RESEARCH CENTER

FIELD
Digital Health, Biology and Earth

Activity Report 2018

Section Contracts and Grants with Industry

Edition: 2019-03-07

ABS Project-Team (section vide)

BEAGLE Project-Team (section vide)

BIGS Project-Team

7. Bilateral Contracts and Grants with Industry

7.1. Bilateral Contracts with Industry

Bruno Scherrer has done some consulting for EDF. This was a skill transfer activity involving training and consulting on the theory and algorithms for reinforcement learning, for the Research & Development team of EDF conducted by Lorenzo Audibert. This R&D team wants to apply reinforcement learning to several EDF problems: optimizing maintenance of uranium rods in the cores of nuclear power plants, optimizing the control of dam, optimization of load profiles for a network of electric vehicles. Bruno Scherrer's role was to give them the basics of reinforcement learning theory, and help them to use the algorithms of the literature. It was a one-shot action, running in 2018, and contractualized via a "framework agreement" Inria-EDF. This contract brings in approximately 12,000 euros to BIGS team (among which 2,000 for mission expenses).

R. Azaïs, A. Gégout-Petit, F. Greciet collaborated with SAFRAN Aircraft Engines (through a 2016-2019 contract). SAFRAN Aircraft Engines designs and products Aircraft Engines. For the design of pieces, they have to understand mechanism of crack propagation under different conditions. It appeals to BIGS for modeling crack propagation with Piecewise Deterministic Markov Processes (PDMP).

BONSAI Project-Team (section vide)

CAPSID Project-Team (section vide)

DYLISS Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Grants with Industry

8.1.1. SANOFI: co-supervised phD

Participants: Emmanuelle Becker, Olivier Dameron, Anne Siegel, Méline Wery.

This collaboration project is focused on the implementation of an integrative analysis framework based on semantic web technologies and reasoning in the framework of scleroderma pathology. **CIFRE co-supervised Grant: Ph.D. funding. 2017-2020**

ERABLE Project-Team

7. Bilateral Contracts and Grants with Industry

7.1. Bilateral Grants with Industry

7.1.1. Spock

- Title: characterization of hoSt-gut microbiota interactions and identification of key Players based on a unified reference for standardized quantitative metagenOmics and metaboliC analysis frameworK
- Industrial Partner: MaatPharma (Person responsible: Lilia Boucinha).
- ERABLE participants: Marie-France Sagot (ERABLE coordinator and PhD main supervisor with Susana Vinga from IST, Lisbon, Portugal, as PhD co-supervisor), Marianne Borderes (beneficiary of the PhD scholarship in MaatPharma).
- Type: ANR Technology (2018-2021).
- Web page: http://team.inria.fr/erable/en/projects/#anr-technology-spock.

GENSCALE Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

8.1.1. Processing in memory

Participants: Charles Deltel, Dominique Lavenier.

The UPMEM company is currently developing new memory devices with embedded computing power (http://www.upmem.com/). GenScale investigates how bioinformatics algorithms can benefit from these new types of memory. In 2018 we parallelized the detection of short variants (see new results section).

8.1.2. Tank milk analysis

Participants: Dominique Lavenier, Jacques Nicolas.

The Seenergi company has developed a biotechnology protocol to detect cow mastitis directly by analyzing the milk of the tanks. Cows are first genotyped. Since cows with mastitis produce a high level of lymphocytes, a DNA milk analysis can point out infested cows. Currently, DNA chips are used to support this analysis. We are currently investigating the possibility to use sequencing technologies in order to both reduce cost analysis and to extend the detection to larger herds.

8.2. Bilateral Grants with Industry

8.2.1. Rapsodyn project

Participants: Dominique Lavenier, Claire Lemaitre, Sebastien Letort, Pierre Peterlongo, Gwendal Virlet.

RAPSODYN is a long term project funded by the IA ANR French program (Investissement d'Avenir) and several field seed companies, such as Biogemma, Limagrain and Euralis (http://www.rapsodyn.fr/). The objective is the optimization of the rapeseed oil content and yield under low nitrogen input. GenScale is involved in the bioinformatics work package, in collaboration with Biogemma's bioinformatics team, to elaborate advanced tools dedicated to polymorphism detection and analysis.

IBIS Project-Team (section vide)

LIFEWARE Project-Team (section vide)

MORPHEME Project-Team

7. Bilateral Contracts and Grants with Industry

7.1. Bilateral Contracts with Industry

General Electric Healthcare: a 36 months (from feb. 2016 to jan. 2019) companion contract for the Cifre thesis of E. Poulain.

Bayer, Lyon: a 36 months (from aug. 2018 to jul. 2021) companion contract for the Cifre thesis of S. Laroui.

MOSAIC Team

7. Bilateral Contracts and Grants with Industry

7.1. Bilateral Contracts with Industry

Participants: Frédéric Boudon [External Collaborator], Christophe Godin.

We started a collaboration with A.M.R. a start-up whose aim is to develop a web application to create social networks for project management. This application makes use of plant representations at different levels for which the expertize of the Mosaic group was required. In 2018, we hosted two internships during 6 months in co-supervision with Guillaume Asselot (founder of A.M.R.) to work on plant models for the web application. Guillaume Asselot is seeking to raise new funds to pursue the collaboration in the coming years.

