Benjamin HELLOUIN DE MENIBUS

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Research Interests

Objects of study: Symbolic systems (cellular automata, tilings, Turing machines...).

Links betweens dynamics and computation: Dynamics of computing systems, computational complexity of prediction problems, universality properties.

Combinatorics and discrete probabilities: Behaviour on random initial point, emerging computation, particle systems. Structure of words and tilings.

Curriculum

Since 2017	**Associate Professor in Computer Science** GaLaC team, LRI, Paris Sud – Paris Saclay university.
2016 – 2017	**Teaching postdoctorate** Automata team, IRIF, Université Paris 7 Denis Diderot, Paris.
2014 – 2016	**Postdoctorate** with Cristóbal ROJAS, Universidad Andrés Bello, Santiago
2011–2014	**Ph.D** under the supervision of Xavier BRESSAUD and Mathieu SABLIK, Aix-Marseille University: *"Asymptotic behaviour of cellular automata: computation and randomness"*
2010–2011	**Agrégation** *Mathematics, with Informatics speciality* ranked 36th.
2008–2011	**Master's degree in Theoretical Informatics** *with honors* ENS Lyon.
2010	**6-month internship** supervised by Mathieu SABLIK, Aix-Marseille University: *"Particles and self-organization in cellular automata"*
2009	**3-month internship** supervised by Takeaki UNO, NII, Tōkyō: *"Matching counting in graphs with bounded clique-width"*
2008	**2-month internship** supervised by Yannis MANOUSSAKIS, Orsay university: *"Connexity in edge-colored graphs"*

Teaching

Year	Subject	Level	Hours	Lectures	Tutorials	Lab	Project
$17-18$	**Digital docs. and interfaces**	1st year	57h	x		x	x
	Databases	1st year	44h		x	x	
	Human-machine interaction	1st year	58h		x	x	
$16-17$	**Project management**	3rd year	52h				x
	Web programming	3rd year	30h	x		x	
	Systems in C	3rd year	96h			x	
$14-15$	**Vectorial calculus (spanish)**	3rd year	70h	x	x		
$13-14$	**Intro. comp. sci. and prog.**	1st year	40h	x	x		
	Computer architecture	1st year	24h			x	
$12-13$	**Intro. comp. sci. and prog.**	1st year	64h	x	x	x	
$11-12$	**Probabilities**	2nd year	24h		x		
	Maths for comp. sci.	2nd year	40h		x	x	

Journal publications

2017	with Ville SALO and Guillaume THEYSSIER : **Randomisation in abelian cellular automata** *Ergodic Theory and Dynamical Systems.*
2017	with Anahí GAJARDO, Diego MALDONADO and Andrés MOREIRA : **Nontrivial Turmites are Turing-Universal.** *Journal of Cellular Automata.*
2016	with Mathieu SABLIK : **Self-organisation in cellular automata with coalescent particles : Qualitative and quantitative approaches** *Journal of Statistical Physics.*
2016	with Martin DELACOURT : **Characterisation of limit measures of higher-dimensional cellular automata** *Theory of Computing Systems.*
2014	with Mathieu SABLIK : **Characterisation of sets of limit measures of a cellular automaton iterated on a random configuration.** *Ergodic Theory and Dynamical Systems.*

Conference publications

2018	with Anaël GRANDJEAN and Pascal VANIER : **Aperiodic points in $\mathbb{Z}^2$-subshifts.** *ICALP 2018.*
2015	with Martin DELACOURT : **Construction of mu-limit sets of two-dimensional cellular automata.** *STACS 2015.*
2012	with Mathieu SABLIK : **Entry times in automata with simple defect dynamics.** *JAC/Automata 2012.*
2011	with Mathieu SABLIK : **Self-organization in cellular automata : a particle-based approach.** *DLT 2011.*
2011	with Takeaki UNO : **Counting maximum matchings and path matchings in graphs of bounded clique width.** *TAMC 2011.*

Submitted / In preparation

2018   with Silvère GANGLOFF : **Effect of quatified irreducibility on the computability of subshift entropy.**   arxiv:1602.06166.

Other activities

Reviewer for the international journals *Theoretical Computer Science* (TCS), Physica 1; and conferences *Developements in Language Theory* (DLT 2013), *Symposium on Theoretical Aspects of Computer Science* (STACS 2015), and *Automata 2015*, and for MathReviews.