

# Vincent NEIGER

(updated: January 2021)

## PERSONAL DATA

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BIRTH: 18 January 1989, in Metz (Moselle, France), French citizenship  
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POSITION: Maître de Conférences at Université de Limoges, Faculté des Sciences et Techniques

## CAREER PATH

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Since SEP. 2017	“Maître de Conférences” (teaching and research permanent position) University of Limoges, France.
DEC. 2016–AUG. 2017	Postdoctoral researcher At the Technical University of Denmark, supervised by Johan Rosenkilde and Peter Beelen.
SEPT. 2013–NOV. 2016	PhD in Computer Science <i>Bases of relations in one or several variables: fast algorithms and applications.</i> At ENS de Lyon, France: advisor Gilles Villard, co-advisor Claude-Pierre Jeannerod. At University of Waterloo, Canada: advisor Éric Schost (at Western University, Canada, until 2015).
SEPT. 2009–AUG. 2013	Trainee civil servant and student at ENS de Lyon, France. 2013: <i>Agrégation</i> in Mathematics and Master’s Degree in Teaching. 2012: Master’s Degree in Fundamental Computer Science. 2010: Bachelor’s Degree in Fundamental Computer Science.

## LANGUAGES

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FRENCH: mothertongue, ENGLISH: fluent (TOEFL iBT 2013: 115/120), GERMAN: basic knowledge.

## PUBLICATIONS IN INTERNATIONAL JOURNALS

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- 2021 *Interactive Certificates for Polynomial Matrices with Sub-Linear Communication.* D. Lucas, V. Neiger, C. Pernet, D. S. Roche, J. Rosenkilde. *Journal of Symbolic Computation*, Volume 105, July-August 2021, Pages 165-198.  
[doi:10.1016/j.jsc.2020.06.006](https://doi.org/10.1016/j.jsc.2020.06.006) / <https://hal.archives-ouvertes.fr/hal-01829139>
- 2020 *Computing syzygies in finite dimension using fast linear algebra.* V. Neiger, É. Schost. *Journal of Complexity*, Volume 60, October 2020, 101502.  
[10.1016/j.jco.2020.101502](https://doi.org/10.1016/j.jco.2020.101502) / <https://hal-unilim.archives-ouvertes.fr/hal-02392488>
- 2020 *Block-Krylov techniques in the context of sparse-FGLM algorithms.* S. G. Hyun, V. Neiger, H. Rahkooy, É. Schost. *Journal of Symbolic Computation*, volume 98, pp 163–191.  
[doi:10.1016/j.jsc.2019.07.010](https://doi.org/10.1016/j.jsc.2019.07.010) / <https://hal-unilim.archives-ouvertes.fr/hal-01661690>
- 2020 *Fast computation of approximant bases in canonical form.* C.-P. Jeannerod, V. Neiger, G. Villard. *Journal of Symbolic Computation*, volume 98, pp 192–224.  
[doi:10.1016/j.jsc.2019.07.011](https://doi.org/10.1016/j.jsc.2019.07.011) / <https://hal-unilim.archives-ouvertes.fr/hal-01683632>
- 2018 *Two-point Codes for the Generalized GK Curve.* É. Barelli, P. Beelen, M. Datta, V. Neiger, J. Rosenkilde. *IEEE Transactions on Information Theory*, 64(9), 6268–6276.  
<https://dx.doi.org/10.1109/TIT.2017.2763165> / <https://hal.inria.fr/hal-01535513>
- 2017 *Fast, deterministic computation of the Hermite normal form and determinant of a polynomial matrix.* G. Labahn, V. Neiger, W. Zhou. *Journal of Complexity*, volume 42, pp 44–71.  
<http://dx.doi.org/10.1016/j.jco.2017.03.003> / <https://hal.inria.fr/hal-01345627>
- 2017 *Computing minimal interpolation bases.* C.-P. Jeannerod, V. Neiger, É. Schost, G. Villard. *Journal of Symbolic Computation*, volume 83, pp 272–314.  
<http://dx.doi.org/10.1016/j.jsc.2016.11.015> / <https://hal.inria.fr/hal-01241781>
- 2015 *Faster algorithms for multivariate interpolation with multiplicities and simultaneous polynomial approximations.* M. Chowdhury, C.-P. Jeannerod, V. Neiger, É. Schost, G. Villard. *IEEE Transactions on Information Theory*, 61(5), 2370–2387.  
<http://dx.doi.org/10.1109/TIT.2015.2416068> / <https://hal.inria.fr/hal-00941435>

