



RESEARCH CENTER
Lille - Nord Europe

FIELD

Activity Report 2017

Section Highlights of the Team

Edition: 2018-02-19

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BONSAI Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- Bonsai and close partners organized the French conference in bioinformatics, JOBIM, in Lille. More than 350 people attended to the conference.
- In the two last years, more than 2,000 samples of patients suffering leukaemia were analyzed with the Vidjil software developed in Bonsai with our partners. The VidjilNet consortium will be launched on January 1st 2018 within the Inria Foundation.

5.1.1. Awards

Pierre Pericard received the Best Oral Presentation Award from the SFBI for its talk on MATAM at the French bioinformatics conference JOBIM.

BEST PAPERS AWARDS :

[29] **JOBIM 2017 - Journées Ouvertes en Biologie, Informatique et Mathématiques.** P. PERICARD, Y. DUFRESNE, S. BLANQUART, H. TOUZET.

DEFROST Project-Team

5. Highlights of the Year

5.1. Key Scientific results

Key Scientific results: - First closed looped control of a soft robot (Thesis of Thor Bieze and Paper of Zhongkai Zhang at IROS) - Inverse model of soft robots with contact handling (Paper of Eulalie Coevoet for RA-L Letters at ICRA)

5.2. Media coverage of the team work

- Christian Duriez took part in a show on France Culture: <https://www.franceculture.fr/emissions/la-methode-scientifique/pourquoi-les-robots-deviennent-ils-mous>
- One of the team's robot was shown on France 24: <http://m.france24.com/fr/20171103-softrobotics-robots-mou-inria-cnrs-epfl-arabisaoudite-neom-tamagotchi-parisgamesweek>
- Le Point http://www.lepoint.fr/technologie/bientot-des-robots-a-avaler-04-11-2017-2169846_58.php
- France inter: <https://www.franceinter.fr/emissions/futur-proche/futur-proche-01-septembre-2017>

5.3. Arrival of new members in the team

- Gang Zheng as researcher.
- Félix Vanneste and Erwan Douaille as engineers.
- Thomas Morzadec and Stefan Escaida Navarro as postdoctoral researchers.
- Marwa Mohammed Alaa Eldean Eldiwiny as PhD student.

DOLPHIN Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

- Patent with Beckman & Coulter on Intelligent handling of materials: joint selection and configuration optimization of machines (Prof. E-G. Talbi, S. Faramarzi-oghani, M. Bué)
- Best student paper award at conference SEAL'2017

BEST PAPERS AWARDS :

[27] **11th International Conference on Simulated Evolution and Learning (SEAL 2017)**. J. SHI, Q. ZHANG, B. DERBEL, A. LIEFOOGHE, S. VEREL.

FUN Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

Valeria Loscri has been elevated to the IEEE Senior Membership degree.

5.1.1. Awards

BEST PAPERS AWARDS :

[26] **2nd IEEE International Congress on Internet of Things, IEEE ICIOT 2017.** P. MERLE, C. GOURDIN, N. MITTON.

INOCS Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Personnel

- Markus Sinnl joined us in October as Inria researcher.

5.1.2. Awards

- A joint team between Ecole des Mines de St Etienne and INOCS involving N. Absi, D. Cattaruzza, D. Feillet, M. Ogier, F. Semet won the scientific prize of the EURO/ROADEF Challenge 2016 devoted to an Inventory Routing Problem proposed by Air Liquid.

5.1.3. Publications & dissemination

- Martine Labbé was the EURO Plenary Speaker at the Conference of the International Federation of Operational Research Societies (IFORS) in Québec, Canada, July 2017 [\[42\]](#).

LINKS Project-Team

5. Highlights of the Year

5.1. Book with the W3C on schemas validation for the semantic Web

I. Boneva et al. published a book [25] on Validating RDF Data based on the schema language ShEx. This book may have a important impact on the semantic Web community, given that one of her co-authors works for the W3C (E. Prud'hommeaux) where ShEx is considered for standardization.

5.2. Two associate professors recruited

F. Capelli and C. Paperman were hired as Associate Professors for LINKS by the University of Lille 3, so we are currently working on their integration.

5.3. Papers at PODS, LICS, 3 x ICALP, STACS, 2 x IJCAI

This year we obtained exceptional publications in all main theory conferences concerning databases, logic, and artificial intelligence.

5.4. ICALP best paper award

Pierre Bourhis' paper with Oxford (Benedikt and Vanden Boom) in Track B of ICALP'17 won the best paper award!

BEST PAPERS AWARDS :

[17] **ICALP 2017 - 44th International Colloquium on Automata, Languages, and Programming.** M. BENEDIKT, P. BOURHIS, M. V. BOOM.

