

CURRICULUM VITÆ OF THOMAS COLCOMBET

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Born the 6 of Mars 1975 in Paris
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WORK EXPERIENCE

- 2015 – “Directeur de Recherche” in the “Institut de Recherche en Informatique Fondamentale” (IRIF, Paris).
2007 – 2015 Full time researcher of the CNRS in the “Laboratoire d’Informatique Algorithmique Fondements et Applications” (LIAFA, Paris).
2004 – 2007 Full time researcher of the CNRS in the “l’Institut de Recherche en Informatique et Systèmes Aléatoires” (IRISA, Rennes).
2003 – 2004 Post-doc in Warsaw (MIMUW) in the project GAMES (Games and Automata, Synthesis and Validation).

FIELD OF RESEARCH

Automata theory, formal languages, logic and games.

SCHOLARSHIP

- 2013 Habilitation à diriger des recherche “Regular cost functions”, defended the 25th of March 2013.
2000–2004 PhD in computer Science in Rennes, with advisor Didier Caucal, “Properties and presentation of infinite structures”, defended the 18th of March 2004.
1996–2000 Scholarship at the École Normale Supérieure of Lyon.

AWARDS AND GRANTS

- 2010 Bronze medal of the CNRS.
2010 Starting Independent Researcher Grant of the ERC (GALE: Games and Automata for Logic’s Extensions)
ICALP 2011 Best Paper Award track B (awarded by the EATCS) for the article “*Regular Languages of Words over Countable Linear Orderings*” (in collaboration with Olivier Carton and Gabriele Puppis).

- ICALP 2004 Best Paper Award track B (awarded by the EATCS) for the article “*Tree-Walking Automata Cannot Be Determinized*” (in collaboration with Mikołaj Bojańczyk).
- ICALP 2002 Best Student Paper Award track B (awarded by the EATCS) for the article “*On Families of Graphs Having a Decidable First Order Theory with Reachability.*”

PROJECTS

- 2015–2020 Associated to the Senior Research Grant of the ERC DUAL
- 2016–2021 Task leader of the ANR project DELTA
- 2011–2015 PI of the Starting Independent Researcher Grant of the ERC GALE
- 2010–2014 Task leader of the ANR project FREC
- 2007–2010 Head of the ANR JCJC project JADE

EDITORIAL ACTIVITY

- 2016 – Reviewer of the Bulletin of Symbolic Logic
- 2015 Editor of the FOSSACS 2015 special issue of Logical Methods in Computer Science

MANAGEMENT OF SCIENCE

- 2017 Member of the CES40 committee of the ANR
- 2015 – Member of the steering committee of STACS
- Member of the steering committee of HIGHLIGHTS

MOBILITY

- 2016 Long term participant of the “logical structures and computation” program at the Simons Institute for the Theory of Computing (Berkeley, 4 months)
- 2014 Visiting the Boston College Computer Science Department (Boston, 2 months)
- 2013 Visiting the Department of Computer Science of the university of Oxford (Oxford, one month)

MEMBERSHIP TO PROGRAMME COMMITTEES

FCT 2017, HIGHLIGHTS 2017, GANDALF 2017, FCT 2015, FOSSACS 2015, FSTTCS 2015, HIGHLIGHTS 2015, FICS 2015, HIGHLIGHTS 2014, MFCS 2013, FSTTCS 2012, GANDALF 2010, STACS 2010, MFCS 2009, INFINITY 2007

ORGANISATION OF EVENTS

- 2013 Organiser of the conference “Highlights of Logic, Automata and Games”, and local organiser of the first edition in Paris, 18th-21st of September 2013, Paris,
- 2011 Organiser of the «Annual Workshop of the ESF Networking Programme on Games for Design and Verification» (Paris),
- 2009 Organiser of the workshop «Distance Automata and Generalisations» (Paris)
- Organiser of the workshop «Automata and Algorithmic Logic» (Stuttgart).

