



RESEARCH CENTER
Nancy - Grand Est

FIELD

Activity Report 2015

Section Popularization

Edition: 2016-03-21

ALGORITHMICS, PROGRAMMING, SOFTWARE AND ARCHITECTURE

1. CAMUS Team	4
2. CAMEL Project-Team	5
3. CARTE Project-Team	6
4. CASSIS Project-Team	7
5. VEGAS Project-Team	8
6. VERIDIS Project-Team	9

APPLIED MATHEMATICS, COMPUTATION AND SIMULATION

7. SPHINX Team	10
8. TOSCA Project-Team	11

DIGITAL HEALTH, BIOLOGY AND EARTH

9. BIGS Project-Team	12
10. CAPSID Project-Team	13
11. MIMESIS Team	14
12. NEUROSYS Project-Team	17
13. TONUS Team	18

NETWORKS, SYSTEMS AND SERVICES, DISTRIBUTED COMPUTING

14. COAST Project-Team	19
15. MADYNES Project-Team	20

PERCEPTION, COGNITION AND INTERACTION

16. ALICE Project-Team	21
17. LARSEN Team	22
18. MAGRIT Project-Team	23
19. MULTISPEECH Project-Team	24
20. ORPAILLEUR Project-Team (section vide)	25
21. SEMAGRAMME Project-Team	26

CAMUS Team

10.3. Popularization

Jens Gustedt is regularly blogging about efficient programming, in particular about the **C programming language**. He also is an active member of the **stackoverflow community** a technical Q&A site for programming and related subjects. A book about **modern C** is in preparation.

Cédric Bastoul presented lectures and activities at the *Kids University* event at the University of Strasbourg in November 2015

Cédric Bastoul prepared activities for *Fête de la Science* at University of Paris-Sud in October 2015

CAMEL Project-Team

10.3. Popularization

- Jérémie Detrey gave a presentation on the Enigma machine and its cryptanalysis to high-school teachers as part as the *journée EPI-ISN*.
- Laurent Grémy has given in April an introductory course about the Diffie-Hellman protocol for high school students during a discovery day of the Université de Lorraine.
- Pierre-Jean Spaenlehauer has participated in a session “activités débranchées” organized by Marie Duflot-Kremer (MCF Univ. Lorraine) during the event MathC2+ which was held in CRI Nancy – Grand Est. The aim of this session was to provide junior high school students with an initiation to computer science through a set of algorithmic games.
- Pierre-Jean Spaenlehauer has animated a stand in the “Village des Sciences du Loria” in April 2015.

CARTE Project-Team

9.3. Popularization

- Isabelle Gnaedig is member of the scientific vulgarization committee of Inria Nancy - Grand Est. This committee is a choice and guidance instance helping the direction of the center and the person in charge of popularization events to elaborate a strategy, to realize events and to help researchers to get involved in various actions aiming at popularizing our research themes, and more generally computer science and mathematics.
- Mathieu Hoyrup wrote an article on his recent work for Images des Mathématiques.

CASSIS Project-Team

10.3. Popularization

- Vote électronique : un scrutin à sécuriser. Véronique Cortier. *La Recherche*, 504:70-73, October 2015.
- Blog entries for Blog Binaire (*Le Monde*): Attaque à l'italienne (Véronique Cortier), Les bonnes propriétés d'un système de vote électronique (Véronique Cortier and Steve Kremer), Le vote papier est-il réellement plus sûr que l'électronique ? (Véronique Cortier), Qu'est-ce qu'un bon système de vote ? (Véronique Cortier).
- Pour vivre heureux, vivons anonymes. Abdessamad Imine. *MAIF Magazine*, Novembre 2015.

VEGAS Project-Team

8.3. Popularization

Guillaume Moroz is a member of the organizing committee of the *Olympiades académiques de mathématiques*.

