

Inria

RESEARCH CENTER

FIELD

Digital Health, Biology and Earth

Activity Report 2019

Section Popularization

Edition: 2020-03-21

COMPUTATIONAL BIOLOGY

1. ABS Project-Team	5
2. BEAGLE Project-Team	8
3. BIGS Project-Team	10
4. CAPSID Project-Team	11
5. DYLISS Project-Team	12
6. ERABLE Project-Team	13
7. GENSCALE Project-Team	14
8. IBIS Project-Team	15
9. LIFEWARE Project-Team	16
10. MORPHEME Project-Team	17
11. MOSAIC Project-Team	18
12. PLEIADE Project-Team	19
13. SERPICO Project-Team (section vide)	20

COMPUTATIONAL NEUROSCIENCE AND MEDICINE

14. ARAMIS Project-Team	21
15. ATHENA Project-Team	22
16. BIOVISION Project-Team (section vide)	23
17. CAMIN Project-Team	24
18. EMPENN Project-Team	25
19. EPIONE Project-Team	26
20. MATHNEURO Project-Team (section vide)	27
21. MIMESIS Team	28
22. MNEMOSYNE Project-Team	29
23. NEUROSYS Project-Team (section vide)	31
24. OPIS Project-Team (section vide)	32
25. PARIETAL Project-Team	33

EARTH, ENVIRONMENTAL AND ENERGY SCIENCES

26. AIRSEA Project-Team	34
27. ANGE Project-Team	36
28. CASTOR Project-Team (section vide)	37
29. COFFEE Project-Team (section vide)	38
30. FLUMINANCE Project-Team	39
31. LEMON Project-Team	40
32. MAGIQUE-3D Project-Team	41
33. SERENA Project-Team	42
34. STEEP Project-Team	43
35. TONUS Project-Team	46

MODELING AND CONTROL FOR LIFE SCIENCES

36. BIOCORE Project-Team	47
37. CARMEN Project-Team	48

38. COMMEDIA Project-Team	49
39. DRACULA Project-Team	50
40. M3DISIM Project-Team	51
41. MAMBA Project-Team	52
42. MONC Project-Team	53
43. NUMED Project-Team	54
44. REO Team	55
45. SISTM Project-Team	56
46. XPOP Project-Team	57

ABS Project-Team

7.3. Popularization

This part mainly concerns Dorian Mazauric.

7.3.1. Internal or external Inria responsibilities

- 2019-.... Head of *Commission Mastic* (Médiation et Animation des MATHématiques, des Sciences et Techniques Informatiques et des Communications), Inria Sophia Antipolis - Méditerranée.
- 2019-.... Coordinator of *Terra Numerica – vers une Cité du Numérique*.
- 2018-2019. Member of the *Conseil d'Administration de l'association les Petits Débrouillards*.
- 2018-2019. Coordinator of *projet de médiation Galéjade : Graphes et ALgorithmes : Ensemble de Jeux À Destination des Ecoliers...* (mais pas que).

7.3.2. Articles and contents

See <https://galejade.inria.fr> and <http://terra-numerica.org/>.

7.3.3. Education

- 26/10/2019. Animation d'ateliers de GALEJADE au weekend d'initiation à la culture numérique organisé par Class'Code MED. Graphes, algorithmes et magie des mathématiques et de l'informatique.
- 03/06/2019. Formation d'enseignants à Draguignan (ÉSPÉ de l'Académie de Nice). Graphes et algorithmes.
- 05/04/2019. Coordination d'ateliers Galejade animés par des enseignants et des parents d'élèves de l'école Pasteur du Cannet (suite à une formation Galejade quelques mois plus tôt). Ateliers Galejade.
- 22/03/2019. Formation d'enseignants de REP+ à l'ÉSPÉ de l'Académie de Nice (site de Stéphen Liégeard).
- 26/02/2019. Formation des étudiants de l'ÉSPÉ de l'Académie de Nice (site de Stéphen Liégeard) à l'animation d'activités informatiques et mathématiques. En collaboration avec l'Inspection Académique. Dans le cadre de la semaine des mathématiques. Graphes, algorithmes, jeux et magie des mathématiques.

7.3.4. Interventions

- National events:
 - 19-20/10/2019. Ateliers au village des sciences et de l'innovation au Palais des Congrès d'Antibes Juan-les-Pins. Voyage en train au pays des graphes, des algorithmes et de l'intelligence artificielle.
 - 06/10/2019. Atelier au village des sciences de Nice. Fête de la Science 2019. Le plus grand réseau de tri humain du monde.
 - 05/10/2019. Ateliers et conférence au village des sciences de Villeneuve-Loubet. Fête de la Science 2019. Algorithmes grandeur nature ? La magie des graphes et du binaire.
 - 4/10/2019. Conférence à la maison des associations de Nice (114 élèves de première et terminal). Fête de la Science 2019. Pas besoin de réfléchir, les ordinateurs calculent tellement vite ?
 - 03/10/2019. Deux conférences et ateliers au collège de la Vesubie-Jean Salines à Roquebilleire. Fête de la Science 2019. La magie des graphes et du binaire ? Algorithmes grandeur nature ? Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux.

- 26/03/2019. Fête des maths à l'ÉSPÉ de l'Académie de Nice (site de Stéphen Liégeard). Graphes et Algorithmes.
- 26/02/2019. Formation des étudiants de l'ÉSPÉ de l'Académie de Nice (site de Stéphen Liégeard) à l'animation d'activités informatiques et mathématiques. En collaboration avec l'Inspection Académique. Dans le cadre de la semaine des mathématiques. Graphes, algorithmes, jeux et magie des mathématiques.
- Public exhibitions (Futurs en Seine,...)
 - 24/05/2019. Présentation du projet Galéjade à l'AFINEF'Tour Sophia Antipolis (avec EducAzur).
 - 18/05/2019. Semaine du Numérique à Valbonne. Algorithmes pour toute la famille.
 - 27-28/04/2019. Atelier et conférences au festival Les Souffleurs d'Avenir. La magie des graphes, des algorithmes et du binaire.
- In educational institutions
 - 11/01/2019. Conférence au lycée Léonard de Vinci d'Antibes (deux classes de terminale). Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux ? Présentation du métier de chercheur.
 - 11/10/2019. Deux conférences au collège la Chênaie à Mouans Sartoux. La magie des graphes et du binaire ? Jeux combinatoires.
 - Année scolaire 2019/2020. Projets dans le cadre de MATH.en.JEANS au collège Jean Rostand de Nice. Avec Olivier Ginola.
 - 03/10/2019. Deux conférences et ateliers au collège de la Vesubie-Jean Salines à Roquebillière. Fête de la Science 2019. La magie des graphes et du binaire ? Algorithmes grandeur nature ? Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux.
 - 26/03/2019. Conférence au collège Jules Romains de Nice (classes de sixième). La magie des graphes, des algorithmes et du binaire.
 - 13/03/2019. Conférences et ateliers au collège Alphonse Daudet de Nice (deux classes de sixième et deux classes de cinquième). Magie mathématique et jeux combinatoires.
 - 05/04/2019. Coordination d'ateliers Galejade animés par des enseignants et des parents d'élèves de l'école Pasteur du Cannet (suite à une formation Galéjade quelques mois plus tôt). Ateliers Galejade.
- Welcoming of schoolchildren or the general public in an Inria center: MathC2+ internship, open days,...
 - Semaine du 16 décembre 2019. Accueil de 12 stagiaires de troisième à Inria Sophia Antipolis - Méditerranée.
 - 28/06/2019. Activité pour une quarantaine d'étudiants de classes préparatoires scientifiques de Sophia Antipolis. Algorithmes de tri.
 - 14/06/2019. Activité pour une quarantaine de lycéens des Alpes-Maritimes (accueillis à Inria Sophia Antipolis - Méditerranée durant 4 jours dans le cadre du stage MathC2+). Algorithmes grandeur nature.
 - 26/04/2019. Visite d'une dizaine de jeunes de la mission locale de Grasse à Inria Sophia Antipolis - Méditerranée. La magie des graphes, des algorithmes et du binaire.