INVITED LECTURES

- 2017 to the conference FCT 2017 (Bordeaux)
- to the event on ‘Automata and Formal Languages’ of CIE 2017 (Turku),
- to the workshop on Separation, satellite of ICALP 2017 (Warsaw),
- to the workshop in Honor of Damian Niwinski, satellite of ICALP 2017 (Warsaw),
- 2016 to the Schützenberger symposium (Bordeaux),
- 2015 to the workshop ACTS 2015 (Chennai),
- to the conference AUTOMATHA! (Leipzig),
- to the conference DCFS 2015 (Waterloo, Canada),
- to the conference HIGHLIGHTS 2015 (Prague),
- 2014 to the workshop INFINITY 2014 (Delhi),
- 2013 at the “Tbilisi Symposium on Language, Logic and Computation”, TbiLLC’13,
- at the conference CSR 2013, (25th-29th of June, Ekaterinburg)
- 2012 at the «Annual Workshop of the ESF Networking Programme on Games for Design and Verification» (7th-12th of September, Naples)
- at the conference STACS 2012, (29th of february-1st of March, Paris),
- 2011 at the «journées du groupe de travail SDA2» of the GDR-IM (20th-22nd of June, Caen),
- at the conference GANDALF 2011, (15th-17th of June, Minori)
- at the conference LATA 2011, (30th of May-1st of June, Tarragone)
- to the spring school «GAMES-EPIT» (23rd-27th of May, Carcans Maubuisson),
- at the «annual workshop of the Swiss Society for Logic and Philosophy of Science (“the Posterity of Büchi”))» (31st of March-1st of April, Lausanne),
- 2010 at the workshop «Advances and Applications of Automata on Words and Trees» (12nd-17th of December, Dagstuhl),
- at the «Annual Workshop of the ESF Networking Programme on Games for Design and Verification» (20th-23rd of September, Oxford),
- at the «Journées Nationales d’Informatique Mathématique 2010» (21st-22nf of January, Paris).

TEACHING

- 2008– Teaching “Modelisation by finite automata” in the Parisian Master of Research in Computer Science (MPRI).
- 2003–2004 Teaching “Formal methods for the verification of reactive systems” in the Master of Computer Science of Rennes.

SUPERVISING

- 2015 Post-doc of Michał Skrzypczak,
- 2014-2015 Post-doc of Sreejith A.V.,
- 2012-2013 Post-doc of Paweł Parys,

2012-2013	Post-doc of Amaldev Manuel,
2012	Post-doc of Stefan Göller,
2011 –2012	Post-doc of Achim Blumensath,
2008 –2009	Post-doc of Konrad Zdanowski,
2012 –2015	PhD thesis of Nathanaël Fijalkow,
2011 –2014	PhD thesis of Laure Daviaud (with Jean-Éric Pin),
2009 –2012	PhD thesis of Denis Kuperberg,
2011	Master of Laure Daviaud (with Jean-Éric Pin),
2009	Master of Denis Kuperberg (with Sylvain Lombardy)
2005	Master of Aurélien Lamercerie.

Revue avec comité de lecture

- [J10] T. COLCOMBET, L. DAVIAUD, Approximate comparison of functions computed by distance automata. To appear in *Theory of Computing Systems*, 2016. Long version of the STACS 13 paper.
- [J9] T. COLCOMBET, C. LEY, G. PUPPIS, Logics with rigidly guarded data tests, *Logical Methods in Computer Science* 11(3) (2015).
- [J8] T. COLCOMBET, Regular cost functions, Part I: logic and algebra over words, *Logical Methods in Computer Science*, 9(3) (2013), 1–47. Papier sélectionné à l'ICALP09.
- [J7] T. COLCOMBET, Factorisation Forests for Infinite Words and applications to countable scattered linear orderings, *Theoretical Computer Science* **411** (2010), 751–764. Papier sélectionné à FCT 07.
- [J6] M. BOJAŃCZYK ET T. COLCOMBET, Bounds in ω -regularity, *Logical Methods in Computer Science*, 2009. À paraître dans les papiers sélectionnés à LICS 06.
- [J5] M. BOJAŃCZYK ET T. COLCOMBET, Tree-Walking Automata Do Not Recognize All Regular Languages, *SIAM Journal on Computing* **38**,2 (2008), 658–701. Papier sélectionné à STOC 05.
- [J4] T. COLCOMBET ET C. LÖDING, Transforming structures by set interpretations, *Logical Methods in Computer Science* **3-2**,4 (2007).
- [J3] M. BOJAŃCZYK ET T. COLCOMBET, Tree-walking automata cannot be determinized, *Theoretical Computer Science* **350**,2-3 (2006), 164–173. Papier sélectionné à l'ICALP 04.
- [J2] T. COLCOMBET ET D. NIWIŃSKI, On the positional determinacy of edge-labeled games, *Theoretical Computer Science* **352**,1-3 (2006), 190–196.
- [J1] T. COLCOMBET, Rewriting in the partial algebra of typed terms modulo AC, *Electronic Notes in Theoretical Computer Science* **68**,6 (2002).

