



RESEARCH CENTER
Nancy - Grand Est

FIELD

Activity Report 2013

Section Popularization

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CAMUS Team

9.3. Popularization

- Cédric Bastoul participated to the *Rencontres Inria-Industrie* in June 2013
- Cédric Bastoul participated to *Fête de la Science* at University of Paris-Sud in October 2013

CAMEL Project-Team

9.3. Popularization

- Jérémie Detrey gave a presentation on the Enigma machine and its cryptanalysis to high-school teachers as part as the “journée EPI-ISN”.
- Pierrick Gaudry gave a presentation at the “journée de l’Association francophone des spécialistes de l’investigation numérique”.
- Marion Videau:
 - gave a talk for the awards ceremony of the *Olympiades de maths* in Lorraine.
 - gave a practical session of cryptography and information security for students from *lycées* taking part in an immersion day at the faculty.
 - participated to events on information about university studies for pupils and students (Clés de la réussite, Portes ouvertes de la faculté des sciences, Oriaction).
- Paul Zimmermann takes part in the “Maths-en-Jeans” program, with about 20 students in “troisième” at the Collège Pierre Brossolette in Réhon.

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.

This year, in particular, the center participated to organization of mathematics competitions and projects for high school students, to conferences for computer science high school teachers, to the “Fête de la Science”, to the "Moments d'invention" exhibition of the “Nancy Renaissance” event, and received several high school classes in various research teams of Inria Nancy Grand-Est. Details can be found at <https://iww.inria.fr/NanSciNum/#.UsGBEWtuKY8>.

CASSIS Project-Team

9.3. Popularization

Invited conference of Véronique Cortier at the conference “Sciences et Société”, Nancy, January 17th, 2013.

“Vote par internet”, popularization science paper on e-voting. In Interstices, January 2013. Véronique Cortier and Steve Kremer.

Fête de la Science 2013: Science popularization action during one week on a workshop “a cryptographic treasure hunting”. Véronique Cortier, David Galindo, Stéphane Glondu, Steve Kremer, Éric Le Morvan, Cyrille Wiedling.

Video gaming month at the “Fabrikà Science”, University of Franche-Comté, December 2013. Popularization of computer science using the topic of video games. Frédéric Dadeau.

PAREO Project-Team

8.3. Popularization

Participants: Jean-Christophe Bach, Pierre-Etienne Moreau.

Jean-Christophe Bach participated to scientific mediation by proposing several activities to demonstrate the *algorithmic thinking* at the core of the Computer Science without requiring any computer or even electric devices. These activities are the first part of the CSIRL (Computer Science In Real Life) project which aims to popularize computer science and to initiate children, school students and non-scientists into this domain. These activities were presented during the high school students welcome at LORIA and Inria - Nancy Grand Est, and also during APMEP⁰ days. Jean-Christophe Bach also took part to the “Fête de la science” in October.

Jean-Christophe Bach was also involved in popularization activities with Interstices⁰ by writing short debunking articles (“Idées reçues”) for non computer scientists about Church’s thesis and Turing’s work [15]. Other popularization articles are still under work.

Pierre-Etienne Moreau gave two lectures about “Robotics and Programming” in the ISN course (Informatique et Science du Numérique), in order to help professors of “classes de terminale” to teach this discipline.

Pierre-Etienne Moreau organized a three day course about “Algorithms, Programming and Databases” in order to help professors of “classes préparatoires aux grandes écoles” to teach this discipline.

⁰<http://www.apmep.asso.fr/>

⁰<http://interstices.info>

TRIO Team (section vide)

VEGAS Project-Team

7.3. Popularization

Guillaume Moroz: Member of the organizing committee of the *Olympiades académiques de mathématiques*.

VERIDIS Project-Team

9.3. Popularization

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

Marie Dufлот-Kremer presented exercise sessions for high school students on “conducting a police investigation using databases” and “discovering Turing machines with Lego bricks”. She is also a member of the steering committee preparing an itinerant exposition intended for explaining computer science to high-school students.

Thomas Sturm, Uwe Waldmann, and Christoph Weidenbach are involved in the “Computer Science Research Days” which take place every year. Gifted students from all over Germany can actively participate in current research themes within the Max Planck Institute for Informatics, the Computer Science Department of Saarland University and the German Research Center for Artificial Intelligence. The goal is to fill young people with enthusiasm for the subject of computer science as well as to discover and support the development of new talent.

CALVI Project-Team

9.3. Popularization

C. Caldini-Queiros wrote the popularization paper "Les schémas numériques : les mathématiques au service de la physique", published in "Presses universitaires de Franche-Comté", rewarded with Prix A'Doc de la jeune recherche en Franche-Comté 2013.