7.3.5. Internal action

- Internal meetings such as Café des sciences
 - 29/04/2019. Café-in à Inria Sophia Antipolis - Méditerranée (séminaire interne pour tous les membres du centre de recherche : chercheurs, ingénieurs, administratifs...). Ateliers Galejade.

- Training of colleagues on new contents or media (activités débranchées, Poppy Ergo, Tensor-Flow,...)
- Training follow-up (Media Training, new media such as Poppy ergo, with SIF, etc.)
- Science outreach towards services (DPEI, STIP...)

7.3.6. Creation of media or tools for science outreach

See <https://galejade.inria.fr> and <http://terra-numerica.org/>.

BEAGLE Project-Team

9.3. Popularization

9.3.1. Articles and contents

- Hugues Berry participated in popularization activities with the edition of a book, written in French, on the relationships between sex (i.e. a biology concept) and Gender (a sociology approach) (Abou, B. and Berry, H., eds., (2019). *Sexe et Genre: de la Biologie a la Sociologie*. Editions Materiologiques, Paris, <https://materiologiques.com/sciences-philosophie-2275-9948/282-sexe-et-genre-de-la-biologie-a-la-sociologie.html>) In recent years, debates about sex and gender concepts between biology and the humanities and social sciences have become more intense, both for scientific reasons and for their societal impacts. Many biologists reject the questioning made by researchers in humanities and social sciences, of what biology considers fundamental, such as sex binarity or sex differences. Humanities and social scientists, on the other hand, often see biology as an academic and institutional source of naturalistic arguments used to oppose gender studies. They denounce biases in the interpretation of biologists as resulting, precisely, from gender-related biases. However, scientific exchanges at the interface between biology and the humanities and social sciences are undoubtedly necessary to overcome these antagonisms. The objective of this book is to implement a dialogue between the two fields, trying to overcome misunderstandings and misconceptions that have gone on for long. The book consists in 12 chapters stemming from biologists and sociologists, organized so as to try and foster dialogue between both communities. The target readership of the book is composed of non specialist readers (in particular non biologists nor sociologists) with a pre-existing interest on gender issues and their relations to biology. That is why the book was written in French and includes chapters intended to newcomers in the field (e.g. "The determination of sex in the human species and the rest of life" or "Why Gender?") to more advanced viewpoints ("What we learn from transidentities"). The objective of the publisher was to publish a reference book in French on the relations between sex and gender.
- "Le mouvement est devenu massif", an interview of Hugues Berry to the French journal L'Usine Nouvelle, Special Edition "A year of simulation", number 3608, April 25, 2019. <https://www.usinenouvelle.com/editorial/le-mouvement-est-devenu-massif.N834680>
- Eric Tannier is a co-author of "Quand les branches de l'arbre du vivant s'entremêlent", in *Pour la science*, 2019.

9.3.2. Education

- We have an ongoing collaboration with the Grenoble Rectorat. The aim is to use our computational models to train school professor to evolutionary concepts.

9.3.3. Interventions

- Audrey Denizot participated to activities in the mediation association DéMesures:
 - "Cosmograff" project. This project aims to present the solar system and its scales to the general public, in collaboration with the Musée des Confluences and the collective of street artists Superposition <https://bit.ly/35gtYpI>. Creation of audio guides in French and English for reuse at the 2019 EWASS international astronomy conference. <https://bit.ly/2rQIB5y>
 - "ArtScience" project, which aims to present the work of scientists to artists. This project culminated in an artistic exhibition at the ENS Lyon, from April to July 2019, in collaboration with the Taverne Gutenberg <https://bit.ly/2OldNR3>. Creation of a series of photographs presenting the links between science and art that emerged from this project <https://bit.ly/2XqjaCz>.
- Eric Tannier co-organized a citizen science event at the Théâtre Nouvelle Génération, Vaise, december 2019

- Eric Tannier organizes a workshop on environmental responsibility of researchers in january 2020
- Eric Tannier participated to a "pint of science" evening on the social and environmental responsibility of researchers, May 20, 2019

9.3.4. Internal action

- Eric Tannier and Carole Knibbe gave a lecture on environmental responsibility at the Inria Bio days, 2019
- Eric Tannier gave a training to PhD students on research ethics, 6h, Inria Grenoble Rhône-Alpes, January 2019

9.3.5. Creation of media or tools for science outreach

- We developed the GreenMice game, a small video-game designed to teach the basis of evolutionary biology to young children

BIGS Project-Team

10.3. Popularization

10.3.1. Interventions

- Anne Gégout-Petit participated in a round table on Artificial Intelligence and Health as part of "La fête de la science" 2019
- Anne Gégout-Petit participated at the "Brunch Données de santé et thermalisme" Janvier 2019
- Sandie Ferrigno: Advisor of a group of students (EEIGM), "La main à la Pâte" project, elementary schools, Nancy, January-June 2019
- Sandie Ferrigno: Advisor of a group of students (EEIGM), "Energies renouvelables", "La main à la Pâte" project, Institut médico-éducatif (IME), Commercy, October 2019-January 2020
- Sandie Ferrigno: Advisor of a group of students (EEIGM), "L'Astronomie" Cgénial project, Collège Paul Verlaine, Malzéville, November 2019-February 2020.
- Sandie Ferrigno: Advisor of a group of students (EEIGM), "Le Chocolat" Cgénial project, Collège de la Craffe, Nancy, November 2019-January 2020.
- Sophie Wantz-Mézières was part of the organization of a thematic and multidisciplinary week "Neurosciences, neuro-oncologie et numérique", for students from Telecom-Nancy and Faculté de Médecine de Nancy, May 2019.

CAPSID Project-Team

9.3. Popularization

9.3.1. Interventions

- Dominique Mias-Lucquin was co-organizer of the "Pint of Science" event, 21-22 may, 2019 (24 countries involved ; <http://pintofscience.com>).