MAGNET Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- First public release of the **Mangoes** software
- Major publications in machine learning and natural language processing (AISTATS'17, EACL'17)
- Increased visibility of the team on decentralized learning and privacy with applications on mobility data through publications, Workshops, invited talks and bilateral contracts
- Participation in the the Scikit-Learn development team with AURÉLIEN BELLET and WILLIAM DE VAZELHES through the ADT SkMetricLearn

5.1.1. Awards

- AURÉLIEN BELLET was awarded the Prime d'encadrement doctoral et de recherche (PEDR), category "junior"
- PASCAL DENIS was awarded the Prime d'encadrement doctoral et de recherche (PEDR), category "confirmé"

MEPHYSTO Project-Team (section vide)

MINT2 Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. *Evita*

EVITA is a tactile feedback tablet, produced by Hap2U SME company, based in Grenoble. It has been presented at CES in January 2017, the SME has been awarded a CES innovation award. This device is issued from a strong collaboration with MINT group. EVITA is a very generic interaction device, and several projects are currently being discussed for understanding the fields of applications of this device. It is also, in particular, the hardware support for our haptic book for children, described below, that is our second highlight for this Raweb. XploreTouch tablet (the product sold by Hap2U) will be integrated in 2018 in "Palais de la Découverte" permanent exposure (La Villette, Paris).

5.1.2. *Haptic book*

The first digital book augmented with a high fidelity feedback was released in October 2016. Based on a scenario and illustrations made by Dominique Maes - an artist from Belgium - this haptic book was presented for the first time during "La nuit des bibliothèques" in Lille. This project had nice society visibility in 2017, with several expositions (3 exhibitions in the region in 2017, about 14 weeks of availability hired by city of Valenciennes in 2018).

5.1.3. *GoTouchVR spinoff*

Eric Vezzoli and Thomas Sednaoui (two former PhD students of the team) founded GoTouchVR company, that designs a lightweight device (the VRTouch device) for tactile feedback for VR systems. The company was present at CES 2017 and will be also present at CES 2018. An Inria Tech contract was devoted to the VRTouch SDK, taking benefit of MINT knowledge on gesture recognition and interaction design.

5.1.3.1. *Awards*

- SME Hap2U received a "CES innovation award", based on the collaboration that MINT group has with them (E-vita tactile feedback tablet) at CES (January 2017).

Mjolnir Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Personnel

Nicolas Roussel, founder and former leader of the team, left Inria Lille in July 2017 after being promoted Director of the Inria Bordeaux - Sud-Ouest research center. **Stéphane Huot** has been appointed team leader since then, and until the team comes to an end in December 2017.

Ed Lank, Associate Professor at University of Waterloo who already spent one year in our team funded by Région Hauts-de-France and Université Lille 1 until Aug. 2017, extended his stay for 6 months (funded by Inria).

In partnership with Campus France and Inria, Mitacs' **Globalink Research Award** program sponsored the visit of a Canadian student in our group: **Jeff Avery** (University of Waterloo).

5.1.2. Publications

Mjolnir presented four papers at **ACM CHI** and three papers at **ACM UIST**, the most prestigious conferences in our field.

5.1.3. Awards

“**Honorable mention**” (top 5% of the 2400+ submissions) from the ACM CHI conference to the paper “Visualization Literacy at Elementary School”, from B. Alper, N. Henry Riche, F. Chevalier, J. Boy & T. M. Sezgin .

“**Best paper honorable mention**” (top 5% of the 173 submissions) from the IEEE VIS-VAST conference to the paper “Supporting Handoff in Asynchronous Collaborative Sensemaking Using Knowledge-Transfer Graphs”, from J. Zhao, M. Glueck, P. Isenberg, F. Chevalier & A. Khan .

BEST PAPERS AWARDS :

[16] **CHI '17 - Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems**. B. ALPER, N. HENRY RICHE, F. CHEVALIER, J. BOY, T. M. SEZGIN.

[] **IEEE Transactions on Visualization and Computer Graphics**. J. ZHAO, M. GLUECK, P. ISENBERG, F. CHEVALIER, A. KHAN.

MODAL Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. *NIPS 2017 workshop*

Benjamin Guedj, Pascal Germain (both at Modal) and Francis Bach (SIERRA, Inria Paris) co-organize a NIPS 2017 workshop, called “(Almost) 50 shades of Bayesian learning: PAC-Bayesian trends and insights”. A large audience is expected, and the workshop has a series of prestigious international speakers. See the [website](#).

5.1.2. *Recruitment of a new researcher*

Pascal Germain has been recruited as CR2 in the team, three years after the recruitment of Benjamin Guedj the first CR recruited in the team.