## PUBLICATIONS IN PROCEEDINGS OF INTERNATIONAL CONFERENCES

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- 2020 *Generic bivariate multi-point evaluation, interpolation and modular composition with precomputation.* V. Neiger, J. Rosenkilde, G. Solomatov. Proceedings ISSAC 2020 (International Symposium on Symbolic and Algebraic Computation).  
<https://dx.doi.org/10.1145/3373207.3404032> / <https://hal-unilim.archives-ouvertes.fr/hal-02521821>
- 2020 *A divide-and-conquer algorithm for computing Gröbner bases of syzygies in finite dimension.* S. Naldi, V. Neiger. Proceedings ISSAC 2020.  
<https://dx.doi.org/10.1145/3373207.3404059> / <https://hal-unilim.archives-ouvertes.fr/hal-02480240>
- 2020 *An Algebraic Attack on Rank Metric Code-Based Cryptosystems.* M. Bardet, P. Briaud, M. Bros, P. Gaborit, V. Neiger, O. Ruatta, J.-P. Tillich. Proceedings Eurocrypt 2020.  
[https://doi.org/10.1007/978-3-030-45727-3\\_3](https://doi.org/10.1007/978-3-030-45727-3_3) / <https://hal-unilim.archives-ouvertes.fr/hal-02303015>
- 2019 *Implementations of efficient univariate polynomial matrix algorithms and application to bivariate resultants.* S. G. Hyun, V. Neiger, É. Schost. Proceedings ISSAC 2019.  
<https://doi.org/10.1145/3326229.3326272> / <https://hal.archives-ouvertes.fr/hal-01995873/>
- 2018 *Certification of minimal approximant bases.* P. Giorgi, V. Neiger. Proceedings ISSAC 2018.  
<https://doi.org/10.1145/3208976.3208991> / <https://hal.archives-ouvertes.fr/hal-01701861>
- 2018 *Computing Popov and Hermite forms of rectangular matrices.* V. Neiger, J. Rosenkilde, G. Solomatov. Proceedings ISSAC 2018.  
<https://doi.org/10.1145/3208976.3208988> / <https://hal.archives-ouvertes.fr/hal-01701867>
- 2017 *Algorithms for zero-dimensional ideals using linear recurrent sequences.* V. Neiger, H. Rahkooy, É. Schost. Proceedings CASC 2017 (Computer Algebra in Scientific Computing).  
[https://doi.org/10.1007/978-3-319-66320-3\\_23](https://doi.org/10.1007/978-3-319-66320-3_23) / <https://hal.inria.fr/hal-01558042>
- 2017 *Computing canonical bases of modules of univariate relations.* V. Neiger, T. X. Vu. Proceedings ISSAC 2017, pp 357–364.  
<https://doi.org/10.1145/3087604.3087656> / <https://hal.inria.fr/hal-01457979>
- 2017 *Fast computation of the roots of polynomials over the ring of power series.* V. Neiger, J. Rosenkilde, É. Schost. Proceedings ISSAC 2017, pp 349–356.  
<https://doi.org/10.1145/3087604.3087642> / <https://hal.inria.fr/hal-01457954>
- 2016 *Fast computation of shifted Popov forms of polynomial matrices via systems of modular polynomial equations.* V. Neiger. Proceedings ISSAC 2016, pages 365–372.  
<http://dx.doi.org/10.1145/2930889.2930936> / <https://hal.inria.fr/hal-01266014>
- 2016 *Fast computation of minimal interpolation bases in Popov form for arbitrary shifts.* C.-P. Jeannerod, V. Neiger, É. Schost, G. Villard. Proceedings ISSAC 2016, pages 295–302.  
<http://dx.doi.org/10.1145/2930889.2930928> / <https://hal.inria.fr/hal-01265983>
- 2012 *On the structure of changes in dynamic contact networks.* V. Neiger, C. Crespelle, É. Fleury. Proceedings SITIS (Signal Image Technology & Internet Systems), Workshop on Complex Networks and Applications, pages 731–738.  
<http://dx.doi.org/10.1109/SITIS.2012.111> / <https://hal.inria.fr/hal-00755251>

## RESEARCH STUDENT SUPERVISION

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All supervision listed below after September 2017 has taken place at Research Institute XLIM, University of Limoges.

