Thomas Abdelhaman Riwan Rubiano

Personal Data

Birth: Saint-Denis, France | 29 May 1990
Address: 13 bd Maréchal de Lattre de Tassigny, 35000, Rennes, France
Phone: +33 6 24 89 22 50
email: thomas.rubiano@inria.fr
Website: people.irisa.fr/Thomas.Rubiano/

Diplomas

2017 — Informatics PhD, Université Paris 13 & University of Copenhagen
Implicit Computational Complexity and Compilers

2014 — Master of Science in Programming and Safe Software, Université Paris 13
"Mention Bien" (cum laude), European notation: A
The focus of this Master was the interplay of theory and practice in program verification. It introduced theoretical tools such as proof theory and type theory and their connection to programming languages. The idea of software verification was concretely studied with the use of the coq proof assistant.

2013 — Engineering degree in Computer Science (specialized in Information search and content analysis), Institut Galilée, Université Paris 13

Positions

2018-19 — PostDoc, Université Rennes 1 - IRISA/INRIA
Postdoctoral position funded by the $Disc\phi ver$ ANR project
I've joined the $Celtique$ team, working on analysis and certification techniques over intermediate representations using *CompcertSSA*, a certified compiler written in *coq*.
Advisor: Delphine Demange

2017-18 — ATER, Université Grenoble Alpes - VERIMAG
Limited-time Assistant Professor position
During this year as "Attaché Temporaire d'Enseignement et de Recherche" I taught computer sciences (192 hours) and join the PACS team at the VERIMAG research laboratory.
Advisor: David Monniaux

2014-17 — PhD student, Université Paris 13 & University of Copenhagen
Implicit Computational Complexity and Compilers
Implicit computational complexity (ICC) helps predict and control resources (Time and Space) consumed by programs, by running analyses on specific syntactic criteria. A common approach is to observe the program's data's behaviors. The purpose of this PhD is to implement these static analyses directly in compilers, with end goal the generation of certificates ensuring the compiled program has the targeted properties.
Advisors: Jean-Yves Moyen, Virgile Mogbil & Jakob Grue Simonsen

2014 — Intern (6 months), LIMSI, Université Paris 11
Lexical-semantic pattern learning in a biomedical corpus
By using inductive logic programming (with a tool called Aleph implemented in Prolog), we tried to automatically find lexical-semantic patterns by symbolic learning. These patterns are used to find relations between terms simply and quickly in large corpus. In this internship, we were interested in relations between diseases, drugs and food.

2013 — Intern (6 months), Sopra Group (Information technology consulting), Paris
Evolution and maintenance of a virtual operator's information system
The Mobile Virtual Network Operator JoeMobile (SFR) was created in September 2012. The platform was mainly a web API in Java using J2EE. I was in charge of an anti-fraud module and others reporting and archiving tools.

Publications

2016	"Detection of Non-Size Increasing Programs in Compilers" Jean-Yves Moyen & Thomas Rubiano *7th International Workshop on Developments in Implicit Computational Complexity* (DICE 2016), Eindhoven
Apr 2017	"Loop Quasi-Invariant Chunk Motion by peeling with statement composition" Jean-Yves Moyen, Thomas Rubiano & Thomas Seiller In Guillaume Bonfante and Georg Moser: Proceedings 8th Workshop on *Developments in Implicit Computational complExity* and 5th Workshop on *FOundational and Practical Aspects of Resource Analysis* (DICE-FOPARA 2017), Uppsala, Sweden, April 22-23, 2017, Electronic Proceedings in Theoretical Computer Science 248, pp. 47–59.
Oct 2017	"Loop Quasi-Invariant Chunk Detection" Jean-Yves Moyen, Thomas Rubiano & Thomas Seiller 15^{th} *International Symposium on Automated Technology for Verification and Analysis* (ATVA 2017) Pune
2017	PhD thesis: "Implicit Computational Complexity and Compilers" *Department of Computer Science, Faculty of Science, University of Copenhagen*

Unpublished documents

2014	Master's thesis: "Lexical-semantic pattern learning in a biomedical corpus"

Implemented tools

2014-15	NSIDetectionPass A prototype LLVM pass implementing the NSI program analysis described in (2016) Jean-Yves Moyen & Thomas Rubiano
2015-now	LQICM_On_C_Toy_Parser A proof-of-concept in python for optimizing C programs implementing the loop optimization described in (2017) Jean-Yves Moyen, Thomas Rubiano & Thomas Seiller
2016-now	lqicm_pass A prototype LLVM pass implementing the loop optimization described in (2017) Jean-Yves Moyen, Thomas Rubiano & Thomas Seiller

