

Dr. Hab. Frédéric Blanqui

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<https://who.rocq.inria.fr/Frederic.Blanqui/>

INRIA permanent full-time researcher

Born on 03/10/72 at Épinay-sur-Seine (France)

French citizenship

2 children

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Positions

- Jul 12- : INRIA permanent full-time researcher at the Institute of Software of the Chinese Academy of Sciences (Beijing, China)
- Sep 08-Jun 12 : INRIA permanent full-time researcher at Tsinghua University (Beijing, China)
- Oct 03-Aug 08 : INRIA permanent full-time researcher at LORIA (Nancy, France)
- Sep 02-Sep 03 : Postdoc at École Polytechnique (Saclay, France)
- Oct 01-Aug 02 : Postdoc at Cambridge (UK) (grant from INRIA)

Education

- Oct 98-Sep 01 : PhD of computer science at University Paris 11 (Orsay, France) with J.-P. Jouannaud (grant of Ministry of education)
- Sep 97-Sep 98 : Master of computer science at University Paris 7 (France)
- Nov 96-Aug 97 : Military service
- Sep 93-Aug 96 : National Graduate School in Computer Science and Applied Mathematics (ENSIMAG, Grenoble, France)
- Sep 93-Aug 94 : BSc of pure mathematics at University Joseph Fourier (Grenoble, France)
- Sep 90-Aug 93 : Classe préparatoire in Physics and Mathematics at Lycée Paul Valéry (Paris, France)

Teaching

- cf. <https://who.rocq.inria.fr/Frederic.Blanqui/teaching.html>
- May 12- : Lectures on domain theory and topology at the Institute of Software of the Chinese Academy of Sciences
 - Aug 10 : 2nd Asian-Pacific summer school on Formal Methods
 - Aug 09 : 1st Asian-Pacific summer school on Formal Methods
 - Oct 08-Mar 09 : Lectures on type theory and Coq at Tsinghua University
 - Mar 08 : Lectures on logic and typed λ -calculus at Tsinghua University
 - Oct 98-Jun 01 : Teaching assistant in computer science at the Technical Institute of the University of Paris 11 (Orsay, France)
 - Sep 97-Mar 01 : Examiner in mathematics in the “classes préparatoires” of the “lycées” Paul Valéry, Condorcet and Saint Louis (Paris, France)

Supervision activities

- cf. <https://who.rocq.inria.fr/Frederic.Blanqui/students.html>
- Nov 10- : Supervisor of Ly Kim Quyen’s PhD
 - Nov 10-Oct 11 : Supervisor of Frédéric Tuong’s internship
 - Nov 10-Sep 11 : Co-supervisor with Jean-François Monin of Xiaomu Shi’s PhD (University Joseph Fourier)
 - Oct 07-Avr 11 : Supervisor of Cody Roux’s PhD (INRIA grant)
 - May 10-Oct 10 : Supervisor of Ly Kim Quyen’s internship
 - Jun 09-Jul 09 : Supervisor of Julien Bureaux (ENS Paris) and Antoine Taveneaux (ENS Lyon) internships
 - Jan 09-Mar 09 : Supervisor of Qian Wang and Lianyi Zhang’s internships (Tsinghua University)
 - Oct 07-Feb 08 : Co-supervisor with Pierre Weis of Laura Lowenthal’s internship
 - Feb 05-Jul 08 : Co-supervisor with Jean-Pierre Jouannaud of Pierre-Yves Strub’s PhD (EADS grant)
 - Oct 04-Dec 07 : Co-supervisor with Claude Kirchner of Colin Riba’s PhD (MESR grant)
 - Feb 04-Jun 04 : Supervisor of Sébastien Hinderer’s master project
 - Mar 03-Sep 03 : Co-supervisor with Jean-Pierre Jouannaud of Pierre-Yves Strub’s master project

Steering committees

- Jul 10-Jul 13 : Member of the RTA Steering Committee

Program committees

- PC member of HOR'12
- PC member of RTA'11
- PC member of PPDP'10, HOR'10
- PC member of WST'09, LFMTP'09, Coq'09
- PC member of TPR'07
- Jan 02-Dec 06 : Member of the SPECIF¹ PhD Award Committee

PhD reviews

- Enrico Tassi, “Interactive Theorem Provers : issues faced as a user and tackled as a developer”, Bologna University, March 2008

Invited talks

- “Computability closure : the Swiss knife of higher-order termination”, IFIP WG 1.6, Nagoya, Japan, 28 May 2012
- “Automated certification of termination proofs”, TYPES, Cividale del Friuli (Udine), Italy, 2 May 2007

