

Curriculum Vitae

Personal information

Surname(s) / First name(s)

(Danthony)-Gonnord, Laure

Address(es)

LIFL - UMR CNRS/USTL 8022 INRIA Lille Nord Europe
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Nationality(-ies)

French

Date of birth

Feb, 10th 1981

Assistant Professor Lille University / Polytech' Lille

Enseignement

- Introduction to computer science.
- Algorithmic and Programming.
- Advanced Programming tools.
- Data Structures
- Automata, complexity, models of computation.
- Semantics, compilation.
- Mathematical computer science : cryptography, linear programming, optimisation.
- Networks.
- Computer Architecture.

Research Topics

- Embedded Systems.
- Software Verification
- Formal methods : model-checking, abstract interpretation, rewriting, smt-solving.
- Synchronous programming.
- Components and formal methods for the development of embedded systems.
- Modelisation of Quality of Service properties.
- Compilation, source to source translations.

PHD Thesis

Titre

Abstract Acceleration to improve precision in Linear Relation Analysis

University

Joseph Fourier, October,27th 2007

Jury

- President: M. Yves Ledru (UJF)
- Reports: M. François Irigoien (Mines Paris) and M. Philippe Schnoebelen (CNRS, LSV)
- Examinators: M. Bertrand Jeannet (INRIA) and M. Thomas Reps (University of Wisconsin)
- PHD advisor: M. Nicolas Halbwachs (CNRS/Verimag)

CV

2009-...

Assistant Professor

University Lille I

Lab LIFL, invited by DaRT team and external member of COMPSYS (Lyon)

2008 - 2009

Teaching and research assistant University Lyon I

Lab LIP, Team INRIA Compsys

2007 - 2008

Postdoctoral position, INSA Lyon

Lab CITI, ANR Project REVE.

2003 - 2007 **Phd In Computer Science** Grenoble University
Synchronous Team, Verimag Lab advisors N. Halbwachs
and **teaching position**, in Grenoble University
2002 - 2004 **Student (“normalien”)** of ENS Cachan, Computer Science
2002 - 2003 **DEA d’Algorithmique** (Master 2) in Paris

Software

Aspic A static analysis tool that implements accelerated Linear relation Analysis, (20 000 OCaml LoCs) · <http://laure.gonnord.org/pro/aspic/aspic.html>
ReveViewer A prototype «proof of concept» for the REVE ANR Project, a remote image viewer and the software architecture around it to deal with resources constraints (5000 C++ LoCs).

Publications

Journal Papers

- On polyhedra : [HMG06].
- On resource adaptation during execution : [GB09b].

Conference Articles

- An improvement of the fixpoint iteration using SMT-solving : [MG11].
- A static analysis of synchronous programs : [GG11].
- On semantic preservation during compilation : [VGC11].
- On termination of C programs and estimation of computational complexity: [ADFG10a].
- [FG10]: tool Paper Aspic.
- On resource adaptation during execution: [GB09a](case study) and [GB08a](property expression).
- [GH06]: abstract acceleration for verification of numerical counter automata.
- [GHR04]: a translation from a temporal logic into Lustre (synchronous language)

Research reports

- On domain specific languages and the problem of preserving the semantic after compilation: [RGC10]
- On abstract acceleration for Linear Relation Analysis: [GH10]
- On termination of flowcharts programs: [ADFG10b] and [ADF⁺09].
- On resource adaptation during execution: [GB08b] and [GB08c]

Others

Conferences

- Reviewer of the conferences CAV, VMCAI, STACS, LCTES...
- Participation to CAV 2000 organisation

Projects

- Participation to the projects System@tic APRON and ANR REVE.
- Submitted an ARC proposal in Oct, 2010 : refused.
- Submitted a support of the Lille university in 2011/2012: accepted.

Interns

- Guillaume Andrieu, internship (May/August 2011) : proving termination of big C programs.
- Helping trainees while their “end of study” internship, Polytech Lille and Grenoble.