- Since SEP. 1, 2019, PhD student Maxime Bros. Co-direction (50%) with Philippe Gaborit, on the topic “*Computation of Algebraic Relations for Multivariate Polynomials to study the Security of Rank-based Cryptosystems*”. Part of this work, done in collaboration with researchers from Inria Paris and University of Rouen, lead to an attack on the security of cryptosystems submitted to the NIST call for post-quantum cryptography standardization (<https://csrc.nist.gov/Projects/post-quantum-cryptography/Post-Quantum-Cryptography-Standardization>), described in the above-listed Eurocrypt 2020 article.
- MAR. 4–AUG. 30, 2019: Master student Maxime Bros (Université de Limoges), on the complexity of solving polynomial systems related to the security of rank-metric cryptosystems. Co-supervision (80%) with Philippe Gaborit (Université de Limoges).
- SEPT. 10–NOV. 30, 2018: Bachelor student Seung Gyu Hyun (University of Waterloo, ON, Canada), in the context of a Mitacs Globalink Research Award project about the implementation of efficient algorithms for some families of algebraic relations.
- MAR. 10–AUG. 10, 2018: Master student Grace Younes (Université de Versailles Saint-Quentin-en-Yvelines), on the efficient computation of multivariate algebraic relations. Co-supervision (50%) with Simone Naldi (University of Limoges).
- JAN. 2–JUNE 2, 2017: Master student Grigory Solomatov (Technical University of Denmark), on the computation of canonical forms for rectangular polynomial matrices. Co-supervision (50%) with Johan Rosenkilde (Technical University of Denmark). Location: Technical University of Denmark. For his thesis and defense, Grigory Solomatov obtained the maximal grade on the Danish grading scale; this work has led to an article published in the proceedings of ISSAC 2018.
- MAY 16–JULY 29, 2016: Master’s student Vu Thi Xuan (École Normale Supérieure de Lyon), in a three-month research internship on the computation of kernel bases of polynomial matrices. Co-supervision (75%) with Claude-Pierre Jeannerod (Inria). Location: LIP, École Normale Supérieure de Lyon. This work has led to an article published in the proceedings of ISSAC 2017, for which Vu Thi Xuan received the *SIGSAM ISSAC Distinguished Student Author Award* (<https://www.sigsam.org/Awards/ISSACawards.html>).

## INTERNATIONAL MOBILITY

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JUNE 10–JULY 7, 2019	Visiting scholar at the Technical University of Denmark. Collaboration with Johan Rosenkilde and Grigory Solomatov (DTU Compute, Algebra Group).
JUNE 10–JULY 7, 2019	Visiting scholar at University of Waterloo, Waterloo ON, Canada. Collaboration with George Labahn and Éric Schost (Symbolic Computation Group).
JUNE 25–JULY 31, 2018	Visiting scholar at University of Waterloo, Waterloo ON, Canada. Collaboration with Seung Gyu Hyun, George Labahn, and Éric Schost (Symbolic Computation Group).
DEC. 2016–AUG. 2017	Postdoctoral research at the Technical University of Denmark (Lyngby, Denmark).
AUG. 2015 – JAN. 2016	Research stay at University of Waterloo (ON, Canada) and participation in all workshops and weekly activities of the Fields Institute Thematic Program for Computer Algebra held in Toronto (ON, Canada) from July 1, 2015 to December 31, 2015. Related funding: <ul style="list-style-type: none"><li>– <i>Fields Institute travel support</i>, 2,000.00\$.</li><li>– <i>Mitacs Globalink Research Award – Inria</i>, 5,000.00\$ and flight France-Canada.</li><li>– <i>Programme Avenir Lyon – Saint-Étienne</i> scholarship, 4,500.00€.</li><li>– <i>Explo’RA Doc</i> scholarship from <i>Région Rhône-Alpes</i>, 4,260.00€.</li></ul>
AUG. 2014 – JAN. 2015	Research stay at Western University, London ON, Canada. Related funding: <i>Explo’RA Doc</i> scholarship from <i>Région Rhône-Alpes</i> , 4,260.00€.
SEP. 2013 – DEC. 2013	Research stay at Western University, London ON, Canada.

