

# CURRICULUM VITAE

ENRICO TASSI

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## 1 Personal data

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60D0 4388 E385 3643 807B 9507 EE49 1C3E 0123 F2F2  
C11A 5053 569A 7C8C 1758 E311 2505 33CC A29B 764F

## 2 Education

*Apr 28, 2008* Ph.D. in Computer Science at the Department of Computer Science, University of Bologna.  
*Oct 20, 2004* Master Degree in computer science with a rating of 110/110 *cum laude* at the Department of Computer Science, University of Bologna.  
*Dec 12, 2002* Degree in computer science with a rating of 110/110 at the Department of Computer Science, University of Bologna.

## 3 Research interests

**Interactive Theorem Provers** I've focused my research on the development of type-theory based interactive theorem provers, in particular on their type inference subsystem, their integration with automatic proof searching procedures and the languages they adopt to interact with the user.

**Formal Proofs** I devoted a considerable part of my research to the formalization of (mainly constructive) mathematics using the Matita and Coq systems. In particular I formalized results in abstract integration theory, formal topology and finite group theory.

## 4 Personal interests

**Free Software and Open Source** in particular the Debian GNU/Linux operating system.

**Software writing** I'm interested in all aspects, from design to low level implementation and management. I've participated to the development of many free software projects.

## 5 Work experiences

*1 Sept 2015* – CR1 INRIA, team Marelle.

*1 Sept 2012 – 31 Oct 2015* CR2 INRIA, team Typical then team SpecFun.

*1 Nov 2011 – 31 Aug 2012* Post-doctoral position at LIX, Paris, in the Typical team on the ParallTP ANR project.

*1 Nov 2009 – 31 Oct 2011* Post-doctoral position at the Microsoft Research-INRIA Joint Center, Paris, to support his research activity for the Mathematical Components project.

*01 Jan 2009 – 31 Oct 2009* Italian research collaboration grant titled “Formalizzazione nel theorem prover interattivo Matita di risultati di topologia formale” of the duration of one year supporting his research activity at the Department of Pure and Applied Mathematics, University of Padua.

*20 Dec 2007 – 20 Dec 2008* Italian research collaboration grant titled “Implementazione e validazione di strumenti di supporto alla verifica automatica di teoremi, con applicazioni alla didattica” of the duration of one year supporting his research activity at the Department of Computer Science, University of Bologna.

*1 Jan 2005 – 19 Dec 2007* PhD student in Computer Science at the Department of Computer Science, University of Bologna.

**Debian Developer** He is a developer of the Debian GNU/Linux operating system since Jan 2006. He is actually maintaining some Debian packages related to the Objective Caml programming language and the Lua programming language and some other general purpose packages.

## 6 Software

Only software to which he gave a strong contribution is listed

*2012 – ...* **Coq** The Coq proof assistant.

*2010 – ...* **Small Scale Reflection** is an extension for the Coq proof assistant, initially developed by Georges Gonthier for the formal proof of the Four Colors Theorem.

*2003 – 2011* **Matita** is a proof Assistant based on the Curry-Howard correspondence that is developed by the HELM team at the University of Bologna. Written in OCaml.

*2006 – ...* **Debian packages** He is actually (co-)maintaining more than 30 packages for the Debian GNU/Linux operating system.

*2009 – ...* **SyncMailDir** is a collection of utilities to synchronize mailboxes in Maildir format. Written in C, Lua and Vala.

*2004 – 2012* **FreePOPs** is an extensible POP3 server, mostly used as a web-mail to POP3 converter. Written in C and Lua.

*2003 – 2004* **ULN** (User Level Networking) is a patch for the Linux kernel (2.4.x and 2.6.x) plus some userland utilities to give a per-user IP address assignment (with respect to centralized policies). Written in C.