DYLISS Project-Team

10.3. Popularization

10.3.1. Interventions

- "J'peux pas j'ai informatique", Welcoming of high-school students to leverage stereotypes about computer sciences (110 participants), Apr. 2019 [O. Dameron, A. Siegel]
- "Elles codent Elles créent" Our Ph-D students have been involved in creative Python learning sessions for female students in two high-schools. [M. Louarn, M. Wéry, A. Siegel]
- Operation DECLIC (Dialogues Entre Chercheurs et Lycéens pour les Intéresser à la Construction des Savoirs). Lycée Descartes, Rennes. Nov 2019 [\[More details\]](#) [N. Théret, M. Conan, P. Vignet, O. Dennler]

10.3.2. Internal action

- Organization of the weekly seminar "Symbiose", involving teams DYLISS, GENSCALE and GENOUEST: [S. Blanquart]

10.3.3. Creation of media or tools for science outreach

Science en Cour[t]s (<http://sciences-en-courts.fr/>) Many of our current and former PhD students (M. Wéry, L. Bourneuf, A. Antoine-Lorquin, C. Bettembourg, J. Coquet, V. Delannée, G. Garet, S. Prigent) have been heavily involved in organization of a local Popularization Festival where PhD. students explain their thesis via short movies. The movies are presented to a professional jury composed of artists and scientists, and of high-school students. Previous years films can be viewed on the festival web-site [\[More details\]](#)

ERABLE Project-Team

9.3. Popularization

9.3.1. Interventions

Carol Moraga Quinteros participated in the contest “DESCRYPThèse” of the doctoral school E2M2 of the University of Lyon 1, winning a prize for one of the best presentations in April 2019. The title of the talk was “BrumiR: un algorithme *de novo* pour prédire les petits ARNs sans génome de référence”.

GENSCALE Project-Team

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Member of the Interstice editorial board [P. Peterlongo]

10.3.2. Interventions

- In educational institutions : Participation to operation "A la découverte de la recherche" in high schools [P. Peterlongo]
- Short Movie "Moi, mon chien et les autres: à la recherche des transcrits perdus", presented at Sciences en Courts, a local contest of popularization short movies made by PhD students (<http://sciences-en-courts.fr/>) [G. Siekaniec].

10.3.3. Internal action

- co-organizer of Sciences en cour[t]s event, Nicomaque association (<http://sciences-en-courts.fr/>) [W. Delage]

10.3.4. Creation of media or tools for science outreach

- Popularization article in Interstices. "Analyser le génome des océans" <https://interstices.info/analyser-les-genomes-des-oceans/> [P. Peterlongo]

IBIS Project-Team

8.3. Popularization

8.3.1. Interventions

Delphine Ropers participated in the colloquium FIGAS 2019 - Un rêve pour les filles et les garçons : la Science (Nov 2019). She was moderator of the session "Stéréotypes dans le numérique", and co-presented with Thierry Vieville "Mais comment éduquer les garçons à l'équité des genres au niveau informatique et numérique ?".

LIFEWARE Project-Team

10.3. Popularization

10.3.1. Articles and contents

- For a Festschrift in honor of Catuscia Palamidessi, François Fages was unexpectedly inspired to compose a small music score and write a short essay on information leakage in music scores [10].
- Jakob Ruess gave an **interview** for the Swiss Institute of Bioinformatics (SIB) as a past laureate of the SIB Award.

10.3.2. Interventions

- Eléonore Bellot, Mathieu Hemery and Elise Weill Duflos participated at Fête de la Science at Inria SIF, Oct. 2019
- François Fages has received college school students for a visit to our research team with the question “Can we program any function?”, answered negatively by proving Cantor’s theorem.
- Mathieu Hemery has animated debates with college school students on Science and Ethics at Inria and Association Arbre des Connaissances, Oct. 2019.

10.3.3. Creation of media or tools for science outreach

François Fages has created several BIOCHAM interactive notebooks that are integrated in the current release of BIOCAHM-4 to illustrate and exercise the main concepts of analog chemical computer and chemical programming, as taught in his Master course at MPRI.

MORPHEME Project-Team

9.3. Popularization

9.3.1. Education

Luca Calatroni participates to the Italian project “Penne amiche della scienza” to promote scientific research in Primary Schools.

9.3.2. Interventions

Laure Blanc-Féraud gave a conference in high school CIV during "la fête de la science".

National events: Village des Sciences et de l’Innovation d’Antibes Juan les Pins 2019.

The Morpheme team took part in "La fête de la Science" during the "Village de la Science" in Juan-Les-Pins. Somia Rahmoun, Cedric Dubois and Arne Bechensteen were present at the Inria stand for this event.

MOSAIC Project-Team

8.3. Popularization

- Olivier Ali:
 - Participated to the Declic initiative: Discussions about of scientific research to high school students (3h, Lycée Jean Perrin, Lyon).
 - Invited conference about mechanical modeling of plant morphogenesis for the Université Ouverte in Lyon.
- Christophe Godin participated to the Declic initiative: Introductory talk and discussions about scientific research to high school students (3h, Lycée Frédéric Fays, Villeurbanne).

8.3.1. Interventions

- Christophe Godin gave:
 - a lecture at Inria Grenoble in the context of a training program for Informatique et Sciences du Numérique dedicated to Math and Physics highschool teachers. see [video](#) (1h30)
 - a visio-seminar to highschool students of the French Lycée in Laos (1h30)

PLEIADE Project-Team

9.2. Popularization

9.2.1. Education

David Sherman contributed to the *Journée APEIA (Activités Pour l'Enseignement de l'IA)*

David Sherman help train teachers in programming mobile robots, in preparation for R2T2 events (<http://r2t2.org>) coordinated by the Mobsya association and EPFL (Switzerland).

9.2.2. Interventions



Figure 6. *Qui se ressemble s'assemble* during the Circuit Scientifique in 2019: (left) classification oracle (right) comparing similar shapes (Photo copyright Gautier DUFAU)

In collaboration with a local PME, David Sherman helped design an interactive exhibit on tree classification for a museum in the Region Nouvelle Aquitaine, based on a specialization of **Qui se ressemble s'assemble**.

David Sherman presented the **Qui se ressemble s'assemble** activity to 100 middle school students during the Circuit Scientifique in 2019 (Figure 6), and to 40 undergraduate students from the ENS Lyon.

9.2.3. Creation of media or tools for science outreach

David Sherman refined his design for the electronics of the **Qui se ressemble s'assemble** activity, to explain the methods and uses of pattern classification of protein families. The activity uses 20 3D-printed point clouds and 4 oracles, containing a microcontroller, an RFID reader with a custom-designed inductive coil as input, and an LED ring as output. Participants propose groups of 3D shapes that they believe belong to the same class, and the oracle evaluate the group.

SERPICO Project-Team (section vide)

ARAMIS Project-Team

10.3. Popularization

10.3.1. Articles and contents

- Olivier Colliot gave an interview for the popular science magazine "La Recherche".
- Stéphane Epelbaum participated to multiple events dedicated to general audience outreach including: articles in journals (L'Express, AFP, Pourquoi docteur) Radio shows and podcasts (France inter) and TV shows (BFMTV).
- S. Durrleman participated to several events dedicated to general audience outreach including 2 articles in Le Figaro Santé, 2 keynote lectures at AI for Health conference, and Sommet des start-up Challenges, and an article in Médecine, Cerveau et Cognition.

10.3.2. Interventions

- N. Burgos gave a presentation for the Rendez-vous des Jeunes Mathématiciennes (Inria Paris).

ATHENA Project-Team

9.3. Popularization

- Demonstration of the P300 speller and of the subject adapted dry EEG cap to the local and national instances, M. Clerc, T. Papadopoulo, F. Turi, S. Guebba.
- Participation to the Cybathlon BCI Series, Graz. September 2019 [36].