## SOFTWARE AND LIBRARIES

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- Contributions to the SageMath open-source mathematics software (<http://www.sagemath.org/>), in collaboration with Seung Gyu Hyun, Romain Lebreton, and Johan Rosenkilde, aiming at providing a complete set of tools for univariate polynomial matrix computations, with a view towards applications in coding theory and cryptography. The SageMath documentation page at [this link](#) describes the tools that we have integrated up to this day.
- Contributions to the C++ libraries LinBox and FFLAS-FFPACK for efficient implementations of linear algebra operations (<https://github.com/linbox-team/>).
- Co-author, in collaboration with Seung Gyu Hyun and Éric Schost, of the *Polynomial Matrix Library* (PML, <https://github.com/vneiger/pml/>), writing in C++ and based on Victor Shoup's NTL. PML offers efficient implementations of many algorithms for univariate polynomial matrices over finite fields, with the best-known performance at the time of writing. This library was described in an article published in ISSAC 2019 proceedings (see above).

## RESEARCH ACTIVITIES AND FUNDING

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- Member of the Program Committee for ISSAC 2021 (<http://www.issac-conference.org/2021/>).
- Project CNRS-INS2I PEPS JCJC 2018 (6k€). ARCADIE: fast algorithms and efficient implementations for algebraic computations arising in the decoding of error correcting codes. <http://archives.cnrs.fr/ins2i/article/2853>
- Co-organizer of the session *Algorithms for zero-dimensional ideals* at the conference Applications of Computer Algebra (Santiago de Compostela, Spain, June 18–22, 2018). [https://www.unilim.fr/pages\\_perso/vincent.neiger/aca18/](https://www.unilim.fr/pages_perso/vincent.neiger/aca18/)
- Co-organizer of the conference *Structured Matrix Days 2018* held in Lyon, May 14–15, 2018. <https://indico.math.cnrs.fr/event/2828/>
- President of the poster selection committee for the conference ISSAC 2017 (International Symposium on Symbolic and Algebraic Computation), which is the leading conference in the field of computer algebra.
- Reviewer for research articles:

	journal or conference title	number of reviews
	<i>international journals</i>	
AAECC (Applicable Algebra in Engineering, Communication and Computing)		1
	IEEE Transactions on Communications	3
	Journal of Complexity	1
	Journal of Symbolic Computation	8
	Theoretical Computer Science	1
	<i>international conferences with proceedings</i>	
	CASC (Computer Algebra in Scientific Computing)	1
	ISIT (IEEE International Symposium on Information Theory)	1
	MACIS (Mathematical Aspects of Computer and Information Sciences)	1
	ISSAC (International Symposium on Symbolic and Algebraic Computation)	6
	SODA (Symposium On Discrete Algorithms)	1

## TEACHING

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*Note:* the numbers of hours account for lectures and tutorials, excluding for example the time spent on course preparation, exam grading, proctoring, etc. All listed courses from September 2017 on took place at University of Limoges, France; half of my teaching duty is in the Departement of Computer Science (Dept. Comp. Sci.) and the other half is in the Departement of Information and Communication Technologies (Dept. ICT).