NON-A Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

- Maxime Feingesicht won The Creativity Prize of the FR CNRS TTM.
- Gabriele Perozzi won the Best Student Paper Award of the conference EUCASS 2017.
- The IPL COSY has been launched!
- Hafiz Ahmed won a CNRS PhD award by GDR MACS.

BEST PAPERS AWARDS :

[68] **7th European Conference for Aeronautics and Space Science.** G. PEROZZI, D. EFIMOV, J.-M. BIANNIC, L. PLANCKAERT, P. COTON.

RAPSODI Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Organization of the FVCA8 conference

The team RAPSODI was deeply involved in the organization of the eighth edition of the conference *Finite Volumes for Complex Application* (FVCA8). The conference was held in Lille on June 2017. The conference was a great success. It gathered about 150 specialists —mostly academics and research engineers from the industry— of the finite volume methods and of their application to real world problems. Claire Chainais-Hillairet headed the organization committee, Clément Cancès was in charge of the publication of the proceedings, Caterina Calgaro and Emmanuel Creusé organized the social events, and all the members of the team were in charge of the reception of the participants.

5.1.2. From a team to a project team

The research team RAPSODI was created on August 2015, but its evolution to the project team level was effective on Nov. 1, 2017. This evolution was based on the positive evaluation by several internationally recognized experts of an extended version of our research program.

RMOD Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Release of Pharo 6

We released a new version Pharo (Pharo 6). More information at <http://pharo.org>.

5.1.2. Pharo Consortium joins InriaSoft

The Pharo Consortium is joining InriaSoft (part of the Inria Foundation).

5.1.3. Awards

- Guillermo Polito, Luc Fabresse and Stéphane Ducasse won the 1st place in the best paper award at IWST 2017.
- Sophie Kaleba and Clément Béra won the 3rd place in the best paper awards at IWST 2017.
- Benoit Verhaeghe won the 2nd place for SmartTest in the Innovation Technologies Award at ESUG 2017.
- Denis Kudriashov with PharoThings won the 3rd place in the Innovation Technologies Award at ESUG 2017.

5.1.4. Keynote at Programming 2017

Stéphane Ducasse and Guillermo Polito did a keynote presentation in Modularity 2017, hosted within Programming 2017.

SEQUEL Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- under the supervision of O. Pietquin and J. Mary, F. Strub and collaborators (among which University of Montreal) have introduced the **Guesswhat?!** game to study visually grounded dialogues interleaving vision and natural language. A dataset of 150k human-human dialogues has been collected and is freely available on the Internet. Supervised learning baselines and state-of-the-art reinforcement learning algorithms have been implemented and are available as open-source code. This work resulted in publications in prestigious conferences: as a spotlight at CVPR 2017, an oral at IJCAI 2017, and an other spotlight at NIPS 2017 [51], [29], [30]. Spotlight presentations concern less than 3.5% of submissions to NIPS, and 5% of submissions to CVPR.

See <https://www.guesswhat.ai>

- under the supervision of M. Valko and A. Lazaric, D. Calandriello and collaborators have provided the first breaking quadratic barrier for nonparametric learning. An open source implementation is available on the Internet. The work has been published in prestigious conferences: AI & STATS, ICML and NIPS [26], [28], [27].

SPIRALS Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

María Gómez Lacruz defended her PhD thesis [58] in 2016 in the Spirals project-team. She is now a post-doctoral researcher at Saarland University, Germany. During her thesis, she worked in the domain of crowdsensed data. She proposed algorithms to mine traces of mobile applications in order to detect and reproduce application crashes. This research led to techniques that improve the robustness of mobile applications deployed in the wild. For these results, she was awarded an accessit for the thesis prize of the CNRS GDR *Génie de la programmation et du logiciel* (GPL). See <http://gdr-gpl.cnrs.fr/node/284>.

Benjamin Danglot and his colleagues—Thomas Durieux, Martin Monperrus, Simon Urli, contributing to the development of the Spoon software library—received the 2017 OW2 Community award for Spoon specific and dynamic community, and the use of Spoon in other projects. OW2 is an independent, global, open-source community that promotes the development of open-source middleware, generic business applications, and cloud computing platforms. Spoon is an OW2 project and a software building block that is used in many of our research activities and projects on self-adaptation. See https://www.ow2con.org/bin/view/2017/Awards_Results?year=2017&event=OW2con17.

Philippe Merle, Christophe Gourdin, and Nathalie Mitton (Inria Fun) received a best paper award in the 2nd IEEE International Congress on Internet of Things (ICIOT 2017) for their work on mobile cloud robotics. The paper proposes a novel interface to bridge the gap between cloud systems and mobile robot systems. See <http://iciot.org/2018/news.html>.

BEST PAPERS AWARDS :

[35] **2nd IEEE International Congress on Internet of Things, IEEE ICIOT 2017**. P. MERLE, C. GOURDIN, N. MITTON.