## 7 Publications

### 7.1 Journals

1. *A bi-directional refinement algorithm for the Calculus of (Co)Inductive Constructions* Andrea Asperti, Wilmer Ricciotti, Enrico Tassi and Claudio Sacerdoti Coen. Accepted for publication in the journal Logical Methods in Computer Science.
2. *Formal Metatheory of Programming Languages in the Matita Interactive Theorem Prover* Andrea Asperti, Wilmer Ricciotti, Enrico Tassi and Claudio Sacerdoti Coen. Published in the journal of Automated Reasoning, Special issue on the POPL mark challenge, 16 May 2011. Pages 1-25, Year 2011. ISSN: 0168-7433.
3. *Formalizing Overlap Algebras in Matita* Claudio Sacerdoti Coen and Enrico Tassi. Published in the Journal Mathematical Structures in Computer Science, Volume 21, Issue 3, Pages 1-31, Year 2011. ISSN: 0960-1295. EISSN: 1469-8072.
4. *A compact kernel for the calculus of inductive constructions.* Andrea Asperti, Wilmer Ricciotti, Enrico Tassi and Claudio Sacerdoti Coen. Published in the Journal Sadhana, Volume 34, Pages 71-144, Year 2009. ISSN: 0256-2499
5. *A constructive and formal proof of Lebesgues Dominated Convergence Theorem in the interactive theorem prover Matita.* Claudio Sacerdoti Coen and Enrico Tassi. Published by the Journal of Formalized Reasoning, Issue 1, Volume 1, Pages 51-89, Year 2008. ISSN: 1972-5787.
6. *User Interaction with the Matita Proof Assistant.* Andrea Asperti, Claudio Sacerdoti Coen, Enrico Tassi and Stefano Zacchiroli. Published in the Journal of Automated Reasoning, Springer Netherlands, ISSN 0168-7433, Volume 39 , Issue 2 (August 2007) Pages: 109 - 139.

### 7.2 Conference Proceedings

7. *Coqoon An IDE for interactive proof development in Coq* Alexander Faithfull, Jesper Bengtson, Enrico Tassi, Carst Tankink TACAS, Apr 2016, Eindhoven, Netherlands. LNCS
8. *Implementing HOL in an Higher Order Logic Programming Language* Cvetan Dunchev, Claudio Sacerdoti Coen, Enrico Tassi Logical Frameworks and Meta Languages: Theory and Practice, Jun 2016, Porto, Portugal. ACM, pp.10, 2016, LFMTTP '16.
9. *Asynchronous processing of Coq documents: from the kernel up to the user interface* Bruno Barras, Carst Tankink, Enrico Tassi Proceedings of ITP, Aug 2015, Nanjing, China
10. *ELPI: fast, Embeddable,  $\lambda$ Prolog Interpreter* Cvetan Dunchev, Ferruccio Guidi, Claudio Sacerdoti Coen, Enrico Tassi Proceedings of LPAR, Nov 2015, Suva, Fiji. LNCS
11. *A Computer-Algebra-Based Formal Proof of the Irrationality of  $\zeta(3)$*  Frédéric Chyzak, Assia Mahboubi, Thomas Sibut-Pinote, Enrico Tassi ITP - 5th International Conference on Interactive Theorem Proving, 2014, Vienna, Austria. 2014
12. *A Machine-Checked Proof of the Odd Order Theorem* Georges Gonthier, Andrea Asperti, Jeremy Avigad, Yves Bertot, Cyril Cohen, François Garillot, Stéphane Le Roux, Assia Mahboubi, Russell O'Connor, Sidi Ould Biha, Ioana Pasca, Laurence Rideau, Alexey Solovyev, Enrico Tassi and Laurent Théry. Published in the proceedings of ITP 2013, LNCS, Volume 7998, Year 2013, Pages 163-179.