VERIDIS Project-Team

10.3. Popularization

Marie Duflot-Kremer took part in various popularization activities, with a public ranging from primary school kids to high school and potential University students. A selection of these activities is given below:

- two days at “Fête de la science” in Nancy;
- a course on databases for high school professors in charge of teaching optional course ISN (Informatique et Sciences du Numérique);
- her explanations of unplugged activities have been recorded by Inria, and a Youtube channel has been created by the Interstice team to promote and share such activities;
- she is a member of two groups dedicated to the training of math teachers who will teach computer science to students of age 11 to 18;
- “Journée femmes de Sciences”: one day dedicated to the promotion of science among 14 years old girls;
- she is a member of the steering committee preparing an itinerant exposition intended for explaining computer science to the public, to be released in 2016;
- she presented a poster at the Scratch2015 conference about teaching computer programming to kids from the age of 8 years onward.

Pascal Fontaine and Stephan Merz illustrated techniques that underly formal verification of protocols and algorithms at events like “Fête de la Science”. Using wooden puzzles and Sudoku sheets, they explained how real-life problems can be represented in logical form and then solved using automated tools based on formal logic.

Martin Quinson organized a 2-days workshop for secondary math teachers on how algorithms could be used to reinforce the abilities of pupils to verbalize, set out arguments and conduct rigorous demonstrations (Nancy, March 2-3 2015). This workshop was co-organized by the IREM (Institut de Recherche en Enseignement des Mathématiques) of Nancy. He also co-organized a one day workshop for about 100 secondary computer science teachers. This event spreads the best practices to teach our topic (Nancy, March 12th 2015). Martin Quinson was a scientific expert in an experiment in which we explored how Scratch can be used to teach Computer Science in after school activities every week for the whole week. The results of this experiment, conducted in a collaboration between Inria and the MJC Nomade (Nancy) were published in [35].

Christoph Weidenbach lectured within the series “Perspektiven der Informatik” at Saarland University and within the public lecture series of the federal state of Saarland.

SPHINX Team

10.3. Popularization

Karim Ramdani is interested in economic models of scientific publishing. He has given several talks to raise awareness of researchers on the risks of author-pays publication model.

TOSCA Project-Team

10.3. Popularization

- M. Deaconu gave an interview for a paper in Eureka Lorraine. URL : <http://eureka.lorraine.eu/jahia/Jahia/pid/1968?actu=23647>

BIGS Project-Team

10.3. Popularization

- A. Gégout-Petit: manager of the project "ZOOM des métiers des mathématiques et de l'informatique" brochure and videos about 22 professionals in mathematics and computer science in order to promote these two domains with young people. <http://metiers-mathsinfo.fr/>
- S. Ferrigno: Advisor of a group of students, "La main à la Pâte" project, elementary schools, Nancy, January-June 2015
- S. Ferrigno: Advisor of a group of students, "La main à la Pâte" project, Institut médico-éducatif (IME), Commercy, September-December 2015
- R. Azaïs: Animation of a workshop "MATH.en.JEANS", Collège George Chepfer, Villers-lès-Nancy
- P. Vallois: popularizing talk at MJC de Toul

CAPSID Project-Team

9.3. Popularization

An article on our KBDOCK software has been accepted for publication in ERCIM News (edition 104, January 2016) [18].

MIMESIS Team

9.3. Popularization

9.3.1. IHU Scientific Days

At the occasion of the 4 IHU Scientific days in 2015, the MIMESIS took part and organized several meetings, presentation and discussions around simulation in medicine.

9.3.2. *Journée Française de Radiologie, JFR*

The MIMESIS team was part of the JFR 2015 event in Paris on the 16 and 17th October 2015. Hugo Talbot presented the work and the projects achieved by the team.



Figure 17. Our booth in the RII Health 2015 in Bordeaux

9.3.3. *Rencontre Inria Industrie, RII*

Hugo Talbot presented the SOFA framework and our current work during the "Rencontre Inria Industrie" 2015 which took place in Bordeaux. We had many nice discussions and feedback about SOFA.