References

- [ADF⁺09] Christophe Alias, Alain Darte, Paul Feautrier, Laure Gonnord, and Clément Quinson. Program termination and worst time complexity with multi-dimensional affine ranking functions. Research Report 7037, INRIA, 09 2009.
- [ADFG10a] C. Alias, A. Darte, P. Feautrier, and L. Gonnord. Multi-dimensional Rankings, Program Termination, and Complexity Bounds of Flowchart Programs. In *17th International Static Analysis Symposium, SAS'10*, Perpignan, France, September 2010.
- [ADFG10b] Christophe Alias, Alain Darte, Paul Feautrier, and Laure Gonnord. Bounding the computational complexity of flowchart programs with multi-dimensional rankings. Research Report 7235, INRIA, 03 2010.
- [FG10] P. Feautrier and L. Gonnord. Accelerated Invariant Generation for C Programs with Aspic and C2fsm. In *Workshop on Tools for Automatic Program Analysis, TAPAS'10*, Perpignan, France, September 2010.
- [GB08a] L. Gonnord and J.-P. Babau. Runtime resource assurance and adaptation with Qinna framework : a case study. In *Proceedings of the 2008 Multiconference on Computer Science and Information Technology, Real Time Software, RTS'08*, pages 617–624, Wisla, Poland, October 2008. IEEE CS Press, CA.
- [GB08b] Laure Gonnord and Jean-Philippe Babau. Resource management with Qinna framework : the remote viewer case study. Technical Report 6562, INRIA, 06 2008.
- [GB08c] Laure Gonnord and Jean-Philippe Babau. Resource Properties Expression and Runtime assurance for embedded programs, using Qinna, a component-based software architecture. Research Report 6565, INRIA, 06 2008.
- [GB09a] L. Gonnord and J.-P. Babau. Quantity of Resource Properties Expression and Runtime Assurance for Embedded Systems. In *ACS/IEEE International Conference on Computer Systems and Applications, AICCSA'09*, pages 428–435, Rabbat, Morocco, May 2009.
- [GB09b] Laure Gonnord and Jean-Philippe Babau. Qinna : a component-based framework for runtime safe resource adaptation of embedded systems. *Scalable Computing : Practise and Experience (SCPE)*, 10(3):253–264, 2009.
- [GG11] A. Gamatié and L. Gonnord. Static analysis of synchronous programs in signal for efficient design of multi-clocked embedded systems. In *Conference on Languages, Compilers, Tools and Theory for Embedded Systems (LCTES 2011)*, Chicago, USA, April 2011.
- [GH06] L. Gonnord and N. Halbwachs. Combining widening and acceleration in linear relation analysis. In *13th International Static Analysis Symposium, SAS'06*, Seoul, Korea, August 2006.
- [GH10] Laure Gonnord and Nicolas Halbwachs. Abstract acceleration to improve precision of linear relation analysis. Research report, Verimag, 03 2010.
- [GHR04] L. Gonnord, N. Halbwachs, and P. Raymond. From discrete duration calculus to symbolic automata. In *3rd International Workshop on Synchronous Languages, Applications, and Programs, SLAP'04*, Barcelona, Spain, March 2004.
- [HMG06] N. Halbwachs, D. Merchat, and L. Gonnord. Some ways to reduce the space dimension in polyhedra computations. *Formal Methods in System Design*, 29(1):79–95, 2006.
- [MG11] D. Monniaux and L. Gonnord. Using bounded model checking to focus fixpoint iterations. In *18th International Static Analysis Symposium, SAS'11*, Venice, Italy, September 2011.
- [RGC10] Vlad Rusu, Laure Gonnord, and Benoît Combemale. Formally tracing executions from an analysis tool back to a domain specific modeling language's operational semantics. Research Report 7423, INRIA, October 2010.

- [VGC11] V.Rusu, L. Gonnord, and B. Combemale.
Formally tracing executions back to a dsml's operational semantics.
In *Seventh European Conference on Modelling Foundations and Applications (ECMFA 2011)*, Birmingham, UK,
June 2011.