Curriculum Vitae

Personal information

Surname(s) / First name(s) **(Danthony)-Gonnord, Laure**

Address(es) LIFL - UMR CNRS/USTL 8022 INRIA Lille Nord Europe
40 avenue Halley, 59650 Villeneuve d'Ascq, France

Telephone(s) INRIA : (+0033) 3 59 57 78 13 Mobile: +0033 6 88 18 26 68

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

Research Topics

- Embedded Systems.
- Software Verification
- Formal methods : model-checking, abstract interpretation, rewritting, 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 Irigoin (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 analys 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 ressources constraints (5000 C++ LoCs).

Publications

Journal Papers

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

Conference Articles

- On termination of C programs and estimation of computational complexity: [ADFG10a].
- [FG10]: tool Paper Aspic.
- On ressource 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 proble 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 ressource 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
- Currently writing a local BQR proposal and a ANR “young researcher” proposal.

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, 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, 2010.

[GB08a] L. Gonnord and J.-P. Babau.
Runtime resource assurance and adaptation with Qinna framewo rk : 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.

[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.

[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.