Actes de colloques avec comité de lecture

- [C32] T. COLCOMBET, N. FIJALKOW, The Bridge Between Regular Cost Functions and Omega-Regular Languages. ICALP 2016: 126:1-126:13.
- [C31] T. COLCOMBET, S. GÖLLER: Games with bound guess actions. LICS 2016: 257-266.
- [C30] T. COLCOMBET, DENIS KUPERBERG, AMALDEV MANUEL, and SZYMON TORUŃCZYK, Cost Functions Definable by Min/Max Automata, STACS 2016.
- [C29] ACHIM BLUMENSATH, T. COLCOMBET, and PAWEŁ PARYS, On a Fragment of AMSO and Tiling Systems, STACS 2016.
- [C28] T. COLCOMBET and AMALDEV MANUEL, Fragments of Fixpoint Logic on Data Words, FSTTCS 2015, pages 98-111.
- [C27] MICHAEL BENEDIKT, BALDER TEN CATE, T. COLCOMBET, and MICHAEL VANDEN BOOM, The Complexity of Boundedness for Guarded Logics, LICS 2015, pages 293-304.
- [C26] T. COLCOMBET and SREEJITH A. V., Limited Set Quantifiers over Countable Linear Orders, ICALP (2) 2015, pages 146-158.

- [C25] T. COLCOMBET ET A. MANUEL, Combinatorial Expressions and Lowerbounds, STACS, 2015, pages 249-261.
- [C24] T. COLCOMBET, N. FIJALKOW ET F. HORN, Playing Safe, FSTTCS, 2014, pages 379-390.
- [C23] T. COLCOMBET ET A. MANUEL, Generalized Data Automata and Fixpoint Logics, FSTTCS, 2014, pages 267-278.
- [C22] A. BLUMENSATH, O. CARTON ET T. COLCOMBET, Asymptotic Monadic Second-Order Logic, MFCS, 2014, pages 87-98.
- [C22] T. COLCOMBET, L. DAVIAUD ET F. ZULEGER, Size-Change Abstraction and Max-Plus Automata, MFCS, 2014, pages 208-219.
- [C21] A. BLUMENSATH, T. COLCOMBET, D. KUPERBERG, M. VANDEN BOOM ET P. PARYS, Two-Way Cost Automata and Cost Logics over Infinite Trees, CSL-LICS, 2014, 16 pages.
- [C20] T. COLCOMBET, D. KUPERBERG, C. LÖDING ET M. VANDEN BOOM, Deciding the weak definability of Büchi definable tree languages, CSL, 2013: 215-230.
- [C19] T. COLCOMBET, Magnitude Monadic Logic over Words and the Use of Relative Internal Set Theory, LICS, 2013:123.
- [C18] T. COLCOMBET ET L. DAVIAUD, Approximate Comparison of Distance Automata, STACS, 2013:574-585.
- [C17] T. COLCOMBET, C. LEY ET G. PUPPIS, On the Use of Guards for Logics with Data, MFCS, 2011, pages 243–255.
- [C16] O. CARTON, T. COLCOMBET AND G. PUPPIS, Regular Languages of Words over Countable Linear Orderings, ICALP (2), 2011, pages 125–136, *Lecture Notes in Computer Science* vol. 6756, Springer, 2011. Prix du meilleur papier.
- [C15] T. COLCOMBET, D. KUPERBERG ET S. LOMBARDY, Regular Temporal Cost Functions, ICALP (2), pp. 563–574, 2010.
- [C14] T. COLCOMBET ET C. LÖDING, Regular cost functions over finite trees, LICS, pp. 70–79, 2010.
- [C13] T. COLCOMBET, The Theory of Stabilisation Monoids and Regular Cost Functions, *36th ICALP*, Rhodos, Juil. 2009, pp. 139–150, *Lecture Notes in Computer Science* n° 5556, Springer.
- [C12] T. COLCOMBET ET K. ZDANOWSKI, A Tight Lower Bound for Determinization of Transition Labeled Büchi Automata, *36th ICALP*, Rhodos, Juil. 2009, pp. 151–162, *Lecture Notes in Computer Science* n° 5556, Springer.
- [C11] T. COLCOMBET ET C. LÖDING, The Nesting-Depth of Disjunctive μ -calculus for Tree Languages and the Limitedness Problem, CSL, Bertinoro, Sept. 2008, pp. 416–430, *Lecture Notes in Computer Science* n° 5213, Springer.
- [C10] T. COLCOMBET ET C. LÖDING, The non-deterministic Mostowski hierarchy and distance-parity automata, *35th ICALP*, Reykjavik, Juil. 2008, pp. 398–409, *Lecture Notes in Computer Science* n° 5126, Springer.
- [C9] T. COLCOMBET, A combinatorial theorem for trees, *34th ICALP*, Wrocław, Juil. 2007, pp. 901–912, *Lecture Notes in Computer Science* n° 4596, Springer.
- [C8] T. COLCOMBET, Factorisation forests for infinite words, FCT 07, Budapest, Août 2007, pp. 226–237, *Lecture Notes in Computer Science* n° 4639, Springer.

