Florent Jacquemard

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Profile

Research scientist at the french national institute for research in compute science and control (**INRIA**), Florent Jacquemard is currently member of DAHU, an INRIA research team working on foundations for data centric specification and formal verification in an Internet environment.
He has been formerly involved in other research projects on computer security and automated deduction, and also, as an **R&D engineer**, in Trusted Logic, a company specialized in secure open technology software for embedded systems.

His current research topics include **automated verification** of complex systems and software, formal methods for **web data management**, **logic in computer science**, **tree automata** theory, **automated deduction** and term rewriting.

Work Experience

Project team DAHU, INRIA Saclay - Ile de France, at LSV-ENS Cachan, France **2008-**
Research Scientist
- Vice responsible of the project. Project leader: Luc Segoufin
- activities in team: typing formalisms and XML schemas, verification and typechecking tree transformations and XML updates, verification of XML access control policies.

Project SECSI, INRIA Futur & LSV-ENS Cachan, France **2002-2007**
Research Scientist
- Vice responsible of the project. Project leader: Jean Goubault-Larrecq
- research activities in project: symbolic verification of security protocols.

Trusted Logic, Versailles, France **2000-2002**
R&D engineer
- TL is a Company specialized in secure open technology software for embedded systems.
- CEO: Dominique Bolignano
- activities: conception of tools for static analysis of JavaCard programs, Common Criteria certification of a smartcard OS, development of an interoperable open framework for mobile payment terminals.

Project Protheo, INRIA Lorraine-LORIA, Nancy, France **1998-2000**
Research Scientist
- Project leader: Hélène Kirchner
- activities in project: automated deduction, inductive theorem proving, software and protocol verification.

Programming Logic Group, Max Planck Institut für Informatik, Saarbrücken, Germany. Post-doctoral fellow **1997-1998**
- Group leader: Harald Ganzinger
- activities in group: first order theorem proving (contribution to the theorem prover SPASS), symbolic constraint solving, tree automata theory.

Project Maude, SRI International, Computer Science Laboratory, Menlo Park, CA, USA. **1997**
Research fellow
- Project leader: José Meseguer
- participation in project: development of a tree automata module for the Maude system.

Education

PhD Thesis in Computer Science, University Paris XI, Orsay, France **1993-1996**
- title: Tree Automata and Term Rewriting
- examination board: Bruno Courcelle (president), Sophie Tison (reviewer), Michael Rusinowitch (reviewer), Hubert Comon (supervisor), Harald Ganzinger (examiner), Brigitte Rozoy (examiner).

Master Thesis in Computer Science, University Paris XI, Orsay, France **1993**

Master in fundamental and applied mathematics and computer science of Paris, École Normale Supérieure de Paris, France **1994**

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Selected Publications

F. Jacquemard, F. Klay, C. Vacher. Rigid Tree Automata and Applications.
Information and Computation 209(3) pages 486-512. Elsevier, 2011 (extended version of a work presented at the 3rd International Conf. on Language and Automata Theory and Applications (LATA'09)

L. Barguñó, C. Creus, G. Godoy, F. Jacquemard and C. Vacher. The Emptiness Problem for Tree Automata with Global Constraints. In Proceedings of the 25th Annual IEEE Symposium on Logic in Computer Science (LICS'10), IEEE, 2010.

F. Jacquemard and M. Rusinowitch. Rewrite-based Verification of XML Updates.
In Proceedings of the 12th International ACM SIGPLAN Symposium on Principles and Practice of Declarative Programming (PPDP'10), ACM, 2010.

H. Comon-Lundh, F. Jacquemard and N. Perrin. Visibly Tree Automata with Memory and Constraints. Logical Methods in Computer Science 4(2:8), 2008 (extended version of a work presented at the 10th Int. Conference on Foundations of Software Science and Computational Structures, FOSSACS'07).