Coordination of projects

- cf. <https://who.rocq.inria.fr/Frederic.Blanqui/proj.html>
- 2004- : CoLoR : automated certification of (non)termination proofs
 - 2009-2011 : SIVES : SIMulation and VERification of Embedded Systems (French-Chinese project granted by ANR and NSFC)
 - 2007-2008 : Coordinator with Andreas Abel of a French-German cooperation project on size-based termination (grant by the Bayerisch-Französisches Hochschulzentrum)
 - 2007-2008 : Quotient : certified use of non-free data types in programming languages (grant from INRIA)
 - 2006 : Certification of the termination of computer programs (grant from the Regional Council of Lorraine)

Participation to projects

- cf. <https://who.rocq.inria.fr/Frederic.Blanqui/proj.html>
- 2003-2006 : Modulogic : design of a platform for building certified software (grant from the Ministry of research and new technologies,
 - 2002-2005 : Averroes : analysis and verification for the reliability of embedded systems (grant from the French national network on software

1. French society of professors and researchers in computer science, <http://www.specif.org/>.

technologies)

- 1999-2001 : Calife : development of an environment for the formal proof and the test of algorithms used in telecommunication (grant from the French national research network on telecommunication)

Software

cf. <https://who.rocq.inria.fr/Frederic.Blanqui/software.html>

- 2011- : HOT, an automated termination prover for higher-order rewriting
- 2009- : SimSoC-Cert, a certified ARMv6 simulator
- 2007- : Moca, a construction function generator for relational data types
- 2004- : CoLoR, a Coq library on rewriting and termination
- 2004- : Rainbow, a termination certificate verifier
- 2001 : CAC, a prototype extension of Coq with rewriting (tag `recriture` in the Coq SVN archive)

Organized events

cf. <https://who.rocq.inria.fr/Frederic.Blanqui/work.html>

- 20-27 August 2010 : 2nd Asian-Pacific summer school on Formal Methods (55 participants)
- 24-31 August 2009 : 1st Asian-Pacific summer school on Formal Methods (about 60 participants)
- 11-12 May 2007 : 1st Workshop on the certification of termination proofs, Nancy (8 participants)
- 13-14 October 2005 : 3rd Nancy-Saarbrücken Workshop on Logic, Proofs and Programs, Nancy (39 participants)
- 12 May 2005 : QSL Workshop on Functional Programming and Verification, Nancy (about 30 participants)
- 22-24 September 2004 : 2nd Workshop on Coq and rewriting, Ecole Polytechnique (52 participants)
- 17-18 June 2004 : 1st Nancy-Saarbrücken workshop on logic, proof and programs, Nancy (36 participants)
- 27 June 2003 : 1st Workshop on Coq and rewriting, Ecole Polytechnique (about 30 participants)

Administrative activities

- May 05-May 08 : Substituting member of the recruitment committee of the University Jean Monnet (Saint-Étienne, France)
- May 05-May 08 : Member of the LORIA health and security committee
- Jan 07-May 08 : Member of the LORIA internship and postdoc recruit-

ment committee

- May 05-Apr 08 : Member of the LORIA library users committee
- Apr 05-Jan 07 : Secretary of the SPECIF PhD Award committee
- Aug 05-Nov 06 : Member of the editing committee of Inédit (INRIA bimonthly letter)

Degrees

- Jul 12 : Habilitation (University Paris 7, France)
- Sep 01 : PhD in computer science (University Paris 11, Orsay, France)
- Jun 98 : Master in computer science (University Paris 7, France)
- Sep 96 : Engineer degree from the National Graduate School of Computer Science and Applied Mathematics (ENSIMAG, Grenoble, France)
- Jun 94 : BSc in pure mathematics (University Joseph Fourier, Grenoble, France)
- Jun 90 : Baccalauréat C (sciences)

Awards

- 2011 best paper award at the *3rd Workshop on Rapid Simulation and Performance Evaluation : Methods and Tools* (RAPIDO'11) for “Designing a CPU model : from a pseudo-formal document to fast code” with C. Helmstetter, V. Joloboff, J.-F. Monin and X. Shi.
- 2001 SPECIF PhD thesis award for my PhD thesis “Théorie des types et réécriture”
- 2001 Kleene award for the best student paper at the *16th IEEE Symposium on Logic in Computer Science* (LICS'01) (<http://www2.informatik.hu-berlin.de/lics/archive/kleene-award.html>)

Miscellaneous

- Spoken and written languages : French, English, Spanish
- Basic notions of Chinese
- First-aider from September 2004 to April 2009