9.3.4. *Journée Alsacienne d'Ophtalmologie, JAO*

In collaboration with the ophthalmologist Pr. Gauchet, several members of the team (Rémi Bessard, Bruno Marques and Stéphane Cotin) participated at the JAO (Journée Alsacienne d'Ophtalmologie) on the 28th and 29th of November 2015. They presented our prototype simulator for retinal surgery.

9.3.5. *Talk at Université Paris Descartes*

On the 4th of December, Stéphane Cotin was invited as a speaker to the BME seminar at University Paris Descartes. His talk was entitiled "patient safety through real-time numerical simulation".

9.3.6. *Talk at MEDinISRAEL*

Stéphane Cotin and Hadrien Courtecuisse were invited at the MedinISRAEL 2015 conference which took place in Tel Aviv. This event was the opportunity for the team to present our work to the community. Moreover, the university from Tel-Aviv strongly supports new collaborations with French laboratory.

9.3.7. *Science & You*

In Nancy, Science & You opened its doors on the 2nd of June. The MIMESIS team participated on June 5th and 6th to present some of our simulations. This was a great success and a large audience came to our booth.



Figure 18. Rémi Bessard presenting our simulation at JAO 2015



Figure 19. Presentation of Stéphane Cotin at MEDinISRAEL 2015

9.3.8. Pitch at B.E.S.T. Symposium

B.E.S.T. (Business Engineering and Surgical Technologies) is an original education program proposed by the IHU Strasbourg dedicated to undergraduate, graduate and postgraduate students in medicine, engineering and management. In the context of the B.E.S.T. Symposium, Hugo Talbot presented a concept of start-up about medical training based on simulation which any student could afford. Rosalie Plantefevé also attended the B.E.S.T. Symposium.

NEUROSYS Project-Team

10.3. Popularization

- Talks at Science and You: atelier scolaire “Femmes et sciences : une équation facile à résoudre !” – June 5th 2015 (L. Buhry)
- Talk during the National Brain week: Brain, Consciousness and Anesthesia, March 24th 2015, central hospital, Nancy (D. Schwartz, A. Hutt, L. Bougrain)
- Exhibit at Loria’s open day for master students: controlling a robotic arm using EEG, April 9th, 2015 (L. Bougrain, B. le Golvan)

TONUS Team

10.3. Popularization

Philippe Helluy participated to the redaction of an ONISEP brochure about the jobs related to Mathematics or computer sciences <http://www.onisep.fr/Toute-l-actualite-nationale/Decouvrir-les-metiers/Mars-2015/Zoom-sur-les-metiers-des-mathematiques-et-de-l-informatique>

Michel Mehrenberger is in the IREM ("Instituts de recherche sur l'enseignement des mathématiques") team "Modélisation" for the year 2015-2016.

COAST Project-Team

8.3. Popularization

- In 2015, Claudia-Lavinia Ignat participated at “Le Village des Sciences” at Loria.
- François Charoy has been invited to participate to a panel at Grand Est Numérique 3

MADYNES Project-Team

10.3. Popularization

Thomas Silverston gave an interview with a subject on smart cities for the program *Mov'Futur* on the *Le Mouv'* radio (December 2015).

ALICE Project-Team

9.3. Popularization

Bruno Lévy gave a talk in front of the general public in the context of the conference cycle *Sciences et Société*, entitled *Simuler la physique avec un ordinateur* on 12/10/2015.

Sylvain Lefebvre demonstrated IceSL at the Science Festival using a custom designed 3D printer. He jointly organized with the Nancy Makerspace (fablab) an event to present IceSL to the fablab users on October 22, 2015 <http://nybi.cc/2015/10/workshop-icesl/>.