F. Jacquemard, M. Rusinowitch and L. Vigneron. Tree automata with equality constraints modulo equational theories. Journal of Logic and Algebraic Programming 75(2), pages 182-208, 2008 (extended version of a work presented at the 3d Int. Joint Conference on Automated Reasoning, IJCAR'06).

A. Bouhoula and F. Jacquemard. Automated Induction with Constrained Tree Automata.
In Proceedings of the 4th International Joint Conference on Automated Reasoning (IJCAR'08), LNAI 5195, pages 539-553. Springer, 2008.

S. Delaune and F. Jacquemard. Decision Procedures for the Security of Protocols with Probabilistic Encryption against Offline Dictionary Attacks. J. Autom. Reasoning 36(1-2): 85-124, 2006 (extended version of a work presented at the 17th IEEE Computer Security Foundations Workshop, CSFW'04).

S. Delaune, F. Jacquemard. A decision procedure for the verification of security protocols with explicit destructors. In proceedings of the 11th ACM Conference on Computer and Communications Security (CCS'04), pages 278-287. ACM, 2004.

F. Jacquemard. Reachability and Confluence are Indecidable for Flat Term Rewriting Systems.
Information Processing Letters 87(5), pages 265-270, 2003.

H. Comon and F. Jacquemard. Ground reducibility is EXPTIME-complete. Information and Computation 187(1): 123-153, 2003 (extended version of a work presented at the 12th Annual IEEE Symposium on Logic in Computer Science, LICS'97).

Projects

ACCESS INRIA ARC (Action de Recherche Collaborative) (2010-2012).
theme: Access Control Policies for XML, Verification, Enforcement and Collaborative Edition. role: coordinator.

Brick INRIA-DGRSRT bilateral project between France and Tunisia (2010-2012).
theme: Formal verification of Web Service security, XML Access Control Policies and Firewalls. role: project coordinator, supervision of internships.

Webdam Advanced Investigator grant of the European Research Council (2009-2013).
prime investigator: Serge Abiteboul. theme: Foundation of Web data management. role: participant.

FireB INRIA-DGRSRT bilateral project between France and Tunisia (2008-2009).
theme: automated verification of firewall conformance to access control policies. role: project coordinator, supervision of three internships.

AVOTÉ ANR Sesur national project (2007-2009).
theme: formal analysis of electronic voting protocols. role: participant.

SyDRA INRIA-DGRSRT bilateral project between France and Tunisia (2006-2008).
theme: Automated inductive theorem proving techniques for the validation of protocols and distributed systems. role: project coordinator, supervision of four internships.

Rossignol RNTL national project (2003-2006).

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theme: algebraic properties and probabilistic models of security protocols. role: responsible for the partner LSV-ENS Cachan.

PROUVÉ RNTL national project (2003-2006).
theme: tools for the automated verification of cryptographic protocols. role: participant.

EVA RNTL national project (at Trusted Logic and LSV, ENS Cachan) (2000-2003).
theme: explanation and verification of cryptographic protocols. role: coordination for partner Trusted Logic.

Activities, Support

- Program committees of international conferences and workshops, including RTA and FOSSACS.
- Review work for ASIAN, CALCO, CONCUR, CSL, FASE, FOSSACS, FroCos, FTP, HOSC, IC, ICALP, IPL, ISC, JAR, JSC, LATA, LICS, LPAR, MFCS, RTA, RULE, STACS, TCS, TSI, WADT, WRS...
- Participation to selection boards for INRIA and ENS Cachan.
- General Secretary of the French Association for Information and Communication Technologies (ASTI), 2004-2009.

Teatching

- Co-supervisor of two PhD thesis: Stéphanie Delaune (2003-2006) and Camille Vacher (ongoing), in the domains of security protocol verification and tree automata theory.
- Supervisor of 12 research internships.
- Lecture on tree automata theory at Master Parisien de Recherche en Informatique (2006-2010).
- Assistant for a lecture on Lambda Calculus at Master Parisien de Recherche en Informatique (2003-2006).