INF-RR-01-23, 2001.
15. Alberto Momigliano. Elimination of Negation in a Logical Framework. In: P. Clote & H. Schwichtenberg (Eds.), *CSL 2000, 14th Annual Conference of the European Association for Computer Science Logic (EACSL)*, pages 411-426, Springer Verlag LNCS 1852, Berlin, 2000.
16. Alberto Momigliano & Frank Pfenning. The Relative Complement Problem for Higher-Order Patterns. In: D. De Schreye editor, *Logic Programming, Proceedings of the 1999 International Conference on Logic Programming*, Las Cruces, NM, pages 380-394, The MIT Press, Cambridge, MT, December 1999. (%30 ar).

17. Alberto Momigliano & Frank Pfenning. The Relative Complement Problem for Higher-Order Patterns. In: M.C. Meo & M. Vilares Ferro (Eds.), *AGP'99: Proceedings of the Joint Conference on Declarative Programming*, L'Aquila, September 6-9, 1999, pages 497–512, Gruppo Tipografico Editoriale, 1999.
18. Alberto Momigliano & Mario Ornaghi. Towards a Logic for Reasoning about Logic Programs Transformation. In: Norbert E. Fuchs editor, *Logic Programming Synthesis and Transformation, 7th International Workshop (LOPSTR'97)*, Leuven, Belgium, July 1997, pages 226–244, Springer Verlag LNCS 1463, Berlin, 1998.
19. Alberto Momigliano & Mario Ornaghi. An Introduction to Regular Search Spaces. In: M. Sessa & M. Alpuente Frasnado (Eds.), *GULP-PRODE'95: Proceedings of the Joint Conference on Declarative Programming*, Marina di Vietri sul Mare, September 11-14, pages 234–249, Università degli Studi di Salerno, 1995.
20. Alberto Momigliano & Mario Ornaghi. Regular Search Spaces as a Foundation of Logic Programming. In: Roy Dyckhoff editor, *Extensions of Logic Programming, Proceedings of the 4th International Workshop (ELP'93)*, St. Andrews, U.K., March 1993, pages 222–254, Springer Verlag LNAI 798, Berlin, 1994
21. Alberto Momigliano. Minimal Negation and Hereditary Harrop Formulae. In: Anil Nerode & Mikhail Taitslin, (Eds.), *Logical Foundations of Computer Science (Tver '92): Proceedings of Second International Symposium*, pages 326–335, Springer-Verlag LNCS 620, Berlin, 1992.
22. Massimo Paltrinieri, Alberto Momigliano & Franco Torquati. Scheduling of an Aircraft Fleet. In: M. Drummond, M. Fox, A. Tate & M. Zweben (Eds.), *Practical Approaches to Scheduling and Planning: Papers from the 1992 Spring Symposium*, March 25-27, 1992, Menlo Park, California, pages 25–29, AAAI Press, 1992.
23. Alberto Momigliano, Massimo Paltrinieri & Franco Torquati. A Scheduling System for an Aircraft Fleet. In: A. Roth editor *Practical Application of Prolog, Proceedings of the International Conference & Exhibition*, London, April 1-3, 1992, 13 pages.
24. Franco Torquati, Massimo Paltrinieri & Alberto Momigliano. A Constraint Satisfaction Approach to Operative Management of Aircraft Routing. *Proceedings of the Third International Conference on Industrial & Engineering Applications of Artificial Intelligence & Expert Systems (IEA/AIE 90)*, July 15-18, 1990, Charleston, SC, USA, Volume 2, pages 1140–1146, ACM Press, 1990.

9.4 Refereed National Conferences

1. C. Fiorentini, A. Momigliano & M. Ornaghi. Towards introducing types in DLV*. In Formisano A. (Ed.) *23-esimo Convegno Italiano di Logica Computazionale 10-12 Luglio 2008 (CILC 2008)*. Perugia, Luglio 2008
2. M. Ferrari, C. Fiorentini, A. Momigliano & A. Ornaghi. Towards Proof-theoretic Model Generation. In Provetti A. (Ed.) *Conferenza Italiana in Logica Computazionale (CILC 2007)*, Messina, Luglio, 2007.
3. Alberto Momigliano. Uniform Proofs Systems with Constructive Negation. In S. Costantini editor, *Settimo Convegno sulla Programmazione Logica (GULP'92)*, Tremezzo, 17-19 Giugno 1992, pages 3–17, CittàStudi Editore, Milano, 1992.

9.5 Refereed International Workshops

1. Mario Ornaghi, Camillo Fiorentini and Alberto Momigliano. Snapshots Generation via Constructive Logic. In *MoVeLog'05, Mobile Code Safety and Program Verification Using Computational Logic Tools*. An ICLP Workshop, Sitges, Spain, Oct. 5, 2005

2. L. Beringer, M. Hofmann, A. Momigliano & O. Shkaravska. Towards Certification Generation for Linear Heap Consumption. In: Didier Galmiche & David Pym (Eds.): *Proceedings of the ICALP Workshop “Logics for Resources, Processes, and Programs” (LRPP 2004)*, July 13, 2004.
3. Alberto Momigliano & Mario Ornaghi. A Proof-Theoretic Reconstruction of Logic Programming. In: F. Pfenning, J. Harland & D. Pym (Eds.), *Proceeding of the Post-Conference Workshop on Proofs and Types*, in association with *1992 Joint International Conference and Symposium on Logic Programming*, November 1992, Washington DC, 1992.

9.6 Editions

1. Alberto Momigliano & Brigitte Pientka (Eds.). *Proceedings of LFMTTP 2006: Logical Frameworks and Metalanguages. Theory and Applications*. Electr. Notes Theor. Comput. Sci. (ENTCS) 174(5):1-2 (2007)
2. Alberto Momigliano & Randy Pollack (Eds.). *Proceedings of MERLIN 2005: MEchanized Reasoning about Languages with variable bINDing*, ACM Press & ACM Digital Library, September 2005, ISBN:1-59593-072-8.
3. Marino Miculan, Furio Honsell & Alberto Momigliano (Eds.). *Proceedings of MERLIN 2003: MEchanized Reasoning about Languages with variable bINDing*, ACM Press & ACM Digital Library, 2003, ISBN:1-58113-800-8.
4. Simon Ambler, Roy Crole & Alberto Momigliano (Eds.). *Proceedings of MERLIN 2001: MEchanized Reasoning about Languages with variable bINDing*, Electronic Notes in Theoretical Computer Science, Volume 58, Issue 1, November 2001, based on the *MERLIN 2001: Mechanized Reasoning about Languages with Variable Binding*, Siena, 18/6/2001, held in connection with *Joint International Conference on Automated Reasoning (IJCAR 2001)*, Siena, June 2001.
5. Alberto Momigliano & Mario Ornaghi (Eds.). *Proceedings of the Post-Conference Workshop on Proof-Theoretical Extensions of Logic Programming*, held in connection with *1994 International Conference on Logic Programming (ICLP'94)*, Santa Margherita Ligure, Giugno 1994.

9.7 Invited Papers

Alberto Momigliano and Lennart Beringer. Certification of Resource Consumption: from Types to Logic (Programming). *The Association for Logic Programming Newsletter*, Vol. 18, No. 2, May 2005.

9.8 PhD Thesis

A. Momigliano. Elimination of Negation in a Logical Framework. August 2000, available as *Technical Report CMU-CS-00-175*, School of Computer Science, Carnegie Mellon University, 160 pages.