LARSEN Team

10.3. Popularization

- Amine Boumaza coached a team of programmers that participated in the R2T2 (Remote Rescue using Thymio2) Robot challenge organized by EPFL. The challenge brought together 100 children from 5 countries to save a Martian base using a group of robots (<https://www.thymio.org/en:thymio-r2t2>).
- Serena Ivaldi was portrayed in the book “Le cerveau fait-il deux choses à la fois ?” by Fiamma Luzzatti.
- Jean-Baptiste Mouret gave a talk on “Robots that can adapt to damage in minutes” at Café Neu Romance, Prague (28th of November, 2015)
- Vincent Thomas gave a talk and proposed a tutorial on “physics simulation” during “journées ISN-EPI” (15th of Mars, 2015)
- Vincent Thomas made a presentation about planning for students of Lycée Bichat-Lunéville (19th of Mars, 2015)
- Vincent Thomas participated in “journées Village Master” (9th of April, 2015)
- Vincent Thomas participated in the preparation of “Computer Science Exporoute” (conducted by Inria Nancy - Grand Est) planned for 2016
- Vincent Thomas created the exposition “jeux ateliers de la pensée” (http://ticri.univ-lorraine.fr/wicri-lor.fr/index.php/Exposition_Jeu) in 2013 with master students from cognitive sciences. This exposition is still presented in several *Bibliothèques Universitaires of Université de Lorraine (BU Brabois, BU St Dié)*.

MAGRIT Project-Team

9.3. Popularization

Members of the team participate on a regular basis, to scientific awareness and mediation actions.

- Gilles Simon attended a forum on digital technologies in Lorraine (GEN#3) and gave a talk about the role of augmented reality in the industry 4.0.
- Erwan Kerrien is Chargé de Mission for scientific mediation at Inria Nancy-Grand Est. As such, he is a member of the steering committee of "la Maison pour la Science de Lorraine"⁰, and member of the IREM⁰ steering council. He also serves as the academic referent of an IREM working group aiming at introducing computer science in secondary and high school curricula. Among other activities, he was also an associate researcher to a MATH.en.JEANS workshop.

⁰"Houses for Science" project, see <http://maisons-pour-la-science.org/en>

⁰Institut de Recherche sur l'Enseignement des Mathématiques - *Research Institute for Teaching Mathematics*

MULTISPEECH Project-Team

10.3. Popularization

- Demonstration at Forum des métiers, Collège Peguy, Le Chesnay, March 2015 (A. Piquard-Kipffer).
- Demonstration at Village Sciences LORIA, April 2015 (S. Ouni, J. Di Martino).
- Demonstration at Science & You, Nancy, June 2015 (K. Deguernel, E. Vincent).
- Demonstration to students of the Master Erasmus Mundu Program DESEM, Inria, July 2015 (Y. Laprie).
- Demonstration at Fête de la Science, Artem, October 2015 (A. Liutkus, N. Souviraà-Labastie, E. Vincent).
- Demonstration to students of ENS Cachan, Inria, December 2015 (S. Ouni, E. Vincent).
- Les troubles Dys : la dyslexie-dysorthographe. Conf'curieuses, Museum & Aquarium of Nancy, Grand Nancy & University of Lorraine. Nancy, January 15th 2015 (A. Piquard-Kipffer).
- “Séparation de sources audio”, Interstices, to appear (A. Liutkus and E. Vincent).
- “Loria : un articulographe pour étudier la production de la parole”, Eureka Lorraine, 21/10/2015 (S. Ouni).

ORPAILLEUR Project-Team (section vide)

SEMAGRAMME Project-Team

8.3. Popularization

- Maxime Amblard is member of the editorial board of *interstice* (a french revue popularisation for computer sciences (<http://interstices.info>)). He is the head of the rubric informatique -ou presque- dans les films and co-author of the series of article on where we could find computer science in real life.
- Maxime Amblard delivered an invited talk “Le langage, logique !” at the “Conférence Curieuse” of Univ. Lorraine, at the Nancy musée aquarium (September 17th 2015).
- Maxime Amblard delivered an invited talk “Le langage, logique !” at the Luxembourg University (October 15th 2015).
- Bruno Guillaume presentend the game ZombiLingo during the conference Science&You in Nancy (June).
- Nicolas Lefebvre demonstrated the prototype ZombiLingo and Jiří Maršík the ACGtk during the “Forum Sciences Cognitive” in Nancy (November).