

Florent Capelli

CV

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Naissance 04/04/1989

Research interests Parametrized and counting complexity, knowledge compilation, SAT, graph theory

Education

- 2016–Present **Postdoctoral position with Igor Razgon**, *Birkbeck College*, London.
- 2013–2016 **PhD under the supervision of Arnaud Durand**, *Université Paris Diderot*, Paris.
“*Structural algorithms for #SAT and knowledge compilation*”, June 2016.
Supported by a national grant.
- 2012–2013 **“Agrégation de mathématiques”**, *ENS Lyon*, Lyon.
French competitive exam for teachers in high schools and universities. Specialized in Computer Science. Rank : 15/320.
- 2010–2012 **Master degree in Theoretical Computer Science, with highest honors, ranked first**, *ENS Lyon*, Lyon.
- 2009–2010 **Bachelor degree in Theoretical Computer Science, with high honors**, *ENS Lyon*, Lyon.
- 2007–2009 **“Classes préparatoires”**, *Lycée du Parc*, Lyon.
Undergraduate studies to prepare competitive exams in order to enter the top french schools and universities.

Publications

Peer-reviewed international journal papers

- 2015 *The Arithmetic Complexity of Tensor Contraction*, with Arnaud Duret and Stefan Mengel, *Theory of Computing Systems, STACS Special Issue, 2015 (TOCS 15)*

Peer-reviewed international conference papers

- 2017 *Understanding the Complexity of #SAT using Knowledge Compilation*, *Symposium on Logic in Computer Science, 2017 (LICS 17)*
- 2016 *Knowledge Compilation Meets Communication Complexity*, with Simone Bova, Stefan Mengel, Friedrich Slivovsky, *International Joint Conference on Artificial Intelligence, 2016 (IJCAI 16)*
- 2015 *On Compiling CNFs into Structured Deterministic DNNF*, with Simone Bova, Stefan Mengel, Friedrich Slivovsky, *Theory and Applications of Satisfiability Testing, 2015 (SAT 15)*
- 2015 *Understanding Model Counting for β -acyclic CNF-formulas*, with Johann Brault-Baron and Stefan Mengel, *32th Symposium on Theoretical Aspects of Computer Science, 2015 (STACS 15)*
- 2014 *Hypergraph Acyclicity and Propositional Model Counting*, with Arnaud Durand and Stefan Mengel, *Theory and Applications of Satisfiability Testing, 2014 (SAT 14)*

2013 *The Complexity of Tensor Contraction*, with Arnaud Durand and Stefan Mengel, *30th Symposium on Theoretical Aspects of Computer Science, 2013 (STACS 13)*

Preprints

2016 *On the Complexity of Enumeration*, with Yann Strozecki

Teaching Experience

2013–2016 **Teaching assistant**, *Université Paris Diderot*, Paris.

Preparation of the exercise sheets and supervision of the exercise sessions in the following topics :

- *History of computation* for first year math and computer science students
- *Databases* for third year students in social science
- *C programming and algorithmic* for math graduate students with a programming project

2015 Participation to recreational scientific presentations in primary school, Paris.

2010–2011 **Oral exam training in mathematics**, *Lycée Fénelon*, Paris.

For undergraduate students

Administrative duties

- Webmaster of the ANR project CompA (<http://www.ens-lyon.fr/LIP/MC2/CompA/>)

Peer-review activities

- Symposium on Logic In Computer Science, (LICS) 2017
- International Computer Science Symposium in Russia, (CSR) 2017
- Symposium on Theoretical Aspects of Computer Science (STACS) 2017
- Theory of Computing Systems, TOCS Special Issue for ICDT 2016
- International Joint Conference on Artificial Intelligence (IJCAI) 2016
- International Conference on Extending Database Technology (ICDT) 2016
- International Joint Conference on Artificial Intelligence (IJCAI) 2015

Invitations to invite-only workshops

2017 *Recent Trends in Knowledge Compilation*, Dagstuhl, Seminar 17381

<http://www.dagstuhl.de/en/program/calendar/semhp/?semnr=17381>

2016 *SAT and Interactions*, Dagstuhl, Seminar 16381

<http://www.dagstuhl.de/en/program/calendar/semhp/?semnr=16381>

2015 *Symposium on New Frontiers in Knowledge Compilation*, Vienna

<http://www.vcla.at/kc2015/>

Research internships

2012 **Characterizing Valiant's classes by tensor operators**, under the supervision of Arnaud Durand, *Université Paris Diderot*, Paris.
(Februar-July)

2011 (June-July) **Automatic analysis of C programs using functional amortized analysis**, under the supervision of Martin Hoffmann, *Ludwig Maximilians Universität*, München.

2011 **Eliminating large constants in arithmetic circuits**, under the supervision of Sylvain Perifel, *LIAFA*, Paris.
(March-May)

2010 (June-July) **Using SMT solvers to eliminate quantifiers in first order formulas of Presburger's arithmetic**, under the supervision of David Monniaux, VERIMAG, Grenoble.

Languages

English **Fluent**
German **Conversational**
French **Native**

Talks

- Marseille, 12/12/2016 Team ACRO Seminar , *Lower bounds for branching programs*
- Marseille, 12/12/2016 Team LIRICA Seminar , *Structural restrictions of CNF-formulas : applications and limitations*
- Lille, 18/11/2016 Team LINKS Seminar , *Structural restrictions of CNF-formulas : applications and limitations*
- Dagstuhl, 18/09/2016 Seminar Dagstuhl "SAT and Interaction", *Compilation of CNF-formulas : upper and lower bounds.*
- Marseille, 11/07/2016 ANR AGGREG Days , *Some results on complexity classes for enumeration.*
- Bordeaux, 04/07/2016 International Workshop on Graph Structure and Satisfiability Testing, *Structure-based knowledge compilation : the singular case of β -acyclic formulas.*
- Paris, 16/06/2016 Workshop LAAG, *Une présentation du théorème de Lyndon.*
- Marseille, 12/04/2016 GT ALGA Days , *Knowledge Compilation and Communication Complexity.*
- Stockholm, 16/03/2016 Theory reading group of KTH, *Structural restrictions of CNF-formulas : applications and limitations.*
- Paris, 11/03/2016 Seminar Automate, LIAFA *Structural restrictions of CNF-formulas : applications and limitations*
- Orléans, 06/11/2015 Graphs and Algorithms Days 2015, *Borne inférieure de circuits : une application des expanders.*
- Paris, 06/07/2015 ANR AGGREG Days , *#SAT and hypergraph acyclicity.*
- Munich, 06/03/2015 STACS 2015, *Understanding model counting for β -acyclic formulas.*
- Caen, 20/01/2015 GREYC Seminar , *#SAT et acyclicité d'hypergraphe.*
- Paris, 15/01/2015 ANR CompA Days , *Compilation de CNF vers les circuits booléens : une borne inférieure.*
- Versailles, 17/10/2014 Team MAGMAT Seminar , *#SAT et acyclicité d'hypergraphe.*
- Lens, 16/10/2014 CRIL Seminar , *Complexité paramétrée de #SAT.*
- Paris, 05/09/2014 Highlights 2014, *Hypergraph Acyclicities and Propositional Model Counting.*
- Vienne, 17/07/2014 SAT 2014, *Hypergraph Acyclicity and Propositional Model Counting.*
- Lyon, 04/03/2014 ANR CompA Days , *The arithmetic complexity of tensor contractions.*

Kiel, 02/2013 STACS 2013, *The arithmetic complexity of tensor contractions.*

Lyon,
10/10/2012 Workshop MC2, *The arithmetic complexity of tensor contractions.*