

Arthur Milchior

Current position

2016–2017 **Post-Doc/lecturer (ATER)**, *Université Paris-Est Créteil, Val de Marne, ESIAG.*

Past positions

2015–2016 **Université Paris-Diderot** ATER.

2012–2015 **PhD Student and teacher assistant.**

Diplomas

Sept 2012–
June 2016 **PhD Student in Comp. Sci. Very honourable distinction** Advisors : **Alexis Bès and Olivier Carton.** , Institut de Recherche en Informatique Fondamentale (IRIF).
Université Paris-Diderot, Research Institute for Foundations of Computer Science (IRIF).

Sept 2008–
Aug 2012 **Diploma of École normale supérieure, major computer science, minor mathematics**, École normale supérieure of Paris.

Sept 2011–
Aug 2012 **Parisian Master of Research in Computer Science (MPRI)**, *With highest honour*,
Université Paris-Diderot.

Sept 2010–
Aug 2011 **Licence of mathematics**, *with honour*, Université Pierre et Marie Curie.
During a one year break of ENS

Sept 2008–
Aug 2010 **Computer science Licence**, *with honour*, Université Paris Diderot.

Jan 2008–
Aug 2008 **L2 of mathematics and computer science** , At University of Montreal.
Winter and Summer semester

Sept 2006–
Aug 2008 **L1-L2 of mathematics and computer science**, *Université Pierre et Marie Curie.*

Publications

Conferences

1. Sébastien Briaïs, Stéphane Caron, Jean-Michel Cioranescu, Jean-Luc Danger, Sylvain Guilley, Jacques-Henri Jourdan, Arthur Milchior, David Naccache, and Thibault Porteboeuf. 3D Hardware Canaries. In Emmanuel Prouff and Patrick Schaumont, editors, *CHES 2012 - 14th International Workshop Cryptographic Hardware and Embedded Systems*, volume 7428 of *LNCS - Lecture Notes in Computer Science*, pages 1–22, Leuven, Belgium, September 2012. Springer.

Constructing random Hamiltonian paths in $[0, n]^3$

2. Arthur Milchior. Büchi automata recognizing sets of reals definable in first-order logic with addition and order. In *Theory and Applications of Models of Computation - 14th Annual Conference, TAMC 2016, Berne, April 20-22, 2017, Proceedings*, Lecture Notes in Computer Science. Springer, 2017.

Linear-time algorithms to recognize those automata. Polynomial-time algorithm to construct a formula which define the set recognized by the automaton.

Journals

3. Arthur Milchior. Undecidability of satisfiability of expansions of $\text{FO}[\prec]$ with a semilinear non regular predicate over words. *Computability*, In press.
Characterizations of (extensions of) $\text{FO}[\prec, \text{mod}]$ over integers. Those characterizations are used to prove the undecidability of some logics.
4. Arthur Milchior. Spectra and satisfiability for logics with successor and a unary function. *Mathematical Logic Quarterly*, In press.
The logics $\exists \text{MSO}[\prec, \times 2]$ and $\text{FO}[\prec, f]$ with f uninterpreted allows to define complex sets. The satisfiabilities of those logics are undecidable.

Teachings :

Monitorat

- 2016 **System and network (x2)**, 1st year of engineer school, Lectures and labs, 44 hours.
- 2016 **Introduction to programming**, L1, TD/TP d'ADA, 64 hours.
- 2016 **Programming project : creating a mail reader**, L2, 24 hours.
- 2015 **Functional programming**, L3, Labs in oCaml, 36 hours.
- 2013, 2014, 2015 **Finite automata**, L2, Theoretical lab, 36 hours.
- 2013, 2015 **Web programming**, L2, Labs in HTML, CSS, PHP, MongoDB/MySQL, 48 hours.
- 2014–2015 **OOP and GUI**, L2, Labs in Java, 36 hours.
- 2013–2014 **Data type and objects**, L2, Labs in Java, 36 hours..

Volunteering

- 2012– **Intervention in Highh School**, with the *Mag jeunes LGBT*, against LGBTphobia.
- 2015– **Intervention and training for adult**, with *SOS homophobie*, against LGBTphobia, For-
ming officials, managers, monitors, university students... .
- 2010–2012 **Teaching Linux and \LaTeX at my university.**

Mediation

- Nov 2016– **Member of Trajectoires, the podcast of mathematical culture.**
- 2008– **Proof Reader for Image des Maths, the site of mathematical mediation of CNRS.**
- 2017– **Survey about fundamental computer for Podcast Sciences.**

Known programming language

Ocaml, C, Java, Html, Mysql.