Publications

cf. <https://who.rocq.inria.fr/Frederic.Blanqui/papers.html>

International journals with reading committees

Références

- [1] S. Suzuki, K. Kusakari, and F. Blanqui. Argument filterings and usable rules in higher-order rewrite systems. *IPSJ Transactions on Programming*, 4(2) :1–12, 2011.
- [2] F. Blanqui and A. Koprowski. CoLoR : a Coq library on well-founded rewrite relations and its application to the automated verification of termination certificates. *Mathematical Structures in Computer Science*, 21(4) :827–859, 2011.
- [3] F. Blanqui, C. Kirchner, and R. Colin. On the confluence of lambda-calculus with conditional rewriting. *Theoretical Computer Science*, 411(37) :3301–3327, 2010.
- [4] K. Kusakari, Y. Isogai, M. Sakai, and F. Blanqui. Static dependency pair method based on strong computability for higher-order rewrite systems. *IEICE Transactions on Information and Systems*, E92-D(10) :2007–2015, 2009.
- [5] F. Blanqui. Definitions by rewriting in the Calculus of Constructions. *Mathematical Structures in Computer Science*, 15(1) :37–92, 2005.
- [6] F. Blanqui. Inductive types in the Calculus of Algebraic Constructions. *Fundamenta Informaticae*, 65(1-2) :61–86, 2005.
- [7] F. Blanqui, J.-P. Jouannaud, and M. Okada. Inductive-data-type Systems. *Theoretical Computer Science*, 272 :41–68, 2002.

Références

- [1] X. Shi, J.-F. Monin, F. Tuong, and F. Blanqui. First steps towards the certification of an arm simulator using Compcert. In *Proceedings of the 1st International Conference on Certified Programs and Proofs*, Lecture Notes in Computer Science 7086, 2011. Acceptance rate : $24/49 = 49\%$
- [2] F. Blanqui, C. Helmstetter, V. Joloboff, J.-F. Monin, and X. Shi. Designing a CPU model : from a pseudo-formal document to fast code. In *Proceedings of the 3rd Workshop on Rapid Simulation and Performance Evaluation : Methods and Tools*, 2011. Best paper award.
- [3] F. Blanqui and C. Roux. On the relation between sized-types based termination and semantic labelling. In *Proceedings of the 23rd International Conference on Computer Science Logic*, Lecture Notes in Computer Science 5771, 2009. Acceptance rate : $34/89 = 38\%$
- [4] F. Blanqui, J.-P. Jouannaud, and P.-Y. Strub. From formal proofs to mathematical proofs : A safe, incremental way for building in first-order decision procedures. In *Proceedings of the 5th International Conference on Theoretical Computer Science*, International Federation for Information Processing 273, 2008. Acceptance rate : $16/45 = 36\%$.
- [5] F. Blanqui, J.-P. Jouannaud, and A. Rubio. HORPO with computability closure : A reconstruction. In *Proceedings of the 14th International Conference on Logic for Programming, Artificial Intelligence and Reasoning*, Lecture Notes in Computer Science 4790, 2007. Acceptance rate : $36/78 = 46\%$.
- [6] F. Blanqui, J.-P. Jouannaud, and P.-Y. Strub. Building decision procedures in the calculus of inductive constructions. In *Proceedings of the 21th International Conference on Computer Science Logic*, Lecture Notes in Computer Science 4646, 2007. Acceptance rate : $36/116 = 31\%$.
- [7] F. Blanqui, T. Hardin, and P. Weis. On the implementation of construction functions for non-free concrete data types. In *Proceedings of the 16th European Symposium on Programming*, Lecture Notes in Computer Science 4421, 2007. Acceptance rate : $34/136 = 25\%$.