- [C7] M. BOJAŃCZYK ET T. COLCOMBET, Bounds in ω -regularity, LICS 06, pp. 285–296, Août 2006.
- [C6] M. BOJAŃCZYK ET T. COLCOMBET, Tree-Walking Automata Do Not Recognize All Regular Languages, STOC 05, Baltimore, Mai 2005, pp. 234–243.
- [C5] M. BOJAŃCZYK ET T. COLCOMBET, Tree-Walking Automata Cannot Be Determinized, 31TH ICALP, Turku, Juil. 2004, pp. 246–256, *Lecture Notes in Computer Science* n° 3142, Springer. Prix du meilleur papier.
- [C4] T. COLCOMBET ET C. LÖDING, On the Expressiveness of Deterministic Transducers over Infinite Trees, in *STACS 04*, pp. 428–439, *Lecture Notes in Computer Science* n° 2996, Springer, Mars 2004.
- [C3] A. CARAYOL ET T. COLCOMBET, On Equivalent Representations of Infinite Structures, in *30th ICALP*, LECTURE NOTES IN COMPUTER SCIENCE n° 2719, Springer, Juil. 2003.
- [C2] T. COLCOMBET, On Families of Graphs Having a Decidable First Order Theory with Reachability, 29TH ICALP, Malaga, Juil. 2002, pp. 98–109, *Lecture Notes in Computer Science* n° 2380, Springer. Prix du meilleur papier étudiant.
- [C1] T. COLCOMBET ET P. FRADET, Enforcing Trace Properties by Program Transformation, POPL 00, Boston, Jan. 2000, pages 54–66, ACM.

Articles invités dans des conférences

- [I4] T. COLCOMBET, Unambiguity in Automata Theory, DCFS 2015, pages 3-18.
- [I3] T. COLCOMBET, Monadic Second-Order Logic and Cuts in the Background - On a Question by Gurevich and Rabinovich on the Monadic Theory of Linear Orderings, CSR, 2013: 391-404.
- [I2] T. COLCOMBET, Forms of Determinism for Automata, STACS, volume 14 of LIPIcs, pages 1-23, 2012. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik.
- [I1] T. COLCOMBET, Green’s Relations and their Use in Automata Theory, LATA, A. H. Dediu, S. Inenaga and C. Martín-Vide (ed.), pp. 1–21, *Lecture Notes in Computer Science* vol. 6638, Springer, 2011.

Chapitres d’ouvrages

- [L2] T. COLCOMBET, The Factorisation Forest Theorem. À paraître dans le “handbook Automata: from Mathematics to Applications”.
- [L1] A. BLUMENSATH, T. COLCOMBET ET C. LÖDING, *Logical Theories and Compatible Operations*, vol. Text in Logics and Games 2, pages 75–109, Amsterdam University Press, 2007.

Rapports de recherche

- [R3] T. COLCOMBET, C. LEY, ET G. PUPPIS, Logics with rigidly guarded data tests. Long version of the MFCS 2011 paper. 2014. eprint: arXiv:1410.2022.
- [R2] T. COLCOMBET, On Factorization Forests, Rap. Tech. HAL-00125047, Irisa Rennes, 2007.
- [R1] T. COLCOMBET ET C. LÖDING, Transforming structures by set interpretations, Rap. Tech. n° AIB-2006-07, RWTH Aachen, Mai 2006.

Autres documents

- [HDR] T. COLCOMBET, *Fonctions Régulières de Coût*, habilitation à diriger des recherches, Université Denis Diderot, 25 mars 2013.
- [W1] T. COLCOMBET, Equational presentations of tree-automatic structures, in *WASL 04*, Déc. 2004.
- [PHD] T. COLCOMBET, *Propriétés et représentation de structures infinies*, document de thèse, Université Rennes I, Mars 2004.