13. *Canonical Structures for the working Coq user* Assia Mahboubi and Enrico Tassi. Published in the proceedings of ITP 2013, LNCS, Volume 7998, Year 2013, Pages 19-34.
14. *Pervasive Parallelism in Highly-Trustable Interactive Theorem Proving Systems* Bruno Barras, Hugo Herbelin, Lourdes del Carmen Gonzalez Huesca, Yann Rgis-Gianas, Enrico Tassi, Makarius Wenzel, Burkhart Wolff. Published in the proceedings of Conference on Intelligent Computer Mathematics (CICM 2013), LNCS, Volume 7961, Year 2013, Pages 359-363.
15. *A language of patterns for subterm selection* Georges Gonthier and Enrico Tassi. Published in the proceedings of ITP 2012, LNCS, Volume 7406, Year 2012, Pages 361-376.
16. *The Matita Interactive Theorem Prover* Andrea Asperti, Wilmer Ricciotti, Claudio Sacerdoti Coen and Enrico Tassi. Published in the proceedings of CADE 2011, LNCS 6803, 2011, Pages 64-69, ISBN 978-3-642-22437-9.
17. *Superposition as a logical glue* Andrea Asperti and Enrico Tassi. Published in the proceedings of TYPES 2009, EPTCS Volume 53, Pages 1-15, Year 2011, ISSN: 2075-2180, DOI: 10.4204/EPTCS.53.
18. *Nonuniform Coercions via Unification Hints* Claudio Sacerdoti Coen and Enrico Tassi. Published in the proceedings of TYPES 2009, EPTCS Volume 53, Pages 16-29, Year 2011, ISSN: 2075-2180, DOI: 10.4204/EPTCS.53.
19. *Smart matching* Andrea Asperti and Enrico Tassi. Published in the proceedings of MKM2010, LNCS, Volume 6167/2010, Year 2010, Pages 263-277, DOI 10.1007/978-3-642-14128-7\_23, ISBN 978-3-642-14127-0
20. *A new type for tactics.* Andrea Asperti, Wilmer Ricciotti, Claudio Sacerdoti Coen and Enrico Tassi. To appear in the proceedings of ACM SIGSAM PLMMS 2009, ISBN 978-1-60558-735-6. Published as technical report UBLCS-2009-14.
21. *Hints in Unification.* Andrea Asperti, Wilmer Ricciotti, Claudio Sacerdoti Coen and Enrico Tassi. Published in the proceedings of TPHOLs 2009, LNCS, Volume 5674/2009, Pages 84-98, DOI 10.1007/978-3-642-03359-9, ISBN 978-3-642-03358-2
22. *Natural deduction environment for Matita.* Claudio Sacerdoti Coen and Enrico Tassi. Published in the proceedings of MKM2009, LNCS, Volume 5625, Pages 486-491, ISBN 978-3-642-02613-3, DOI 10.1007/978-3-642-02614-0\_40
23. *An interactive driver for goal directed proof strategies.* Andrea Asperti and Enrico Tassi. Published in the Proceedings of UITP 2008: 8th International Workshop On User Interfaces for Theorem Provers, 22 August 2008, Montral, Qubec, Canada. ENTCS, Volume 226, 3 January 2009, Pages 89-105, ISSN 1571-0661, DOI 10.1016/j.entcs.2008.12.099.
24. *Working with Mathematical Structures in Type Theory.* Sacerdoti Coen and Enrico Tassi. Published in the Proceedings of TYPES 2007 conferece: Types for Proofs and Programs. Project, 2-5 May 2007 Cividale del Friuli (Udine), Italy. LNCS, ISSN 0302-9743 (Print) 1611-3349 (Online), DOI 10.1007/978-3-540-68103-8, ISBN 978-3-540-68084-0, Pages 157-172, Volume 4941, Year 2008.
25. *A modular formalisation of finite group theory.* Georges Gonthier, Assia Mahboubi , Laurence Rideau, Enrico Tassi and Laurent They. Published in the Proceedings of TPHOL 2007: The 20th International Conference on Theorem Proving in Higher Order Logics. LNCS, Volume 4732, ISBN: 978-3-540-74590-7, DOI: 10.1007/978-3-540-74591-4, Pages: 86-101, 2007.