9.3.1. Articles and contents

- An article mentioned the BCI projects of Athena in a special issue from magazine Le Point https://www.lepoint.fr/sante/connecter-son-cerveau-a-un-ordinateur-pour-quoi-faire-18-03-2019-2301895_40.php

9.3.2. Interventions

- National events: Brain Awareness Week, two wide audience talks in Biot, Mouans Sartoux, and demonstration of Brain-Computer interfaces, M. Clerc, T. Papadopoulo.

BIOVISION Project-Team (section vide)

CAMIN Project-Team

9.3. Popularization

- Christine Azevedo presented FREEWHEELS project at Sport Unlimitech event in Lyon <https://sportunlimitech.com/> (September 2019)
- CAMIN team was present (demonstration and masterclass lecture) at FUTURES festival in Paris <https://futures.paris/> (June 13th 2019)
- CAMIN team was present (demonstration and lecture) during the visit of the Secretary of State for Persons with Disabilities at Inria Paris Center (November 19th 2019)

9.3.1. Education

- Christine Azevedo was mentor (2018-2019) for one Savanturiers project with Saussan school (CM1/CM2 level) <https://savanturiersdelahightech.wordpress.com/category/projets-2018-2019/ecole-elementaire-joseph-delteil/>
- Christine Azevedo is mentor (2019-2020) for one Savanturiers project with Montbazin school (CE1/CE2 level) <https://savanturiers-projects.cri-paris.org/projects/NhbsL7Uz/blogentries>
- Christine Azevedo organized initiation sessions to informatics using Thymio robot at École Valfalis (Montbazin, France) in CP, CE1, CE2, CM1 and CM2 levels, 5 sessions of 1 hours per level (March-June 2019).
- Christine Azevedo participated to a 1-day of training future trainers in robotics at school (DANE) (March 2019).

9.3.2. Interventions

- CAMIN team welcomed 1 week internships of 3 schoolchildren this year (4e, 3e)

EMPENN Project-Team

10.3. Popularization

10.3.1. Brain awareness week: “Semaine du Cerveau”

Empenn team took part in Brain awareness week 2019. Giulia Lioi, Claire Cury and Élise Bannier coordinated this event for Empenn/Neurinfo.

- Camille Maumet and Christian Barillot: Talk "" Le cerveau numérique: explorons-le!"". March 2019, Rennes, France.
- Quiz on brain imaging, March 2019, Rennes, France.
- Lab visits for students (3e and 1ere S) about MRI, functional MRI, EEG and neurofeedback, and image processing.
- Pierre-Yves Jonin: Talk "Entre connaissances et souvenirs : voyage en terre mnésique", March 2019, Rennes, France

10.3.2. Journée Science et Musique (JSM)

This event was initiated in 2010 by IRISA. The idea is to offer a scientific and festive immersion in the research and new technologies of the music of neurosciences and sounds to the general public. Free workshops, conferences, demonstrations and concerts are available to all throughout the day (for more detail see <https://jsm.irisa.fr/>). Claire Cury organized the event this year with Nancy Bertin, PANAMA team.

10.3.3. Sciences en Cour[t]s

This event is a festival of short movies, which offers doctoral students the opportunity to make short films about their thesis work. Raphael Truffet, Antoine Legouhy and Xavier Rolland won the high school award <https://www.youtube.com/watch?v=IKgqv-iCwak>.

10.3.4. "J'peux pas j'ai informatique"

"J'peux pas j'ai informatique" is an outreach program to welcome secondary school students for a day at Inria Rennes / IRISA and introduce them to the various facets of computer science. Camille Maumet and Pierre Maurel helped out to run the hands-on tutorials in which students could learn how a computer works without computers.

10.3.5. Other interventions

- Pierre-Yves Jonin: Series of 2 talks on neuropsychology, Universités du Temps Libre de Bretagne, Jan-Dec, Rennes, France.

10.3.6. Education

- L codent L créent - An outreach program to send PhD students to teach Python to middle school students in 8 sessions of 45 minutes. Camille Maumet is a co-organizer of the local version of this program, initiated in Lille. The program is currently supported by: Fondation Blaise Pascal, ED MathSTIC, Inria and Fondation Rennes 1.

EPIONE Project-Team

9.3. Popularization

9.3.1. Interventions

- Maxime Sermesant did three 45 minutes interventions on Mathematics and Healthcare at the Jules Ferry High School in Cannes.
- Tania Bacoyannis and Nicolas Cedilnik presented AI for high school teachers and interacted with them on this topic during a day.

MATHNEURO Project-Team (section vide)

MIMESIS Team

10.3. Popularization

10.3.1. Articles and contents

Stephane Cotin wrote a chapter for the book entitled "Virtual Reality and Augmented Reality - Myths and Realities", which is an easy access book on the usages and developments of Virtual Reality and Augmented Reality for various domains. ISBN 978-1-78630-105-5.

10.3.2. Education

We are developing a training system dedicated to flexible endoscopy, used in university diplomas and masters programs for clinicians.

MNEMOSYNE Project-Team

10.3. Popularization

10.3.1. Articles and contents

- F. Alexandre published an article about AI and neuroscience in The Conversation <https://theconversation.com/de-quelles-facons-lintelligence-artificielle-se-sert-elle-des-neurosciences-124402>
- N. Rougier published article: Pourquoi votre chat est nul aux échecs et pourtant plus intelligent qu'une IA, The Conversation (FR); article: Why your cat is lousy at chess yet way smarter than even the most advanced AI, The Conversation (US); Interview: Et le cerveau dans tout ça ? U magazine (Univ. Bordeaux)

10.3.2. Education

F. Alexandre: A lesson about AI (2 hours) and an unplugged activity about learning and memory (1 hour) given to a high-school class of 2nd on november 14th in Dax for the "1 scientist 1 class : Chiche !" MENJ program.

N. Rougier: Science outreach day at the Montendre high-school on unplugged AI (Montendre, France)

Several people in the team (F. Alexandre, T. Firmo-Drumond, N. Rougier, T. Vieville) participated (talks and demonstrations) to the Day "Activities for teaching AI" organized between Inria Bordeaux and LINE laboratory in Sciences of Education in Nice, June 21st;

10.3.3. Interventions

F. Alexandre:

- Intervention at the annual conference of the Bishops of France (Lourdes, April 2nd), with a conference ("What can medicine expect from AI") and the organization of a workshop on Robotics for AI;
- Participation to a round table discussion at the Robot Makers Day Festival, Talence, April 12th: "AI: threats and opportunities for our companies: what training for tomorrow's engineers?"
- conference to the ESME-Sudria School of Engineers, Bordeaux, May 21st: "Is the brain a good model of intelligence ?"
- Conference "Should we be afraid of artificial intelligence?", at the "Université de tous les savoirs" in Saint Jean de Luz on November 13th http://www.utl-luz.fr/index_002.htm
- Conference: "What can we expect from AI ?", in the special day "AI and me" organized on November 15-16 by the city of Pontonx-sur-Adour <https://www.pontonx.fr/Pontonx-sur-l-Adour/Agenda-et-actualites/Toutes-les-actus-de-Pontonx/L-intelligence-artificielle>

A. Garenne: intervention about "Artificial Neural Networks and Machine Learning" at a club of companies, Pessac, decembre 12

X. Hinaut:

- "Pint of Science" invited talk, Bordeaux, FR, May 2019.
- "Les petits mécanismes de l'IA", invited talk at the Library of "Le Haillan", FR, April 2019.
- Invited jury member of the world scale hackathon "Créathon", Poitiers, FR, May 2019.
- Invited talk at the Science Fest Day, Cap Sciences, Bordeaux, FR, Oct 2019.

