

# Curriculum Vitæ

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## Clément Hurlin

PhD and engineer in computer science

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### Abstract

Particular interest in multithreaded and object-oriented programming, program specification and verification, and theorem proving.

### Qualifications

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September 2009	PhD for the thesis “Specification and Verification of Multithreaded Object-Oriented Programs with Separation Logic”.
Sept 2008 - Aug 2009	3 <sup>rd</sup> year of the PhD thesis under the guidance of Marieke Huisman in the “Formal Methods and Tools” team in University of Twente (the Netherlands).
Sept 2006 - Aug 2008	1 <sup>st</sup> and 2 <sup>nd</sup> years of the PhD thesis under the guidance of Marieke Huisman in the Everest team in Inria Sophia-Antipolis (France).
June 2006	Master degree in computer science (speciality: formal methods) and Engineering degree at Esial ( <i>Ecole supérieure en informatique et applications de Lorraine</i> ).
Sept 2001 - June 2003	Preparation for the competitive entrance to Grandes Écoles.
June 2001	Baccalauréat S with distinction (mathematics and physic).

### Experience

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February - June 2006	Internship in the LORIA laboratory (Nancy, France) and in the Technische Universität Munchen (Munich): integration of a first-order prover within Isabelle.
July - August 2005	Internship in the SRG laboratory (Dublin): rewriting of ESC/Java2’s proof generator to support multiple provers.

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### Journal Paper

- [1] [Christian Haack](#) and [Clément Hurlin](#). [Resource Usage Protocols for Iterators](#). *Journal of Object Technology*, 8(4), 2009.

### Conference Publications

- [2] [Clément Hurlin](#). [Automatic Parallelization and Optimization of Programs by Proof Rewriting](#). In *Static Analysis Symposium (SAS’09)*, Lecture Notes in Computer Science. Springer-Verlag, August 2009. To appear.
- [3] [Clément Hurlin](#). [Specifying and Checking Protocols of Multithreaded Classes](#). In *ACM Symposium on Applied Computing (SAC’09), Software Verification and Testing Track*, pages 587–592. ACM, March 2009.
- [4] [Christian Haack](#), [Marieke Huisman](#), and [Clément Hurlin](#). [Reasoning about Java’s Reentrant Locks \(or Separation logic for Java’s reentrant locks!\)](#). In [Grama Ramalingam](#), editor, *Asian Symposium on Programming Languages and Systems (APLAS’08)*, volume 5356 of *Lecture Notes in Computer Science*, pages 171–187. Springer-Verlag, December 2008.
- [5] [Christian Haack](#) and [Clément Hurlin](#). [Separation Logic Contracts for a Java-like Language with Fork/Join](#). In [Jose Meseguer](#) and [Grigore Rosu](#), editors, *International Conference on Algebraic Methodology and Software Technology (AMAST’08)*, volume 5140 of *Lecture Notes in Computer Science*, pages 199–215. Springer-Verlag, July 2008.

- [6] Joseph Kiniiry, Patrice Chalin, and Clément Hurlin. Integrating Static Checking and Interactive Verification: Supporting Multiple Theories and Provers in Verification. In *Verified Software: Theories, Tools, Experiments (VSTTE'05)*, volume 4471 of *Lecture Notes in Computer Science*, pages 153–160. Springer-Verlag, 2005.

### Workshop Papers

- [7] Clément Hurlin, François Bobot, and Alexander J. Summers. Size Does Matter: Two Certified Abstractions to Disprove Entailment in Intuitionistic and Classical Separation Logic. In *International Workshop on Aliasing, Confinement and Ownership in Object-Oriented Programming (IWACO'09)*, July 2009.
- [8] Christian Haack and Clément Hurlin. Resource Usage Protocols for Iterators. In *International Workshop on Aliasing, Confinement and Ownership in Object-Oriented Programming (IWACO'08)*, July 2008.
- [9] Marieke Huisman and Clément Hurlin. The Stability Problem for Verification of Concurrent Object-Oriented Programs. In *Verification and Analysis of Multi-threaded Java-like Programs (VAMP'07)*, 2007.
- [10] Clément Hurlin, Amine Chaieb, Pascal Fontaine, Stephan Merz, and Tjark Weber. Practical Proof Reconstruction for First-Order Logic and Set-Theoretical Constructions. In Lucas Dixon and Moa Johansson, editors, *Isabelle Workshop (ISABELLE-WS'07)*, pages 2–13, 2007.
- [11] Clément Hurlin. Proof Reconstruction for First-Order Logic and Set-Theoretical Constructions. In Stefan Merz and Tobias Nipkow, editors, short paper in *Automated Verification of Critical Systems (AVOCS'06)*, pages 157–162, 2006.

### Thesis

- [12] Clément Hurlin. *Specification and Verification of Multithreaded Object-Oriented Programs with Separation Logic*. PhD thesis, Université Nice - Sophia Antipolis, September 2009.
- [13] Clément Hurlin. *Reconstruction de preuves pour les formules quantifiées et ensemblistes*, 2006. Master thesis from University of Nancy.

### References

- Gilles Barthe, IMDEA Software, [Gilles.Barthe@imdea.org](mailto:Gilles.Barthe@imdea.org).
- Marieke Huisman, University of Twente, [Marieke.Huisman@ewi.utwente.nl](mailto:Marieke.Huisman@ewi.utwente.nl).
- Christian Haack, University of Nijmegen, [chaack@cs.ru.nl](mailto:chaack@cs.ru.nl).

### Skills

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Computer languages	C/C++, Java, <a href="#">tom</a> , ocaml, Eiffel, L <sup>A</sup> T <sub>E</sub> X, B, TLA+, Lex/Yacc.
Methods	UML, Merise.
Formal methods	Coq, Java Modeling Language (JML), Isabelle.
Operating systems	GNU/Linux, Windows.
Foreign languages	French (native), English (fluent), Italian (intermediary), German (basics).

### Achievements

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Mechanical proofs	Proofs in Coq for the papers [4,5,7,9] and Isabelle for the papers [10,11,13].
Software	Implementation of a proof rewriter for the paper [2] in ocaml and Java/ <a href="#">tom</a> . Implementation of the techniques described in the paper [3] in ocaml. Implementation of the sound engine of a game using the openAL library in C++. Involvement in ESC/Java2's development (2005-2006).

### Community work

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- Reviewer for the Acta Informatica journal; the following conferences: CSF'08, AMAST'08, and TPHOL'09; and the following workshops: BYTECODE'08, SMT'08, and BYTECODE'09.
- Supervision of a third year bachelor for a course entitled "Initiation to Research".

## Activities

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- Bass playing in different bands.
- Contributions to open source projects (Wikipedia, KDE).
- Cuisine.