- 2018–current* | Chair of the *DEUST Webmaster et Métiers de l'Internet* (Dept. ICT).  
<https://www.sciences.unilim.fr/tic/deust-webmaster-metiers-internet/>
- Spring 2021* | Scientific computation and parallelization (Dept. Comp. Sci., *17.5 hours*)  
Co-instructor, with Benoît Crespin, of this course intended for fourth-year students in Computer Science.
- Spring 2021* | Operating systems (Dept. Comp. Sci., *67.5 hours*)  
Main instructor for this course on operating systems for students in their third year in Computer Science. Lectures, tutorials, and lab sessions.
- Spring 2021* | Unix programming (Dept. Comp. Sci., *20 hours*)  
Teaching assistant in this course on Unix programming for students in their second year in Computer Science. Lectures, tutorials, and lab sessions.
- Spring 2021* | Introduction to computer science II. (Dept. Comp. Sci., *52.5 hours*)  
Main instructor for this course on the fundamentals of programming and algorithms, for first year students in Computer Science.
- Fall 2020* | Database management (Dept. ICT, *60 hours*)  
Main instructor of this course which was taught online. Students: first year in DEUST Webmaster & Internet expertise. This course gives an introduction to the design and management of databases. Implementations were done with the language SQL.
- Fall 2020* | Dynamic web pages and Databases (Dept. ICT, *27 hours*)  
Main instructors for this course, which was taught online and intended for second year students in DEUST Webmaster & Internet expertise. This course gives an introduction to dynamic web pages (with the language PHP) and to databases (with the language SQL).
- Spring 2020* | Supervision of internships in a professional environment (Dept. ITC, *12 hours*)  
Academic advisor for the internships of 6 students towards their diploma for the program “DEUST Webmaster & Métiers de l'Internet”, focusing on web development and integration.
- Spring 2020* | Operating systems (Dept. Comp. Sci., *46.5 hours*)  
Main instructor for this course, see description above.
- Spring 2020* | Unix programming (Dept. Comp. Sci., *20 hours*)  
Teaching assistant in this course, see description above.
- Spring 2020* | Introduction to computer science II. (Dept. Comp. Sci., *31.5 hours*)  
Main instructor of this course, see description above.
- Fall 2019* | Database management (Dept. ICT, *59 hours*)  
Main instructor of this course, see description above.
- Fall 2019* | Dynamic web pages and Databases (Dept. ICT, *34 hours*)  
Main instructor for this course, see description above.

- Spring 2019* | Supervision of internships in a professional environment (Dept. ITC, *6 hours*)  
Academic advisor for the internships of 3 students towards their diploma for the program “DEUST Webmaster & Métiers de l’Internet”, focusing on web development and integration.
- Spring 2019* | Operating systems (Dept. Comp. Sci., *34.5 hours*)  
Main instructor for this course, see description above.
- Spring 2019* | Unix programming (Dept. Comp. Sci., *31.5 hours*)  
Main instructor for this course, see description above.
- Spring 2019* | Algorithms and programming. (Dept. Comp. Sci., *15 hours*)  
Lab sessions for this course on the fundamentals of programming and algorithms, for first year students in Computer Science.
- Fall 2018* | Capstone course in Computer Science and Algorithms (ESPE de Limoges, *12 hours*)  
New course, co-created with Tristan Vaccon. Intended for students who are preparing the French competitive exam *CAPES* in Mathematics, and are in their first year of a Master’s degree on Teacher and Education jobs.
- Fall 2018* | Database management (Dept. ICT, *71 hours*)  
Main instructor for this course, see description above.
- Fall 2018* | Dynamic web pages and Databases (Dept. ICT, *42 hours*)  
Instructor for this course, see description above.
- Spring 2018* | Operating systems (Dept. Comp. Sci., *37 hours*)  
Main instructor for this course, see description above.
- Fall 2017* | Database management (Dept. ICT, *37 hours*)  
Main instructor of this course, see description above.
- Fall 2017* | Informatique 1 (Dept. Comp. Sci., *27 hours*)  
Teaching assistant for this course intended for first year students in Computer Science. Introduction to algorithms, lab sessions.
- Fall 2017* | Dynamic web pages and Databases (Dept. ICT) (*27 hours*)  
Instructor for this course, see description above.
- Spring 2016* | Functional and recursive algorithms and programming (*27 hours*)  
At *Université Claude-Bernard Lyon 1, France*. Instructor: Florence Zara. Students: first year in Computer Science. Notions: function, recursiveness, alternative, memorization, deep recursiveness, higher order programming; data structures: lists, trees; algorithms: traversing a list, sorting a list, traversing a tree; propositional logic: and, or, negation; truth tables, transformation rules, Boolean algebra; simplifying boolean functions: Quine-McCluskey algorithm, Karnaugh maps.
- Spring 2016* | Hardware and software architecture (*18 hours*)  
At *Université Claude-Bernard Lyon 1, France*. Instructor: Nicolas Louvet, Laure Gonnord. Students: second year in Computer Science. The goal of this course is to present the fundamental principles behind how computers work, both on the level of hardware and of the lowest layers of the operating system. We will first study the basic blocks (logic circuits, microprocessors, buses, memory), then the notions of architecture and of instruction set, to finally move up to the assembly language. Thus, the goal is to gain knowledge about notions that will later allow studying operating systems and compilation, and also to better understand the problems related to software performance.
- Spring 2016* | Cryptography and Security (*20 hours*)  
*Please see the description below (Spring 2015).*