E. Frénod wrote the following popularization papers

- Mon littoral, c'est de la dynamique. Brève pour : 2013 - Mathématiques pour la planète Terre - <http://mpt2013.fr/mon-littoral-cest-de-la-dynamique/>.
- Aquaculture en milieux confinés : le cas de l'étang de Thau. Brève pour : 2013 Mathématiques pour la planète Terre. - <http://mpt2013.fr/aquaculture-en-milieux-confines-le-cas-de-letang-de-thau/>.
- Un exemple d'application des mathématiques à l'environnement littoral : La dynamique à long terme des dunes marines dans les zones soumises à la marée. Modélisation, Analyse, Homogénéisation et Simulation. Matapli (Smai), No 100, pp 129–140.

CORIDA Project-Team

7.3. Popularization

In December 2013, Karim Ramdani organized with Estelle Carciofi a **workshop dealing with issues related to scientific edition.**

TOSCA Project-Team

9.3. Popularization

- M. Bossy contributed as a Guest Blogger on the Mathematics of Planet Earth 2013 web site.
- D. Talay gave lectures to scholars in Nice.

CORTEX Team (section vide)

BIGS Project-Team (section vide)

MASAIE Project-Team (section vide)

NEUROSYS Team

8.3. Popularization

- Nancy Renaissance 2013 *Moments d'Invention* with stand and talk on conference (L. Bougrain).
- Fête de la Science à Nancy, October 2013 (L. Bougrain et A. Hutt).
- Science Slam Talk on *Sleep and Anaesthesia* at University of Frankfurt / Main, February 2013 (A. Hutt).

SHACRA Project-Team

9.3. Popularization

9.3.1. *Fête de la Science*

Christian Duriez has been involved as a *Wandering Researcher* in the Fête de la science (french event that promotes science).

9.3.2. *Exhibitions*

Christian Duriez and Mario Sanz Lopez have been involved in the design and development of scientific and technological demonstrators for the *Plateau* (e.g. Showroom) Inria at Euratechnologies and for *The Labo* at Inria test laboratory.

9.3.3. *Recontre Inria-Industrie 2013*

This was a public event taking place in Paris the 11th of June 2013. The new training system dedicated to electrocardiology and the recent deformable robot was presented.

9.3.4. *IHU Scientific Days*

At the occasion of the IHU Scientific days, we visited the IHU Strasbourg and several talks were done by members of the team: Alexandre Bilger, Stéphane Cotin, Jeremie Dequidt, Nazim Haouchine, Igor Peterlik, and Hugo Talbot.

9.3.5. *Intergovernmental seminar*

The intergovernmental seminar on digital sciences was held in february at the University of Cergy-Pontoise. Within this context, the team has exhibited a demonstration of a cataract surgery simulator which is dedicated to train surgeons to a new cost-effective cataract surgery procedure MSICS (*manual small incision cataract surgery*). This simulator was developed at Inria and has been transferred to the start-up InSimo.

ALGORILLE Project-Team

8.3. Popularization

Jens Gustedt is regularly blogging about efficient programming in particular the [C programming language](#). He also is an active member of the [stackoverflow community](#) a technical Q&A site for programming and related subjects.

L. Nussbaum currently serves as the (elected) Debian Project Leader since April 2013.

M. Quinson develops a pedagogic platform in collaboration with G. Oster (Score team of Inria Nancy Grand Est). This tool aims at providing an environment that is both appealing for the student, easy to use for the teacher, and efficient for the learning process. It is available from [its page](#).

M. Quinson is co-leading a working group on the teaching of computer science in the LORIA laboratory. He served both as a program chair and a local chair for a nation-wide two-days workshop gathering about hundred people involved in the introduction of computer science in the French secondary education: university lecturers in charge of teaching to the prospective CS teachers, regional heads of the Education minister accompanying this reform and producer of teaching resources. He also served both as a program chair and local chair for a regional gathering of CS teachers of the secondary wanting to exchange their good practices. This initiative, initiated in Nancy, will spread in several other French cities in 2014.

M. Quinson participated to several events toward the popularization of computer science (either as a speaker or as a co-organizer), targeting either kids and pupils (Telecom Nancy in November), students (Inria in March), maths teachers (APMEP Lorraine in March), CS teachers (SIF-ISN day in June), or all public (Fête de la science in November).

M. Quinson serves on the editorial board of the Interstices website of Inria for the popularization of computer science.

MADYNES Project-Team (section vide)

SCORE Team (section vide)

ALICE Project-Team

7.3. Popularization

Sylvain Lefebvre is a member of the *commission de médiation scientifique* and of the *comité espace transfert*.

