Simon Abelard

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Current situation

I am currently a postdoctoral fellow at the Symbolic Computation Group (University of Waterloo) under the supervision of Professors Mark Giesbrecht, George Labahn and Éric Schost. My one-year contract (September 2018 to September 2019) also includes teaching the course CS240E "Algorithms and data structures" at the David Cheriton School of Computer Science.

Publications

Accepted papers

July 2018 **Counting Points on Genus-3 Hyperelliptic Curves with Explicit RM.**
With P. Gaudry et P.-J. Spaenlehauer, pp. 1–19 in Proceedings of the Thirteenth Algorithmic Number Theory Symposium, edited by Renate Scheidler and Jonathan Sorenson, Open Book Series 2, Mathematical Sciences Publishers, Berkeley, 2019. DOI 10.2140/obs.2019.2.1, available on arxiv: https://arxiv.org/abs/1806.05834.

2017 **Improved complexity bounds for counting points on hyperelliptic curves.**
With P. Gaudry et P.-J. Spaenlehauer, to appear in the journal *Foundations of computational mathematics* and avalaible on arxiv https://arxiv.org/abs/1710.03448 or on the journal's website https://link.springer.com/article/10.1007/s10208-018-9392-1.

Preprints

2018 **Counting points on hyperelliptic curves with explicit real multiplication in arbitrary genus.**
Available on arxiv: https://arxiv.org/abs/1810.11068.

Seminars and talks

Invited talks

July 2019 **Minisymposium of the international conference SIAM AAG 2019.**
To be determined.

January 2018 **Journées nationales du calcul formel (national French event) 2018.**
Comptage de points de courbes hyperelliptiques en genre 3 et au-delà.

July 2017 **Minisymposium of the international conference SIAM AAG 2017.**
New complexity bounds for hyperelliptic point-counting.

Invitations and seminars

April 2017 **Three-week invitation at the University of Waterloo.**
One week with Alfred Menezes and David Jao, two weeks with Éric Schost.

Teaching

Operations research at Mines Nancy

2017 **Exercise sessions for first-year students**
One group for ∼15h, linear programming (simplex, duality, ILP), with a bit of graphs (shortest path, maxflow) and modelization.

2015 & 2016 **Exercise sessions for second-year students**
Two groups each year, for a total of ∼80h. Content includes graphs (shortest path, maxflow), linear programming (simplex, duality) and convex optimization, with an important focus on modelization.

2016 **Course and exercises for first-year students**
One group for ∼25h, mainly linear programming (simplex, duality, sensitivity analysis), with a bit of graphs and modelization.

Computer science at Mines Nancy

2018 **Algorithmics and programming for first-year students**
Exercise sessions in Python for ∼20h.

2016 & 2017 **Algorithmics and programming for second-year students**
Exercise sessions in Python, for a total of ∼35h.

2017 **Data bases for second-year students**
Exercise sessions (relational algebra, normal forms and queries in SQL), for ∼20h.

Education

2015–2018 **Ph.D. in computer science**, *Université de Lorraine*, Nancy.
Supervised by Pierrick Gaudry and Pierre-Jean Spaenlehauer: *Counting points on hyperelliptic curves in large characteristic: algorithms and complexity*.
The committee was composed of: Guillaume Hanrot (president)
Christophe Ritzenthaler and Fréderik Vercauteren (referees)
Magali Bardet and Elisa Gorla (examiners)

2014–2015 **Master's degree, *Agrégation***, *ENS Cachan*, *Summa cum laude*.
One-year preparation to the French *Agrégation*.

2013–2014 **Master's degree**, *Université Pierre et Marie Curie*, Paris, *Cum laude*.
Degree in pure Mathematics, majoring in Number Theory and Algebraic Geometry

2012–2013 **Second year at ENS**, *ENS Cachan*, *Summa cum laude*.
General courses in Mathematics, with a five month research experience

2011–2012 **Bachelor**, *Université Paris VII Diderot, ENS Cachan*, *Cum laude*.

Reports and internships

M.Sc 2nd year internship

Title: *On the Sato-Tate conjecture*

Supervisor: Michael Harris

Description: A survey of several theoretical milestones which enabled Clozel, Harris and Taylor to demonstrate the Sato-Tate conjecture in 2007.

M.Sc 1st year internship

Title: *On sums of cubes*

Supervisor: Bernard Landreau

Description: I surveyed theoretical bounds on the largest integers which are not sum of k cubes (with $4 \leq k \leq 7$) and implemented algorithms in C to check that each integer between 455 and exp(89.4) is a sum of seven cubes, improving on previous record computations.

B.Sc 3rd year internship

Title: *Image denoising: have we reached the optimum yet ?*

Supervisor: Jean-Michel Morel

Description: A survey of several algorithms for image denoising, with some implementation in Matlab and assessment of their optimality with respect to minimax criterion.

Languages

French	Fluent	*Native*
English	Fluent	
Spanish	Sufficient for work and daily life	
Icelandic	Beginner	*Self-taught*

Computer skills

CAS	Magma, Maple
Technical	Matlab, Scilab, AMPL
Programming	C, Python
OS	Linux, Windows
Documents	Vim, LaTeX, Word, Excel