N. Rougier:

- Reboot conference "Will robots dominate us ?" (Bordeaux, France)
- Discussion with the general public about science, fiction and AI at Cap-Sciences (Bordeaux, France)

Thierry Viéville is an active member of **Femmes et Sciences**, has been invited speaker at **Un rêve pour les filles et les garçons : LA SCIENCE** and is involved in dedicated science outreach actions [15].

Several people in the team (F. Alexandre, T. Firmo-Drumond, N. Rougier) participated to the “Trial of AI” on november 20, in the project “The controversy of Bordeaux Macropole” during the festival Facts, program Arts and Sciences of University of Bordeaux. <https://www.youtube.com/watch?v=UI4B4TteRmA> and <https://twitter.com/bdxmacropole>

Intervention by A. Garenne and T. Firmo-Drumond at the inter-university seminar "artificial intelligence and clinical sense", Bordeaux, march 11-12

10.3.4. Creation of media or tools for science outreach

Thanks to fundings from the Bordeaux Museum of Science Cap Sciences (<http://www.cap-sciences.net/>) and from the Foundation Blaise Pascal (<https://www.fondation-blaise-pascal.org/>), we have designed a software tool to run small demonstrative scenarios, to help everyone discover the brain functions at the origin of our sensorimotor and vital cognitive behaviors (instinctive and motivated behavior, selection of embodied action, emotional decision-making, seat of self-awareness, etc.). This resource is for a wide audience to whom we can show scenarios, but also co-build multi-media resources to share methods and knowledge (participatory scientific mediation approach) and to discuss these topics. It is also at the disposal of scientific mediators (researchers and beyond) who wish to co-construct such resources, or to present research results involving the animation of anatomy of the nervous system as well as of users or authors of computer code who want to reuse shared technologies to derive other applications, in particular become familiar with the specification languages (here JSON and markdown).

NEUROSYS Project-Team (section vide)

OPIS Project-Team (section vide)

PARIETAL Project-Team

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Philippe Ciuciu has been member of the Inria Saclay scientific commission since 2016
- Denis Engemann has been managing the Twitter accounts of Parietal and the MNE software since 2017
- Alexandre Gramfort is in charge of the Paris-Saclay Center for Data Science
- Alexandre is a Member of the technical development committee of Inria Saclay since Dec 2018
- Bertrand Thirion, head of the Dataia Convergence Institute since January 1st, 2019
- Gaël Varoquaux was Member of the technical development committee of Inria Saclay until Dec 2018
- Gaël Varoquaux is member of the doctoral monitoring committee of Inria Saclay
- Gaël Varoquaux is member of the steering committee of the Paris-Saclay Center for Data Science
- Thomas Moreau: Co-organisation of the weekly Parietal team seminar bringing together the 45 members of the team for short presentations and a longer scientific presentation.
- Gaël Varoquaux is in charge of the scikit-learn consortium

10.3.2. Internal action

- Guillaume Lemaître, Marie Telenczuk, et Lucie Liu have taught a 1-day training on data-science with Python in Nov 2019.

10.3.3. Creation of media or tools for science outreach

- Guillaume Lemaître, Gael Varoquaux, Olivier Grisel started developing new teaching material for MOOC of Scikit-learn to be hosted in 2020 on the FUN platform in collaboration with Loic Esteve and the team members of the Inria Learning Lab).

AIRSEA Project-Team

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

E.Kazantsev is a member of the Local Commission for Permanent Formation of Inria Grenoble - Rhône-Alpes.

9.3.2. Education

Ch. Kazantsev and E. Blayo are strongly involved in the creation and dissemination of pedagogic suitcases with mathematical activities designed for primary and secondary school (used by 10,000 – 12,000 pupils in 2018-2019). This is done in collaboration with the Rectorat de Grenoble.

E. Arnaud has animation of a "laboratoire des mathématiques", Pablo Neruda School, Saint Martin d'Hères

C. Kazantsev is a member of an IREM group for creation of scientific activities for professional development of secondary schools teachers.

C. Kazantsev is a member of an International Inter-IREM commission, which work on the multi-languages problem for children in the mathematical learning. Three meetings take place in Paris during the year, the first was on September 28.

C. Kazantsev participated to the collaboration program with the Ecole Normale Supérieure de Bamako, Mali. She spent ten days in Bamako to present the modelisation teaching and the purpose and activities of "La Grange des Maths" group. Bamako, ENSup, January, 13-25

C. Kazantsev participated to the "Colloque du cinquantenaire des IREM" with a presentation of the activities of "La Grange des Maths", Besançon, May, 9-11

9.3.3. Interventions

National events:

Ch. Kazantsev and E. Blayo are strongly involved in the creation of "La Grange des maths", a science popularization center that will be located in Varcès (south of Grenoble), which will offer a huge variety of mathematical hands-on exhibits. See <http://www.la-grange-des-maths.fr/>

Ch. Kazantsev participated at the "Culture and mathematical games Salon", Place St Sulpice, Paris, 23-26 May.

Ch. Kazantsev and E. Blayo participated in the "Fête de la Science", October, 12.

E. Arnaud. gave a presentation "(Se) tromper avec les chiffres" at the conference "Sciences et esprit critique, interroger les certitudes", Maison pour la sciences, Académie de Grenoble, 8 nov. 2018, Grenoble.

Public exhibitions

C.Kazantsev participated in the "Oriol des Maths" and in the "Forum des associations" with the presentation of the "La Grange des Maths" center and its activities. Varcès, March, 10.

C.Kazantsev participated at the "Remue-méninges festival" with the presentation of the "Maths à modeler" activities. Echirolles, April, 11.

C.Kazantsev participated to the "Sou des écoles", with the presentation of the "La Grange des Maths" activities. Varcès, June, 15.

C.Kazantsev participated at the "Raout de Domène" with the presentation of mathematical animations. Domene, September, 1.

In educational institutions

E. Blayo gave several outreach talks, in particular for middle school and high school students, and for more general audiences.

C.Kazantsev presented mathematical animations to pupils of the Jean Mermoz school in Poizat for about 80 children during 3 hours. Poizat, May, 29.

E. Arnaud gave a talk "(Se) tromper avec les chiffres" for pupils of secondary schools on the 8th of March 2019 and the 2nd of May 2019.

9.3.4. Creation of media or tools for science outreach

C.Kazantsev participated in the edition of the Teachers notebooks which explain and advise how to use the "La Grange Suitcases" (sets of mathematical games, problems and animations) destined for primary and secondary schools teachers as well as for the general public.

C.Kazantsev participated in the creation of mathematical activities that can be autonomously used by schoolchildren of primary and secondary schools and by the general public.

E. Arnaud, in charge of the UGA Idex project math@uga : implementation of a collaborative moodle platform <http://math.u-ga.fr> to share pedagogical resources within teachers and towards students.

