## **Personal Information** First Name Domenico

Last Name Ruoppolo Date of Birth December 16th, 1985 Place of Birth Naples, Italy Nationality Italian Languages Italian, French, English (the first one mothertongue, the other two perfectly fluent) Mails d.ruoppolo@imperial.ac.uk and dom.ruoppolo@gmail.com Web Page http://www.doc.ic.ac.uk/~druoppol

Positions

2018-2020 Postdoctoral researcher

Working on session types and concurrency theory under the supervision of professor Nobuko Yoshida within the EPSRC (UK science funding agency) project 'From Data Types to Session Types: A Basis for Concurrency and Distribution'.

### 2017-2018 Assistant Professor

Full time position as researcher and teacher in computer science at the Institut Galilée (Faculty of Science). Teaching workload quantitatively equal to the one of a professor: 192 hours of classes in various Bachelor and Master programs. (See 'teaching activities'.)

## 2015-2016 Assistant Professor

Full time position as researcher (fourth year of PhD) and teacher in mathematics and computer science at the Institut Universitaire de Technologie (Faculty of Engineering). Teaching workload quantitatively equal to the one of a professor: 192 hours of classes for undergraduates in business management and administration. (See 'teaching activities'.)

## 2012-2015 PhD candidate

First three years of PhD funded by the French Government. Supervised by professors Stefano Guerrini and Giulio Manzonetto within the group 'Logique, Calcul et Raisonnement' (LCR) at the Laboratoire d'Informatique de Paris Nord (LIPN).

## 2012-2015 Teaching Assistant

Université Paris 13, IUT, Département Informatique

Teaching tutoring at the Institut Universitaire de Technologie (Faculty of Engineering). 64 h/y classes for undergraduates in computer science. (See 'teaching activities'.)

## **Remark:**

during the academic year 2016-2017 I was officially unemployed, but I actually continued my research work at the University Paris 13. Indeed, my thesis defense took place in this period.

## PhD thesis

## title Relational Graph Models and Morris's Observability.

Resource-sensitive Semantic Investigations on the Untyped  $\lambda$ -calculus

## Université Paris 13, Institut Galilée, LIPN

Université Paris 13, IUT & Institut Galilée, LIPN

Imperial College of London, Faculty of Engineering

## Université Paris 13, Institut Galilée, LIPN

supervisors Stefano Guerrini and Giulio Manzonetto

defense Defended on December 13th, 2016 in Villetaneuse, France

jury Tom Hirschowitz, John Longley (*reviewer*), Giulio Manzonetto, Guy McCusker, Paul-André Melliès, Stefano Guerrini, Jakob Grue Simonsen (*reviewer and president of the jury*).

## Education

2012-2016 PhD in Computer Science

### Université Paris 13, Institut Galilée, LIPN

École Normale Supérieure de Cachan

#### 2011-2012 MScRes in Computer Science

*Name:* Master Parisien de Recherche en Informatique (partnership of Université Paris 7, Écoles Normales Supérieures of Paris and Cachan, École Polythécnique Paris-Saclay) *Syllabus:* Categories and  $\lambda$ -Calculi • Linear Logic and Logical Paradigms of Computation • Models of Programming Languages: Domains, Categories, Games • Foundations of Proof Systems and Proof Assistants • Mathematical Foundations of Automata Theory • Set Theory and Large Cardinals • Logical and Computational Structures for Linguistic Modelling. *Internship:* LIPN, Université Paris 13, supervised by Stefano Guerrini and Giulio Manzonetto *Msc thesis:* Sémantique Relationnelle du  $\lambda\mu$ -Calculus (internship report)

### 2008-2010 MSc in Mathematics

Università degli Studi di Napoli "Federico II"

Name: Laurea Magistrale in Matematica

Syllabus: Foundations of Algebraic Structures • Foundations of Higher Mathematical Analysis • Elements of Algebraic and Geometric Topology • Algebraic Methods for Cryptography • Mathematical Methods in Biology • Elementary Mathematics From an Higher point of View • Set Theory • Mathematical Logic • Logic and Logic Programming • Elements of Theoretical Computer Science • Computability and Complexity *Msc thesis:* Dalla Logica di Base al Calcolo UB (supervised by G. Sambin and V. Vaccaro)

### 2004-2008 BSc in Mathematics

Università degli Studi di Napoli "Federico II"