MAGRIT Project-Team

9.3. Popularization

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

- Erwan Kerrien heads the local Scientific Mediation Committee. Among other activities, he was invited to last Didapro5-DidaSTIC conference (didactics of computer science) as a panelist and was an associate researcher to a MATH.en.JEANS workshop.
- Pierre-Frédéric Villard participated to various activities in the IUT of Saint-Dié des Vosges: open days, science festival, science café, Film screening following by a debate and computer science presentations to schoolgirls to promote science.
- In an exploratory experiment conducted in collaboration with the IUFM de Lorraine (teacher training institute), we investigated the use, the usefulness and the impact of an innovative Augmented Reality Environment for teaching/learning astronomy at primary school [15]. An AR learning environment has been designed whose aim is to show augmented views of some celestial bodies and support the pupils' investigations using spatial visual guides and views from a terrestrial observer. Each child was asked to solve problems related to astronomy in two different conditions in which they had to use and manipulate: (1) the traditional learning environment (i.e., with physical models), or (2) the Augmented Reality environment. Preliminary results show that the declarative knowledge related to astronomy was higher with the AR Environment. Only AR users have developed scientific conceptions of the explored astronomical phenomena and learnings have been significantly improved. Furthermore, we presented some arguments in order to support the assumption that the AR model assists the process of scaffolding, promotes collaborative learning by reducing cognitive load, and takes part to the motivation dynamic by enhancing task controllability.
- We have designed and developed a software whose aim is to support students with learning computer programming. This software, named artEoz, enables a pedagogical view of the computer memory, dynamically changing while the user program is running [26]. Using a nice visualization helps to understand the behavior on an object oriented program. This software concerns beginners as well experimented students thanks to its facilities to draw complex data structures. artEoz can be freely downloaded for academic use only from <http://arteoz.loria.fr>. This software is licensed by the APP (French agency for software protection).

MAIA Project-Team

9.3. Popularization

- François Charpillat participated to the popularization of the robotic and Ambient Intelligence activity of the maia team :
 - <http://videotheque.inria.fr/videotheque/media/25615>
 - <http://videotheque.inria.fr/videotheque/doc/809>
 - <http://vimeo.com/78659657>
 - <http://vimeo.com/83727993>
- The popularization article by Alain Dutech, Bruno Scherrer and Christophe Thiéry on Reinforcement Learning for the game of Tetris, that was first published at Interstices, was revised and published at Images des Mathématiques [44].
- Vincent Thomas has organized, in collaboration with the "Bibliothèque Universitaire du Campus Lettres", an exposition "jeux: les ateliers de la pensée" where the main objective is to promote games as an interesting subject for academics. This exposition included two days of vulgarization seminars with specialists of several scientific fields (economy, psychology, computer science) and animations. See http://ticri.inpl-nancy.fr/wicri-lor.fr/index.php?title=Exposition_Jeu. The material of the exposition will be presented in several university libraries of the Université de Lorraine in the first half of 2014.
- Vincent Thomas participated in "Journée ISN-EPI" (Jun. 27 2013) whose audience is computer science teachers of secondary school by making a presentation on "games and artificial intelligence" and by organizing a workshop on the same subject. Vincent Thomas is participating in the LORIA IDEES group dedicated to teaching activities <http://idees.loria.fr/index.php?n=Main.ProgrammeJourneeISN-EPI>.
- Vincent Thomas participated in "Dans les coulisses d'un labo d'informatique" (Mar. 21 2013) by proposing an animation about "artificial intelligence and video games" for secondary school students <https://iww.inria.fr/NanSciNum/dans-les-coulisses-dinria-nancy-grand-est-2/>.
- Vincent Thomas and Olivier Buffet participated in "Fête de la Science" by organizing a workshop on board games and artificial intelligence (Oct. 10 and 12). See <https://iww.inria.fr/NanSciNum/un-ticet-pour-la-science/>.
- Nazim Fatès animated two debates following the presentation of the film *Codebreaker* which is a "biopic" dedicated to Alan Turing: in January, it was presented at the Lycée Jean-Moulin in Forbach; in November, it was presented in the main cinema of Saint-Dié-des-Vosges (organisation by "Festival du film de chercheur").
- Christine Bourjot, Alain Dutech and Nazim Fatès participated in a debate on artificial intelligence in the café "l'Irlandais" with a public mainly constituted of university students.

ORPAILLEUR Project-Team (section vide)

PAROLE Project-Team

9.3. Popularization

Demonstration (of audio processing and source separation) to high school students at Inria Nancy in March 2013 (E. Vincent).

Demonstration to students of Mines Nancy at Inria Nancy in December 2013 (S. Ouni).

Participation in the Renaissance festival in Nancy in June 2013 (E. Vincent, D. Fohr, Y. Salaün, Y. Laprie, J. di Martino) Demonstrations of automatic speech recognition, speech analysis, source separation, articulatory modeling and voice conversion were presented.

Participation in the 11th Rencontres européennes CNRS Jeunes “Sciences et Citoyens” in Pont-à-Mousson in November 2013 (E. Vincent).

Participation in the Forum Sciences Cognitives, presentation to students in Cognitive Sciences at the University of Lorraine, in November 2013 (S. Ouni) .

SÉMAGRAMME Project-Team

8.3. Popularization

- Maxime Amblard is member of editorial board of *interstices* (i), a french virtual revue of popularization for computer science : <http://interstices.info>.
- Maxime Amblard published an article which summarizes the main questions of natural language processing for (i) : https://interstices.info/jcms/ni_74169/real-humans-des-machines-qui-parlent-comme-des-hommes-ou-presque.
- Maxime Amblard was organizer of the exhibition *Proj'SC*, about master student's works for the University library, January 2013.