E. Arnaud, participation to UGA Idex projects Caseine and data@ugat

ANGE Project-Team

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- J. Salomon is a member of the "Commission Mentorat" in view of introducing a mentoring procedure in Inria-Paris,
- Y. Penel and C. Guichard belong to the "Groupe de travail Developpement Durable d'Inria Paris",
- J. Sainte-Marie took part of the committe MakeSenSe, that produced the report [14].

10.3.2. Education

- Congrès MATH.en.JEANS (CentraleSupélec, Modélisation de certains écoulements),
- E. Godlewski and J. Salomon dealt with secondary-school pupils in the framework of observation training course at LJLL and Inria, respectively,
- N. Aguillon was in the organizing committe of "Mathematic Park",
- N. Aguillon was in the organizing committe of "Cycle SMAI-Musée des arts et métiers",
- J. Salomon co-organized the stand "Logiciel Libre" at the "Salon Culture et Jeux mathématiques, 2019".

10.3.3. Interventions

- J. Sainte-Marie organized a round-table discussion about "Mathématiques et environnement" at the "Forum Emploi-Math 2019" (14/11).
- J. Sainte-Marie organized a debate "la sobriété numérique" at "cité des Sciences et de l'industrie" (15/11).

CASTOR Project-Team (section vide)

COFFEE Project-Team (section vide)

FLUMINANCE Project-Team

9.3. Popularization

9.3.1. Education

Jocelyne Erhel

- présidente du jury du rallye de mathématiques du CNED, since 2017.

9.3.2. Interventions

Jocelyne Erhel

- conference about spreading epidemics, "les amphis lycéens 2018-2019", March 2019.
- conference about spreading epidemics, "les amphis lycéens 2019-2020", December 2019. [46].

9.3.3. Creation of media or tools for science outreach

Jocelyne Erhel

- was scientific coordinator of the website Interstices (June 2012 - September 2019). She is now member of the editorial board, from October 2019.

LEMON Project-Team

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Gwladys Toulemonde is involved in the board of the CFEM (commission française pour l'enseignement des mathématiques) since october, 2019, representing the SFdS.

Gwladys Toulemonde is involved in the board of Animath since october, 2019, representing the SFdS.

Gwladys Toulemonde is a member of the organizing committee of the Forum Emploi Math (FEM 2019, Paris).

Antoine Rousseau is member of the scientific board of [Fondation Blaise Pascal](#)

Antoine Rousseau is member of the *MakeSEnS* group at Inria, instructed by Inria's management to make proposals for the institute to tackle current environmental issues: see [7]

Antoine Rousseau is co-editor of the national blog [binaire](#), published by [Le Monde](#)

9.3.2. Articles and contents

- *Pour une écologie numérique* (in french), [blog post on binaire](#), Antoine Rousseau, 2019.
- *Ces océans qu'on modélise* (in french), [blog post on binaire](#), Antoine Rousseau and coauthors, 2019.

9.3.3. Education

In 2019, Antoine Rousseau gave public lectures in the junior school of Aubais, France (30 kids, 10 years old): 2.5 days of introduction to coding.

9.3.4. Interventions

Antoine Rousseau gave a 2h lecture in Lycée Joffre (high school), Montpellier, France (60 students, 18-20 years old). The conference was linked to the 2019-2020 topic for the french engineering schools competition (TIPE): mathematical modelling for oceans. Antoine Rousseau also dedicated one full day to help young students to design their TIPE project.

MAGIQUE-3D Project-Team

10.3. Popularization

10.3.1. Interventions

- Justine Labat participated in scientific 'speed datings' during the 'Filles et Maths' day at Pau in February 2019.
- Juliette Chabassier participated to the festival Club Med'iation in May 2019.
- Juliette Chabassier participated to many interventions of Louis 14.0, a scientific and artistic show.
- Juliette Chabassier animated a workshop around the virtual piano in La Couronne in Nov 2019.
- Juliette Chabassier, Augustin Ernoult and Alexis Thibault participated to the "Articulations workshop" in Dec 2019.
- Juliette Chabassier participated to a workshop around the Meta-Piano-Teq with Jean Haury in Dec 2019.
- Sébastien Tordeux gave a talk on numerical analysis in the Cercle Sofia Kovalevskaïa of Toulouse in May 2019
- Sébastien Tordeux was member of the judging committee for the "Tournois Français des Jeunes Mathématiciennes et Mathématiciens" in May 2019

10.3.2. Creation of media or tools for science outreach

Juliette Chabassier co-created with the Ensemble Les Précieuses the show Louis 14.0 that presents how ancient instruments can be restored via numerical techniques, and played in real time in a musical and theatral show.

SERENA Project-Team

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- + Géraldine Pichot is a member of the editorial committee of Interstices since November 2019.

STEEP Project-Team

9.3. Popularization

9.3.1. Education

- Guillaume Mandil gave a half-day training course to a group of high school teachers (Lycée Mounier - CLEPT), July 2019.
- Peter Sturm gave a lecture on the environmental impact of ICT, during a training week of high school teachers of the Hauts-de-France Region, Lille, France, June 2019.

9.3.2. Conference-debate series and YouTube-channel “Understanding and Acting”

Following a dynamics of exponential growth in a finite world, humanity today faces a number of unprecedented and tightly interlinked challenges. With a growing number of environmental limits being largely and irreversibly exceeded (GHG concentrations in the atmosphere, biodiversity loss, soil erosion, freshwater shortages...), social, economic, geopolitical, humanitarian (etc.) consequences are becoming more urgent than ever to address, while the threat of an uncontrolled global collapse is now more than a prospect. It is urgent to initiate deep, structural, socioeconomic changes on virtually all aspects of our increasingly global societies (economics, industrial and agricultural production, consumption, education, all requiring major new local and global policies).

In view of these facts, the STEEP research team has initiated in 2016 a series of conferences-debates entitled “Understanding & Acting” (*Comprendre et Agir*) that examines these issues in order to help researchers and citizens to increase their awareness of the various issues at stake in order to initiate relevant individual and collective actions. From now on, the scientific community at large must realize that its duty also lies in helping citizens to better understand these issues. If the fraction of people in society whose privilege is to be paid to think about society’s problems do not seize this opportunity in the critical times we face, who will? Researchers must become more involved in the search of socioeconomic alternatives and help citizens to implement them. The interactions between researchers and citizens must also to be reinvented.

The presentations of this series of conferences typically last between 30 to 45 minutes; they are followed by a 45 minute public debate with the audience. The presentations are captured on video and then made directly accessible on the YouTube Channel “Comprendre et Agir”. At the end of 2019 the YouTube channel has about 5,400 subscribers and reached a total of about 425,000 viewings.