- [8] F. Blanqui, C. Kirchner, and C. Riba. On the confluence of λ -calculus with conditional rewriting. In *Proceedings of the 9th International Conference on Foundations of Software Science and Computation Structures*, Lecture Notes in Computer Science 3921, 2006. Acceptance rate : $28/107 = 26\%$.
- [9] F. Blanqui and C. Riba. Combining typing and size constraints for checking the termination of higher-order conditional rewrite systems. In *Proceedings of the 13th International Conference on Logic for Programming, Artificial Intelligence and Reasoning*, Lecture Notes in Computer Science 4246, 2006. Acceptance rate : $38/96 = 40\%$.
- [10] F. Blanqui. Decidability of type-checking in the Calculus of Algebraic Constructions with size annotations. In *Proceedings of the 19th International Conference on Computer Science Logic*, Lecture Notes in Computer Science 3634, 2005. Acceptance rate : $33/108 = 30\%$.
- [11] F. Blanqui. A type-based termination criterion for dependently-typed higher-order rewrite systems. In *Proceedings of the 15th International Conference on Rewriting Techniques and Applications*, Lecture Notes in Computer Science 3091, 2004. Acceptance rate : $19/43 = 44\%$.
- [12] F. Blanqui. Inductive types in the Calculus of Algebraic Constructions. In *Proceedings of the 6th International Conference on Typed Lambda Calculi and Applications*, Lecture Notes in Computer Science 2701, 2003. Acceptance rate : $21/40 = 52\%$.
- [13] F. Blanqui. Rewriting modulo in Deduction modulo. In *Proceedings of the 14th International Conference on Rewriting Techniques and Applications*, Lecture Notes in Computer Science 2706, 2003. Acceptance rate : $26/57 = 46\%$.
- [14] F. Blanqui. Definitions by rewriting in the Calculus of Constructions (extended abstract). In *Proceedings of the 16th IEEE Symposium on Logic in Computer Science*, 2001. Acceptance rate : $36/104 = 35\%$. Best student paper award.
- [15] F. Blanqui. Termination and confluence of higher-order rewrite systems. In *Proceedings of the 11th International Conference on Rewriting Techniques and Applications*, Lecture Notes in Computer Science 1833, 2000. Acceptance rate : $18/44 = 41\%$.
- [16] F. Blanqui, J.-P. Jouannaud, and M. Okada. The Calculus of Algebraic Constructions. In *Proceedings of the 10th International Conference on Rewriting Techniques and Applications*, Lecture Notes in Computer Science 1631, 1999. Acceptance rate : $23/46 = 50\%$.

Invited publications

Références

- [1] F. Blanqui, J.-P. Jouannaud, and A. Rubio. The higher-order computability path ordering : the end of a quest. In *Proceedings of the 22nd International Conference on Computer Science Logic*, Lecture Notes in Computer Science 5213, 2008.
- [2] F. Blanqui. Computability closure : Ten years later. In *Rewriting, Computation and Proof – Essays Dedicated to Jean-Pierre Jouannaud on the Occasion of His 60th Birthday*, volume 4600 of *Lecture Notes in Computer Science*, 2007.
- [3] F. Blanqui, J.-P. Jouannaud, and A. Rubio. Higher-order termination : from Kruskal to computability. In *Proceedings of the 13th International Conference on Logic for Programming, Artificial Intelligence and Reasoning*, Lecture Notes in Computer Science 4246, 2006.

Other publications

Références

- [1] F. Blanqui. Terminaison des systèmes de réécriture d’ordre supérieur basée sur la notion de clôture de calculabilité. Monographie pour l’habilitation à diriger des recherches. 55 pages. 2012.
- [2] F. Blanqui. Fonctions, réécriture et preuves : terminaison et certification. December 2010. Dossier d’habilitation à diriger des recherches.
- [3] F. Blanqui. A size-based termination criterion for dependently-typed higher-order rule-based programs. 2010. Draft for a journal. 62 pages.
- [4] F. Blanqui, C. Helmstetter, J.-F. Monin, and X. Shi. SimSoC-Cert : a certified simulator for systems on chip, 2010. Draft.
- [5] F. Blanqui and A. Koprowski. Automated verification of termination certificates. Technical Report 6949, INRIA Rocquencourt, France, 2009.
- [6] F. Blanqui, S. Coupet-Grimal, W. Delobel, S. Hinderer, and A. Koprowski. CoLoR : a Coq Library on Rewriting and termination. In *Proceedings of the 8th International Workshop on Termination*, 2006.

- [7] F. Blanqui. Higher-order dependency pairs. In *Proceedings of the 8th International Workshop on Termination, 2006*.
- [8] F. Blanqui. (HO)RPO revisited. Research Report 5972, INRIA, 2006.
- [9] F. Blanqui. Prototype d'extension du système Coq. Projet Averroes, lot 5.1, fourniture 3, 2004.
- [10] F. Blanqui. Proposition d'architecture du moteur de test de conversion. Projet Averroes, lot 5.1, fourniture 2, 2004.
- [11] F. Blanqui. Définition de la classe de réécriture à intégrer. Projet Averroes, lot 5.1, fourniture 1, 2004.
- [12] F. Blanqui. An Isabelle formalization of protocol-independent secrecy with an application to e-commerce, 2002. Draft.
- [13] F. Blanqui. *Théorie des Types et Réécriture*. PhD thesis, Université Paris XI, Orsay, France, 2001. Available in english as "Type Theory and Rewriting".
- [14] F. Blanqui. The Calculus of Algebraic and Inductive Constructions. Master's thesis, Université Paris VII, France, 1998.
- [15] F. Blanqui. A document-centered approach for an open CASE environment framework connected with the WWW. *Software Engineering Notes*, 22(2) :58–63, 1997.