- Spring 2015* | Cryptography and Security (24 hours)  
 At *ENS de Lyon, France*. Instructors: Benoît Libert and Damien Stehlé. This course is an introduction to the different facets of modern cryptography, intended for graduate students in computer science. The following topics will be addressed: symmetric encryption, asymmetric encryption, cryptographic hashing, authentication, pseudo-random number generators, zero-knowledge proofs, public-key infrastructure, cryptanalysis, provable security, secret sharing. We will also describe several practical applications, such as PGP, TLS/SSL and electronic voting.
- Spring 2015* | Introduction to Probability theory (32 hours)  
 Please see the description below (Spring 2014).
- Fall 2014* | CS 1037a — Computer Science Fundamentals II (C++) (40 hours)  
 At *Western University, London ON, Canada*. Instructor: Ali Bou Nassif. This course is intended for students in the Faculty of Engineering. Emphasis is placed on arrays, pointers, vectors and object oriented programming such as classes, data encapsulation, inheritance and polymorphism. Data structure types such as linked lists, stacks and queues will be introduced. The main language of this course is C++.
- Spring 2014* | Computer algebra (24 hours)  
 At *ENS de Lyon, France*. Instructors: Guillaume Hanrot and Jean-Michel Muller. This course is intended for graduate students in Computer Science. The following topics were addressed: fast Fourier transform, Schönhage-Strassen algorithm, polynomial multi-point evaluation, fast interpolation, Newton iteration, fast division of polynomials, fast extended GCD algorithm, Gaussian elimination, polynomial evaluation in floating-point arithmetic.
- Spring 2014* | Introduction to Probability theory (32 hours)  
 At *ENS de Lyon, France*. Instructor: Pascal Koiran. This course is intended for students in their last year towards a Bachelor's degree in theoretical computer science. It is an in-depth introduction to the concepts of probability theory illustrated with many examples of applications in computer science and discrete mathematics (probabilistic algorithms, average-case analysis, probabilistic methods in combinatorics...).
- Fall 2013* | CS 1037a — Computer Science Fundamentals II (C++) (40 hours)  
 At *Western University, London ON, Canada*. Instructor: Yuri Boykov. This course is intended for students in the Faculty of Engineering. Emphasis is placed on data structures (lists, queues, trees), basic algorithms (searching, sorting) and their analysis. Students will learn both how to use and how to implement data structures in C++, leveraging powerful language concepts (templates, classes) where appropriate.
- 2011–2012* | Mathematics oral exams (52 hours)  
 “Khôlles de mathématiques” for first year students at *Lycée la Martinière-Monplaisir, Lyon, France*.
- 2010–2011* | Introduction to Algorithms (48 hours)  
 Practical Matlab sessions that served as an introduction to Computer Science for first-year students at *Lycée la Martinière-Monplaisir, Lyon, France*.