### Name: Laurea in Matematica

Syllabus: Algebra I • Calculus I • Geometry I • Introduction to Programming • Physics I • Algebra II • Calculus II • Geometry II • Introduction to Numerical Methods in Programming • Physics II • Introduction to Mathematical Physics • Dynamical Systems • Probability and Statistics • Elements of Mathematical Economics • Elements of Algebraic Geometry • Elementary Mathematics • Mathematical Education • Foundations of Mathematics

*Bsc thesis\*:* Assioma di Anti-Fondazione per la Teoria degli Insiemi Zermelo-Fraenkel (supervised by R. Tortora) \**Awarded for the Best Italian Bachelor Theses in Logic 2009 by the Italian Association for Logic and its Applications (AILA).* 

## Grants and awards

- 2012 **French Government Three-Year Ph.D Scholarship**. From the Ministère de l'Éducation Nationale, de l'Enseignement Supérieur de la Recherche
- 2011 **One-Year Graduate Scholarship for the MPRI Master Programme**. From INRIA (Institut National de Recherche en Informatique et en Automatique) and ENS Cachan
- 2009 Award for the Best Italian Bachelor Theses in Logic 2009. From the Italian Association for Logic and its Applications (AILA)

## Hobbies

• Writing/drawing storyboard for comics • Sport practice

	Teaching Activities
	Academic Year 2017-2018
Program	Master of Science in Computer Science, Université Paris 13.
Class	Theory of programming. tutor ◇ 18 hours ◇ 50 students
Program	1st Year Bachelor of Science in Computer Science and Mathematics, Université Paris 13.
Class	<b>Introduction to Computer Science and Programming (in C)</b> . tutor, computer lab tutor $\diamond$ 27 hours $\diamond$ 40 students
Class	Introduction to Robotics (in Python). tutor, computer lab tutor
Class	<b>Logic.</b> tutor $\diamond$ 36 hours $\diamond$ 50 students
Program	2nd Year Bachelor of Science in Computer Science, Université Paris 13.
Class	Algorithms design. tutor $\diamond$ 36 hours $\diamond$ 20 students
Program	1st Year Bachelor of Science in Physics-Chemistry and Engineering, Université Paris 13.
Class	Introduction to Computer Science and Programming (in C). tutor, computer lab tutor $\diamond$ 27 hours $\diamond$ 30 students
	Academic Year 2015-2016
Program	Universitary Diploma in Business Management and Administration, Université Paris 13.
Class	<b>Database Management.</b> computer lab tutor $\diamond$ 84 hours $\diamond$ 75 students
Class	<b>Digital Information and Communication Environment</b> . teacher of the class $\diamond$ 34 hours $\diamond$ 24 students
Class	Systems for Database Management. computer lab tutor $\diamond$ 32 hours $\diamond$ 50 students
Class	<b>Training for Math and Logical Tests.</b> teacher of the class $\diamond$ 32 hours $\diamond$ 60 students
	Academic Year 2014-2015
Program	Universitary Diploma of Technology in Computer Science, Université Paris 13.
Class	Data Structures and Algorithms in C.      teacher, tutor, computer lab tutor    ◇    36 hours    ◇    25 students
Class	<b>Programming project in C</b> . Évaluation $\diamond$ 12 hours $\diamond$ 24 students
Class	Advanced Object-oriented programming and design patters in Java.

### Academic Year 2013-2014

Program Universitary Diploma of Technology in Computer Science, Université Paris 13.

- Class **Data Structures and Algorithms in C**. teacher, tutor, computer lab tutor  $\diamond$  36 hours  $\diamond$  25 students
- Class **Introduction to Human-Machine Interface in Java**. computer lab tutor  $\diamond$  22 hours  $\diamond$  19 students

### Academic Year 2012-2013

Program Universitary Diploma of Technology in Computer Science, Université Paris 13.

ClassComputer Architecture.<br/>tutor26 studentsClassInformation and Signals.

tutor  $\diamond$  24 hours  $\diamond$  21 students

## Publications

(Note that in theoretical computer science the custom is to use an alphabetical order of authorship.)

#### **In Journals**

2018 **Relational Graph Models at work**, *Logical Methods in Computer Science*, Vol. 14.3. Co-authors: Flavien Breuvart, Giulio Manzonetto

Content: this 42-page-long journal article is a full-contained introduction to relational graph models (rgm's), a natural subclass of relational models of  $\lambda$ -calculus that are representable using non-idempotent intersection types. The lattice of (in)equational theories induced by rgm's is studied in detail. In particular, the dual notions of  $\lambda$ -König and hyperimmune rgm's are introdused to characterize the full abstraction problem for the two main observational equivalences between  $\lambda$ -terms are: the one generated by taking as observables the  $\beta$ -normal forms, and the one generated by considering as observables the head normal forms.