Communications

International Symposium

Oct 2017	ATVA 2017 - Fifteenth International Symposium on Automated Technology for Verification and Analysis (Pune)

International Workshops

Apr 2016	DICE 2016 - ETAPS' workshop (Eindhoven)
Apr 2017	DICE 2017 - ETAPS' workshop (Uppsala)
Jun 2017	LOLA 2017 - LICS' workshop (Reykjavik)

Major national events

Sep 2017	11^{th} annual meeting of the French Community of Compilation (Aussois)

Other invited communications

Jan 2015	ELICA Project Kick Off Meeting (Paris)
Nov 2015	LIPN Junior Seminar (Paris)
Mar 2016	Seminar in DIKU (Copenhagen)
Aug 2016	Numerical challenges in parallel scientific computing CEMRACS 2016 (Luminy)
Oct 2016	ELICA Project Meeting (Bologna)
Nov 2016	LIPN Programming and Logic Seminar (Paris)
Mar 2016	Seminar in DIKU (Copenhagen)
Feb 2018	Seminar in LAMA (Chambéry)
Jun 2018	Seminar in the Celtique Team at IRISA (Rennes 1)

Teaching

During my PhD and my ATER, I've asked a duty of 128+192 hours of computer science teaching. It has consisted mainly in labs and hands-on sessions of programming at various level and in various curricula. I also produced material for hands-on sessions, and also taught and prepared a full-class lecture two years in a row.

2017-18	Supervisor of one Master student ("alternant") 14 hours
2018	Operating System and IDE (in Bash/C) Lectures, hands-on and labs to 1st year Bachelor 60 hours, 40 registered students
2018	Algorithms and Functional Programming (in OCaml) Hands-on and labs to 1st year Bachelor 42 hours, 40 registered students
2017	Algorithms and Programming (in Python) Lectures, hands-on and labs to 1st year Bachelor 63 hours, 40 registered students
2015-16	Basics of Programming (in C) Lectures to 1st year Engineers common courses 3 hours, 110 registered students
2016	Elements of Computer Science (in C and Assembly) Lab and hands-on sessions 1st year Bachelor in Computer Science 27 hours, 57 registered students
2016	Basics of Programming (in C) Hands-on sessions 1st year Engineers in Computer Science 36 hours, 29 registered students
2015	Elements of Computer Science (in C and Assembly) Lab and hands-on sessions 1st year Bachelor in Computer Science 27 hours, 50 registered students
2015	Basics of Programming (in C) Lab and hands-on sessions 1st year Engineers common courses 36 hours, 20 registered students
2011-13	Programming Private Lessons (Acadomia) Basics programming in C, Java, Matlab Around 50 hours
2011	Tutor at Institut Galilée Help for hands-on sessions for 1st year Bachelors in Computer Science Around 15 hours

Major Events Attended

Post-Graduate Research Schools

2015	Oregon Programming Languages Summer School (Eugene)
2016	CEMRACS Numerical challenges in parallel scientific computing (Luminy)

Conferences

Jan 2015	FOSDEM Free event for software developers to meet (Brussels)
Sep 2015	10th annual meeting of the French Community of Compilation (Banyuls-sur-Mer)
Mar 2016	International Conference on Compiler Construction – co-located with EuroLLVM and CGO (Barcelona)
Mar 2017	EuroLLVM Developers' Meeting (Saarbrücken)
Mar 2019	EuroLLVM Developers' Meeting (Brussels)

Languages

French:	Mother tongue
English:	Spoken, read, written
German:	Rudiments

Interests and Activities

Music:	*Diplôme de fin d'étude* of Piano (16 years)
	Premier cycle of Saxophone (4 years)
	Composition (Computer Music)
Sport:	Swimming medalist (inter high school championship 2008)
	Finalist of the *Estivales de Volley des côtes d'armor* in *estivants* category (2016)
	Casual swimmer (BNSSA level)
	Casual cyclist (long distance covered every summer)
Others:	Free Software Foundation member
	Vimist (regular at *TupperVim* event in Paris and Grenoble)
	Board-games lover