## TALKS — INTERNATIONAL CONFERENCES

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- JUL. 2020 *A divide-and-conquer algorithm for computing Gröbner bases of syzygies in finite dimension (25mn)*. ISSAC 2020, Kalamata, Greece (held online). <http://www.issac-conference.org/2020/>
- JUL. 2019 *Exploiting fast linear algebra in the computation of multivariate relations (30mn)*. SIAM Conference on Applied Algebraic Geometry (AG19), minisymposium on algebraic methods for polynomial system solving, University of Bern, Switzerland. <https://mathsites.unibe.ch/siamag19/>
- JUL. 2018 *Computing Popov and Hermite forms of rectangular matrices (25mn)*. ISSAC 2018, CUNY Graduate Center, New York, USA. <http://www.issac-conference.org/2018/>
- JUL. 2017 *Fast computation of roots of polynomials over the ring of power series (25mn)*. ISSAC 2017, University of Kaiserslautern, Germany. <http://www.issac-conference.org/2017/>
- JUL. 2016 *Fast computation of shifted Popov forms of polynomial matrices via systems of modular polynomial equations (30mn)*. ISSAC 2016, Waterloo ON, Canada. <http://www.issac-conference.org/2016/>
- JUL. 2016 *Fast computation of minimal interpolation bases in Popov form for arbitrary shifts (30mn)*. ISSAC 2016, Waterloo ON, Canada. <http://www.issac-conference.org/2016/>
- OCT. 2015 *Fast computation of minimal interpolation bases in Popov form for arbitrary weights (1h)*. Thematic Program on Computer Algebra – Workshop on Linear Computer Algebra and Symbolic-Numeric Computation. Fields Institute, Toronto ON, Canada. <http://www.fields.utoronto.ca/programs/scientific/15-16/computeralgebra/>
- AUG. 2013 *On the complexity of multivariate interpolation with multiplicities and of simultaneous polynomial approximations (30mn)*. SIAM Conference on Applied Algebraic Geometry (AG13), Fort Collins, Colorado, USA. <http://www.siam.org/meetings/ag13/>
- NOV. 2012 *On the structure of changes in dynamic contact networks (30mn)*. SITIS, Workshop on Complex Networks and Applications, Sorrento, Italy. <http://sitis.u-bourgogne.fr/12/index.html>
- OCT. 2012 *On the complexity of multivariate interpolation with multiplicities and of simultaneous polynomial approximations (30mn)*. Asian Symposium on Computer Mathematics (ASCM 2012), Beijing, China. <http://www.mmrc.iss.ac.cn/ascm/ascm2012/>

## TALKS — NATIONAL CONFERENCES AND SEMINARS

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- 2020 *Generic bivariate multi-point evaluation, interpolation and modular composition with precomputation (1h)*.
- DEC. 2020 ORCCA Joint Lab Meeting, Western U. and U. Waterloo, Canada.
  - NOV. 2020 PolSys Seminar, LIP6 – Sorbonne Université, France. <https://www.polsys.lip6.fr/~safey/seminar.html>
  - OCT. 2020 Mathis Computer Algebra Seminar, XLIM, Université de Limoges, France. <https://indico.math.cnrs.fr/event/6050/>
- MAY 2019 *Exploiting fast linear algebra in the computation of multivariate relations (30mn)*. Structured Matrix Days, University of Limoges, France. <https://indico.math.cnrs.fr/event/4326/>
- 2019 *On the complexity of modular composition of generic polynomials (1h)*.
- NOV. 2019 PolSys Seminar, LIP6 – Sorbonne Université, France.
  - JUNE 2019 Symbolic Computation Group Seminar, U. Waterloo, Canada.
  - MAY 2019 AriC team seminar, LIP, ENS de Lyon, France. <http://www.ens-lyon.fr/LIP/AriC/seminar>
  - APR. 2019 CASYS team seminar, LJK Grenoble, France. <http://www-ljk.imag.fr/Seminars/1554819911214.html>
  - MAR. 2019 GRACE team seminar, Inria Saclay, France. <https://team.inria.fr/grace/seminar/>
  - MAR. 2019 Seminar Mathis (computer algebra team), XLIM, Université de Limoges, France. <https://indico.math.cnrs.fr/event/4388/>
  - FEB. 2019 Eco team seminar, LIRMM, Montpellier, France. <https://www.lirmm.fr/eco/seminar.php>