The conference-debates of 2019:

- Olivier Vidal, Université Grenoble Alpes: Resources and energy at the global scale in the context of the energy transition (*Matières premières et énergie à l'échelle mondiale dans le contexte de la transition énergétique*)
- Grégoire Chambaz, Lausanne: How real is the risk of a blackout? (*Le risque de blackout est-il réel ?*)
- Christophe Bonneuil, CNRS and École des hautes études en sciences sociales: When the whites intended to preserve the planet – A history of geo-power, 1865-1914 (*Quand les blancs voulurent conserver la planète. Une histoire du géopouvoir, 1865-1914*)
- Peter Sturm, STEEP: Environmental challenges and what is blocking acting on them (*Enjeux environnementaux et blocages à l'action*)
- Sophie Wahnich, CNRS and Institut interdisciplinaire d’anthropologie du contemporain: Why was King Louis XVI destituted in 1792? Social imaginaries from 1770 to 1792 (*Pourquoi le roi Louis XVI a-t-il été destitué en 1792 ? Imaginaires sociaux de 1770 à 1792*)
- Denis Dupré, STEEP: Collapses and finance (part I) – Is Finance a collapse pyromaniac? (*Effondrements et finance (partie I) – La Finance : pyromane des effondrements ?*)

Link to the web page of the series (program, abstracts, dates, complements etc.): <https://team.inria.fr/steep/les-conferences-debats-comprendre-et-agir/>

Link to the YouTube channel: https://www.youtube.com/channel/UCJbcXCcOA63M8VMysAbmt_A

9.3.3. Interventions

Guillaume Mandil participated in the preparation of an exposition at Cité des Sciences (Paris).

Team members gave the following general audience talks:

- Serge Fenet: Talk *Design et anthropocène : business as unusual – Une cartographie des risques par le prisme de la systémique* at the *Biennale Internationale du Design*, St-Étienne, France, May 2019.
- Serge Fenet: *Effondrements et anthropocène à la lumière de la dynamique des systèmes* at ESC Clermont-Ferrand, France, May 2019.
- Serge Fenet: *Technologies numériques et catastrophe environnementale : des liens complexes* at École Centrale de Lyon, for a general audience of master students.
- Pierre-Yves Longaretti: Seminar *Voluntary minimal consumption: stakes, obstacles, levers*. EcoInfo thematic school, November 2019.
- Pierre-Yves Longaretti: Seminar *Climate Change and strategic surprise*, Swiss military history and prospective center, December 2019.
- Pierre-Yves Longaretti: Round table discussion, *Will we all be farmers tomorrow? (Demain, tous paysans ?)*, Transition Towns biennial meeting, Grenoble, March 2019.
- Pierre-Yves Longaretti: Round table discussion, *Agriculture: global and local stakes (Agriculture : enjeux locaux et globaux)*, Forum citoyen alimentation & santé : La transition agro-alimentaire dans nos assiettes, Grenoble, November 2019.
- Emmanuel Prados: Institutional Conference *Veille techno à Polytech*, Grenoble, France, December 9-16, 2019. Organized by the MSTII Graduate School of Université Grenoble Alpes (Bernard Tourancheau).
- Emmanuel Prados: Institutional Conference organized by UniLaSalle (Hervé Leyrit), Beauvais, France, October 17, 2019.
- Emmanuel Prados: Conference at the back-to-school day of EPITA LYON (computer intelligence engineering school), Lyon, France, September 10, 2019. Organizer: Epita (Lamia Derrode).
- Emmanuel Prados: Conference on environmental transition for elected politicians of the Grésivaudan community of communes, open to the general public, Le Versoud, France, June 3rd, 2019. Organizer: Le Versoud City Hall (Claire Desmaris).
- Emmanuel Prados: General public conference, Crolles, France, June 22, 2019. Organizer: Association *Ecocitoyens*.
- Emmanuel Prados: Conference at the *CitizenCampus* entitled *Transition, démocratie, effondrement : la quadrature du cercle ?*, Grenoble, France, March 29, 2019. Organizer: Université Grenoble Alpes. <https://twitter.com/YannToma/status/1112094922499330049>
- Emmanuel Prados: Conference/debate *Quelles transitions dans un contexte d'effondrement ?*, Palais des Sports de Grenoble, France, March 13, 2019. Organizer: Ville de Grenoble. <http://villesentransition.grenoble.fr/events/quelles-transitions-dans-un-contexte-deffondrement/>
- Emmanuel Prados: Conference within the ISN cycle, *Le numérique face aux enjeux environnementaux et sociétaux*, Grenoble, France, April 10, 2019. Organizer: Inria. https://www.canal-u.tv/video/inria/le_numerique_face_aux_enjeux_environnementaux_et_societaux.50079
- Emmanuel Prados: Invited conference at the Loria colloquium, *Le numérique face à la catastrophe environnementale et sociétale*, Nancy, France, February 8, 2019. Organizer: Loria (<http://www.loria.fr/>). <https://www.loria.fr/fr/communication/colloquium-loria-exposes-et-videos/>

- Peter Sturm made a “Tour de France” by bicycle, to raise awareness on environmental issues. During this trip (May 15 to July 4), he visited all Inria centers and gave a talk on *Environmental challenges and what is blocking acting on them* in ten locations (Sophia Antipolis, Montpellier, Bordeaux, Rennes, Saclay, Rocquencourt, Paris, Nancy, Lyon, Grenoble). His visits were accompanied by various events, including seminars by local researchers, meetings with sustainable development commissions, social gatherings, etc. This initiative is described at <https://project.inria.fr/inriavelo/fr/>, see also the daily blog <https://www.polarsteps.com/PeterSturm3/1692663-inri-a-velo>.

TONUS Project-Team

10.3. Popularization

L. Navoret were allowed to participate in the "fete de la science"

BIOCORE Project-Team

10.3. Popularization

10.3.1. Articles and contents

- A popularization article has been published in the book " "Chimie verte et IAA - Vers une bioéconomie durable" [69].

10.3.2. Interventions

- O. Bernard gave two general public conferences on the topic "Will we drive cars powered by microalgae in 2030" (Saint Etienne de Tinée, 21st September and MAMAC, Nice, November, 13th).
- P. Bernhard did several interventions for a general audience in the Alpes-Maritimes (at Biot, Saint-Vallier and Sospel).
- L. Chambon participated in MASTIC activities in the school Emile Roux (5 June 2019).
- Several members of Biocore hosted schoolchildren to show them the team's research topics.

10.3.3. Internal action

- M. Chaves gave a presentation at the local PhD Seminars organized by the students, on modeling the interactions between mammalian cell cycle and circadian clock.

CARMEN Project-Team

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Coordination of a workgroup entitled "CultureMATH Bordeaux", working on writing dissemination articles for the website <https://culturemath.ens.fr>.

9.3.2. Education

Organization of "Moi informaticienne, moi mathématicienne (MIMM)": one week internship at the University for young girls (15-16 year old) interested in maths and informatics.

9.3.3. Interventions

- National events: Fête de la Science, Semaine des maths,
- In educational institutions: several talks in high-schools about scientific computing and applied mathematics
- Presentation stand for "Simric" at the 10 years anniversary of the Inria Bordeaux Sud-Ouest centre.
- Modeling stand at the "Journée portes ouvertes de Liryc", 2019.
- Reception of 5 high-school pupils (élèves de 3e, 15 years old).