26. *Higher order proof reconstruction from paramodulation-based refutations: the unit equality case.* Andrea Asperti and Enrico Tassi. Published in the Proceedings of MKM-2007 The 6th International Conference on Mathematical Knowledge Management, LNAI Volume 4573, ISBN 978-3-540-73083-5, 2007.
27. *Crafting a Proof Assistant.* Andrea Asperti, Claudio Sacerdoti Coen, Enrico Tassi and Stefano Zacchiroli. Published in the Proceedings of Types 2006, LNCS Volume 4502, Springer Berlin / Heidelberg, ISBN 978-3-540-74463-4, pp. 18-32, 2007.
28. *Tinycals: Step by Step Tacticals.* Claudio Sacerdoti Coen, Enrico Tassi and Stefano Zacchiroli. In Proceedings of UITP-2006 User Interfaces for Theorem Provers. Seattle, WA – August 21, 2006. ENTCS, Volume 174, Issue 2 (May 2007), Pages 125 - 142, ISSN:1571-0661
29. *A content based mathematical search engine: Whelp.* Andrea Asperti, Ferruccio Guidi, Claudio Sacerdoti Coen, Enrico Tassi and Stefano Zacchiroli. Published In Proceedings of TYPES-2004 conference: Types for Proofs and Programs. Paris, France – December 15-18, 2004. LNCS 3839, Springer Berlin / Heidelberg, ISBN 3-540-31428-8, pp. 17-322006.
30. *User Level Networking-Personal IP: assigning each user his/her own IP addresses in multiuser operating systems.* Enrico Tassi, Alessandro Pira and Renzo Davoli. Published in the proceedings of ICN04IEEE International Conference on Networking 2004.

### 7.3 Technical Reports

31. *A small scale reflection extension for the Coq system.* Georges Gonthier and Assia Mahboubi and Enrico Tassi. Technical report INRIA HAL-00258384.
32. *Modified Realizability and Inductive Types.* Andrea Asperti and Enrico Tassi, June 2006. Technical report UBLCS-2006-18.

### 7.4 Thesis

33. *Interactive Theorem Provers: issues faced as a user and tackled as a developer.* Enrico Tassi. Ph.D. thesis, Department of Computer Science, University of Bologna, March 2008. Chairperson: Professor Andrea Asperti. Reviewers: Professor Georges Gonthier and Professor Frédéric Blanqui.

## 8 Teaching experiences

In the last years I've been teaching the following courses of the University of Bologna:

<i>Year</i>	<i>Type</i>	<i>Level</i>	<i>Course</i>
2017	Professor (6h)	Master	Coq Winter School on advanced software verification and computer proof
2016	Professor (2h)	PhD	Mathematical Components, an Introduction
2016	Professor (6h)	Master	Coq Winter School on advanced software verification and computer proof
2015	Professor (12h)	Master	Coq Winter School on software verification and computer proof
2012	Professor (4h)	PhD	International Spring School on formalization of mathematics
2009/2010	Professor (16h)	Master	Laboratory of Free Operating Systems
2009	Assistant (220h)	1° Year	A3 (Introduction to Computer Science)
2008/2009	Professor (16h)	Master	Laboratory of Free Operating Systems
2008/2009	Assistant (20h)	1° Year	Languages and Structures
2008/2009	Assistant (30h)	2° Year	Operating Systems
2008	Assistant (110h)	1° Year	A3 (Introduction to Computer Science)
2007/2008	Assistant (60h)	2° Year	Databases and Information systems
2006/2007	Assistant (50h)	2° Year	Operating systems and laboratory
2006	Assistant (80h)	1° Year	A3 (Introduction to Computer Science)
2005/2006	Assistant (50h)	2° Year	Operating systems and laboratory