### In Proceedings of International Peer-Reviewed Conferences

2016 New Results on Morris's Observational Theory: the Beneficts of Separating the Inseparable, *LIPICS Vol. 52*, Proceedings of FSCD16.

Co-authors: Flavien Breuvart, Giulio Manzonetto, Andrew Polonsky

Content: working in the untyped lambda calculus, this article studies the original theory of contextual equivalence, introduced by Morris in 1968. On the syntactic side, we show that this  $\lambda$ -theory validates the  $\omega$ -rule, thus settling a long-standing open problem. On the semantic side, we provide sufficient and necessary conditions for relational graph models to be fully abstract for the theory. Both results follow from a separability property for terms differing by infinite  $\eta$ -expansion, which is proved through a refined version of the Böhm-out technique.

# 2014 Relational Graph Models, Taylor Expansion and Extensionality, Electr. Notes Theor. Comput. Sci. 308: 245-272, Proc. of MFPS XXX.

Co-author: Giulio Manzonetto

Content: this article first introduced the class of relational graph models, showing that there is at least one such models fully abstract for Morris's observational equivalence. Also, it introduced an extensional version of the Taylor expansion of Ehrhard and Regnier, providing yet another model of Morris's theory.

## Talks (selected)

Workshop The next 700 denotational models?, *HOR18*, Oxford, July 2018.Invited Relational Graph models at Work, *Seminar at Université Aix-Marseille*, Mars 2017.

Conference New Results on Morris's Observational Theory, *FSCD16*, Porto, June 2016.
 Workshop New Results on Morris's Observational Theory, *Intersec. types*, Paris, June 2016.
 Conference Relational Graph Models, Taylor Expansion, Extensionality, *Ithaca*, MFPS14.

### Other research responsabilities

Reviews CSL13, MFPS15.

2015-2017 Organizer of the weekly seminar of the research area "Linear Logic and Programming" for the group *Logique, Calcul et Raisonnement* at LIPN.

### Meetings

### **International Conferences**

- 2016 1st International Conference on Formal Structures for Computation and Deduction (FSCD16), Porto, Portugal, June 22-26, 2016.
   Attending as speaker & co-author of an accepted paper
- 2014 **30th International Conference on Mathematical Foundations of Programming Semantics (MFPS XXX)**, *Cornell University*, Ithaca, New York, USA, June 12-15, 2014. Attending as speaker & co-author of an accepted paper

#### **International Workshops**

- 2018 **Higher Order Rewritings 2018**, Oxford, UK, July 7-8, 2018. Speaker
- 2018 Pre-Workshops of FLOC18, Oxford, UK, July 7-8, 2018.
- 2016 Satellite Workshops of FSCD16, Porto, Portugal, June 22-26, 2016.
- 2016 International Workshop on Intersection Types (French-Italian Research Group on Linear Logic), Université Paris Diderot, Paris, France, June 13-14, 2016. Speaker
- 2014 Domains XI, 11th International Workshop on Domain Theory and Applications, Université Paris Diderot, Paris, France, September 8-10, 2014.
  Attending as co-author of an accepted contribution

#### **Other Meetings (selected)**

- 2015 French ANR Project ELICA (Expanding Logical Ideas for Complexity Analysis) Kick-Off Meeting, Institut Henry Poincaré, Paris, France, February 2, 2015.
- 2014 Semantics of Proofs and Certified Mathematics, Institut Henry Poincaré, Paris, France, Avril-July, 2014.
- 2013 A scientific meeting in honor of Antonino Salibra, Laboratory PPS, Université Paris Diderot, Paris, France, June 1-2, 2013.
- 2013 Annual Meeting of the Working Group GeoCal (Géométrie du Calcul) of the CNRS National Research Group Informatique Mathématique, École Normale Supérieure de Lyon, Lyon, France, February 15, 2013.
- 2013 French ANR Project COQUAS (COmputing with QUAntitative Semantics) Kick-Off Meeting, Institut Henry Poincaré, Paris, France, February 7-8, 2013.

### Schools

- 2013 **Oregon Programming Languages Summer School 2013: Types, Logic, and Verification**, *University of Oregon*, Eugene, Oregon, USA, July 22 August 3, 2013. Level: Graduate
- 2009 Italian Summer School on Logic 2009, University of Milan, Gagnano, BR, Italy, August 23-29, 2009.

Level: Undergraduate