- JUL. 2018 *Computing Popov and Hermite forms of rectangular matrices (25mn).*  
Symbolic Computation Group seminar, University of Waterloo, Canada.
- JUNE 2018 *Efficient algorithms for algebraic relations (1h).*  
Computer Algebra team seminar, University of Limoges, France.  
<https://indico.math.cnrs.fr/event/3521/>
- 2017 *Efficient algorithms for computing univariate relations (1h).*  
  - OCT. 2017 Séminaire de Géométrie et Algèbre Effectives, IRMAR, Université de Rennes 1, France.  
<https://irmar.univ-rennes1.fr/seminaire-de-geometrie-et-algebre-effectives>
  - MAR. 2017 Seminar of the Section for Mathematics, Technical University of Denmark.  
<http://www.compute.dtu.dk/english/research/mathematics>
  - MAR. 2017 Seminar Mathis (computer algebra team), XLIM, Université de Limoges, France.  
<https://indico.math.cnrs.fr/event/2186/>
- NOV. 2016 *Bases of relations in one or several variables: fast algorithms and applications (45mn).*  
PhD thesis defense, ENS de Lyon, France.
- NOV. 2016 *Fast computation of normal forms of polynomial matrices (1h).*  
  - Caramba team seminar, Inria Lorraine, France. <http://caramba.inria.fr/seminars.en.html>
  - SpecFun team seminar, Inria Saclay, France. <https://specfun.inria.fr/seminar/>
  - Casys-Mef seminar, LJK, Grenoble, France. <http://ljk.imag.fr/Seminars/>
- JUN. 2016 *Fast computation of shifted normal forms of polynomial matrices using polynomial approximation (30mn).*  
RAIM 2016, Banyuls-sur-mer, France. <http://raim2016.sciencesconf.org/>
- MAR. 2016 *Fast Coppersmith method over the polynomials: finding a reduced basis via approximation (2h).*  
Meeting on lattices and cryptography, ENS de Lyon, France.  
[http://perso.ens-lyon.fr/damien.stehle/LATTICE\\_MEETINGS.html](http://perso.ens-lyon.fr/damien.stehle/LATTICE_MEETINGS.html)
- MAR. 2016 *Fast computation of minimal interpolation bases in Popov form for arbitrary shifts (1h).*  
Eco team seminar, LIRMM, Montpellier, France.  
<https://www.lirmm.fr/eco/seminar.php>
- FEB. 2016 *Fast computation of shifted Popov forms of polynomial matrices via systems of modular polynomial equations, and fast computation of minimal interpolation bases for arbitrary shifts (20mn).*  
Aric team seminar, ENS de Lyon, France.  
<http://www.ens-lyon.fr/LIP/AriC/seminar>
- NOV. 2015 *Computing minimal interpolation bases (30mn).*  
Journées nationales de calcul formel, Cluny, France.  
<http://www.lifl.fr/jncf2015/>
- OCT. 2015 *Computing minimal interpolation bases (1h).*  
Thematic Program on Computer Algebra – Special lecture series. Fields Institute, Toronto, Canada. <http://www.fields.utoronto.ca/programs/scientific/15-16/computeralgebra/>
- JUL. 2015 *Fast algorithms for multivariate interpolation problems (1h).*  
PolSys seminar, Laboratoire d'Informatique de Paris 6, Paris, France.  
<http://www-polsys.lip6.fr/Seminar/>
- NOV. 2014 *List-decoding Reed-Solomon codes: re-encoding techniques and Wu algorithm via simultaneous polynomial approximations (30mn).*  
Journées Nationales de Calcul Formel, Luminy, France. <http://www.lifl.fr/jncf2014/>
- JULY 2014 *Faster algorithms for list-decoding Reed-Solomon codes via simultaneous polynomial approximations (1h).*  
Aric seminar, ENS de Lyon, France.
- MAY 2014 *Faster algorithms for list-decoding Reed-Solomon codes using structured matrix computations (1h).*  
Structured Matrix Days (invited speaker). Université de Limoges, France.  
[http://www.unilim.fr/pages\\_perso/paola.boito/SMD/structured\\_matrix\\_days\\_2014.html](http://www.unilim.fr/pages_perso/paola.boito/SMD/structured_matrix_days_2014.html)
- OCT. 2012 *On the complexity of multivariate interpolation with multiplicities and of simultaneous polynomial approximations (30mn).*  
Aric Tuesday seminar, ENS de Lyon, France.