COMMEDIA Project-Team

10.3. Popularization

10.3.1. Interventions

- Céline Grandmont
 - Meeting with junior high school students, Collège Iqbal Masih, Saint-Denis. Interview: <https://www.youtube.com/watch?v=eJVz8tU&t=12s>

DRACULA Project-Team

7.3. Popularization

7.3.1. Articles and contents

- Laurent Pujo-Menjouet : Radio (France Inter), la tête au carré, <https://www.franceinter.fr/emissions/la-tete-au-carre/la-tete-au-carre-10-mai-2019>
- Laurent Pujo-Menjouet : Radio (Europe 1), Wendy Bouchard, <https://www.europe1.fr/emissions/on-fait-le-tour-de-la-question-avec-wendy-bouchard/wendy-bouchard-aujourd'hui-alchimie-equation-formule-magique-lamour-est-il-le-fruit-du-hasard-3905606>
- Laurent Pujo-Menjouet : Radio (Québec), <https://www.qub.radio/balado?id=6bb8beb9-9bb3-493f-abe3-aa7100f60a73&episode=3f6e7a5c-b11a-45ff-aa28-aa96015f517b&fbclid=IwAR2DUNgo-QvKh3z9oGesITJOnCa3f5GzTYWIIGrYSe5hrm7ydSgc1gW6Z5g>
- Laurent Pujo-Menjouet : Radio Canada, <https://ici.radio-canada.ca/premiere/emissions/region-zero-8/episodes/439145/audio-fil-du-vendredi-26-juillet-2019/10>
- Laurent Pujo-Menjouet : Presse écrite (L'Express), https://www.lexpress.fr/actualite/sciences/le-livre-qui-veut-modeliser-l-amour-par-les-mathematiques_2075520.html
- Laurent Pujo-Menjouet : Presse écrite (Le Figaro), <http://www.lefigaro.fr/sciences/le-bonheur-conjugal-c-est-simple-comme-une-equation-differentielle-20190506>
- Laurent Pujo-Menjouet : Presse écrite (Slate), <http://www.slate.fr/story/178140/maths-livre-jeu-amour-hasard-laurent-pujo-menjouet>
- Laurent Pujo-Menjouet : Presse écrite (Le Parisien), <http://www.leparisien.fr/societe/et-si-l-amour-n-etait-pas-le-fruit-du-hasard-10-06-2019-8090055.php>
- Laurent Pujo-Menjouet : Presse écrite (Montreal Gazette), <https://montrealgazette.com/news/local-news/equations-can-predict-the-success-of-relationships-mathematician-says>
- Laurent Pujo-Menjouet : Presse écrite (Society), <http://math.univ-lyon1.fr/~pujo/Society.pdf>
- Laurent Pujo-Menjouet : Presse écrite (Le matin dimanche, Suisse), <https://twitter.com/lpmenjouet/status/1130474006312890373/photo/1>
- Laurent Pujo-Menjouet : Presse écrite (Le journal de Montréal), <https://www.journaldemontreal.com/2019/07/30/et-si-lamour-se-maintenait-avec-des-equations-mathematiques>

7.3.2. Interventions

- Thomas Lepoutre: Visite de l'inria pour les stagiaires de 3e de l'ICJ (plusieurs fois dans l'année, une matinée en général).
- Thomas Lepoutre participation to MathaLyon intervention
- Laurent Pujo-Menjouet participation to "Math en Jeans", Collège-Lycée Lacassagne, Lyon and Collège Gratte-Ciel, Villeurbanne
- Laurent Pujo-Menjouet participation to "Mathématiques étonnantes, SMF conférence", Lyon
- Laurent Pujo-Menjouet participation to TEDx, Montrouge https://www.youtube.com/watch?v=xJ8wE_wmtUY

M3DISIM Project-Team

9.3. Popularization

C. Patte, J. Diaz and J. Manganotti, leading of a scientific activity for the Fête des Sciences day organized by Inria. October 11

C. Patte, creation of a scientific activity for middle and high school students as part of a popularization doctoral mission

C. Patte, supervision of a research activity for the RJMI (Rendez-vous des Jeunes Mathématiciennes et Informaticiennes) organized by Inria. October 21 & 22

MAMBA Project-Team

9.3. Popularization

Diane Peurichard presented a talk in the framework of the "Remise des prix des Olympiades de mathématiques de Paris" (prize for national mathematics competition for young french students), Wednesday 29th, June 2019.

Diane Peurichard presented her work at the Inria scientific days in Lyon from June 5th- 7th, 2019.

At the occasion of scientific seminars, Pierre-Alexandre Bliman gave interviews to TV channels in Paraguay: Paraguai TV (March 28, 2019); and in Brazil: Globo Amapá (April 16, 2019), Balanço Geral AP (April 17th, 2019).

Marie Doumic gave a presentation of her research for middle-school pupils in internship (December 2019) and for highschool mathematics teachers (March 2019, in Lille), and did "speed-dating interviews" with high school students (February 12th, NGO "Sephora Berrebi").

Benoit Perthame gave public talks at Tamkang university (Taipei) and Nancy.

MONC Project-Team

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

10.3.2. Interventions

- A. Collin, intervention "midi-rencontre sur les femmes dans les sciences", association TousEn-Sciences
- A. Collin, intervention "place de la femme dans les métiers scientifiques", Robot makers' days
- C. Etchegaray: Fête de la science.
- O. Saut: Journée Scientifique Institut Bergonié.

10.3.3. Internal action

- O. Saut: Café des Sciences.

NUMED Project-Team

6.3. Popularization

Emmanuel Grenier: "Mathematics and vaccines" (Université de Chambéry, for first year students).

6.3.1. Interventions

- H. Leman: Mentoring of two high school students
- D. Coulette: Scientific speed dating at "Musée des Confluences" (Lyon) for the "Fête de la Science" and 80th birthday of CNRS.

REO Team

9.3. Popularization

9.3.1. Interventions

- N Golse (MD)
 - conference at Ecole des Mines, 14th October 2019, “Healthcare simulation”
- Irene Vignon-Clementel
 - High school forum on scientific career, 7th December, Lycee Corneille, La Celle St Cloud
 - Junior high school intervention ‘women in engineering’, 22nd February, Ville d’Avray
 - High school forum on scientific career, 19th January, Lycee Corneille, La Celle St Cloud
 - High school intervention, 15th January, Blanche de Castille, Le Chesnay

9.3.2. Internal action

Interviews of Irene Vignon-Clementel by journalist for Inria, 13th March and 25th Nov (see Inria website articles)

SISTM Project-Team

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Mélanie Prague is part of two committees at Inria: "ADT - Aide au développement technologique" and "CER - Commission Emploi recherche".

10.3.2. Articles and contents

Mélanie Prague participated to the video reportage produced by the Inria's communication service

10.3.3. Interventions

Mélanie Prague participated at the "Fête de la Science" for high school students on October.

10.3.4. Internal action

R Thiébaud gave the talk "VIRUS EBOLA: Comment la modélisation permet d'aider au développement des vaccins ?" in November at "Unithé ou café", Inria BSO, Talence.

H Lorenzo presented a poster *Apprentissage supervisé pour données massives multi-blocs incomplètes* in the annual workshop (*JED*) of the Doctoral School of Societies, Politics and Public Health (ED SP2), University of Bordeaux.

XPOP Project-Team

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Eric Moulines was member of the Evaluation Committee of Inria.

10.3.2. Creation of media or tools for science outreach

Marc Lavielle developed and maintains the learning platform [Statistics in Action](#). The purpose of this online learning platform is to show how statistics (and biostatistics) may be efficiently used in practice using R. It is specifically geared towards teaching statistical modelling concepts and applications for self-study. Indeed, most of the available teaching material tends to be quite "static" while statistical modelling is very much subject to "learning by doing".

Julie Josse (with Nicholas Tierney and Nathalie Vialaneix) developed and maintains the website [R-miss-tastic](#), A resource website on missing data.