PLEIADE Team (section vide)

SERPICO Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral grants with industry

8.1.1. Fourmentin-Guilbert Foundation: Macromolecule detection in cryo-electron tomograms

Participants: Emmanuel Moebel, Charles Kervrann.

Collaborators: Damien Larivière (Fourmentin-Guilbert Foundation).

A three-year contract was established with Fondation Fourmentin-Guilbert to partly support the PhD thesis of Emmanuel Moebel. The Fondation Fourmentin-Guilbert strives for building a virtual E. coli bacteria. Information about the position of macromolecules within the cell is necessary to achieve such a 3D molecularly-detailed model. The Fondation Fourmentin-Guilbert supports cutting-edge *in-situ* cryo-electron tomography combined with image processing at the Max-Planck Institute of Biochemistry to map the spatial distribution of the ribosomes, and obtain structural information on the complexes they form *in-situ* with cofactors and other ribosomes. The objective of the project is to explore novel methods from the field of 3D shape retrieval for identifying and counting macromolecules within a tomogram. This project is also supported by Région Bretagne.

8.1.2. DGA contract on motion saliency analysis

Participants: Léo Maczyta, Patrick Bouthemy

Funding: DGA (National Defense Agency) (Oct 2017 - Sept 2020)

Collaborators:

This project funded by the DGA (Ministry of defense) concerns the PhD thesis (co-funding) carried out by Léo Maczyta. The goal is to develop motion saliency methods along three axes: temporal motion saliency detection, saliency map estimation, trajectory-based saliency detection.

ARAMIS Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Grants with Industry

8.1.1. Carthera

Participants: Stéphane Epelbaum [Correspondant], Alexandre Carpentier, Anne Bertrand, Marie Odile Habert.

Project title: Open label phase 1/2 study evaluating the safety and usefulness of transient opening of the blood-brain barrier using low intensity pulsed ultrasounds generated by the implantable device SONOCLOUD in patients with mild Alzheimer's disease

Started in 2016

Amount: 400 K€

Coordinator: Stéphane Epelbaum

Other partners: UPMC, AP-HP

Abstract: This project aims at opening the blood brain barrier (BBB) in 10 mild Alzheimer's disease patients in order to improve the clearance of beta-amyloid and tau deposits in their brain as suggested in mice models of the disease. This first in man study will evaluate the safety and efficacy of an implanted device, SONOCLOUD, to open the BBB 7 times in each participant. Efficacy will be evaluated on the ability of the method to decrease the amyloid load evidenced by AV45 Positron Emission Tomography (PET), increase the brain metabolism analyzed by Fluorodeoxyglucose PET and improve cognition. If successful, this study will pave the way for future trials in which drugs can be used in addition to BBB opening to maximize their effect.

ATHENA Project-Team (section vide)

BIOVISION Project-Team

7. Bilateral Contracts and Grants with Industry

7.1. Bilateral Contracts with Industry

7.1.1. Could hardware solutions coming from the automotive industry be useful in the context of low vision?

Participants: Josselin Gautier, Nicolas Chleq [Inria, SED], Pierre Kornprobst, Frédéric Dosière [Bosch Visiontec (Sophia Antipolis, France)], David Coupé [Bosch Visiontec (Sophia Antipolis, France)]

Duration: August 2017 to March 2018

Thanks to a partnership with Bosch Visiontec (Sophia Antipolis, France), we have investigated how hardware solutions coming from the automotive industry (RENESAS Starter-Kit RCar H3) could be used to design real-time vision-aid-systems based on augmented reality. We focused on the detection and enhancement of faces. We analysed the performance of a selection of enhancement algorithms and optimised them taking into consideration the hardware limitations.

Based on the same ideas, a working prototype has also been developed using a Fove 0 head-mounted display and tested with three patients with central vision loss (see Sec.6.1.1).

CAMIN Team

7. Bilateral Contracts and Grants with Industry

7.1. Bilateral Contracts with Industry

- collaboration contract with FEETME (http://www.feetme.fr) company.
- collaboration contract with Innopsys (https://www.innopsys.com/en) company.
- collaboration contract with ISIDU (https://isidu.eu/) company.
- collaboration contract with Berkelbike (https://berkelbike.com) company.

7.2. Bilateral Grants with Industry

- collaboration contract with NEURORESP (http://neuroresp.com/) company (CIFRE PhD thesis).
- collaboration contract with SubseaTech (https://www.subsea-tech.com/) company, CIFRE PhD thesis about the on-the-fly optimization of actuators steering for underwater vehicles.

EPIONE Project-Team

7. Bilateral Contracts and Grants with Industry

7.1. Bilateral Contracts with Industry

7.1.1. Microsoft Research

Microsoft Research is funding through the Inria-Microsoft joint lab the projects "4D Cardiac MR Images"[0] and "Medilearn"[0] which aim at analyzing large databases of cardiac images to help the diagnosis of cardiac diseases and planning of therapy. This project involves A. Crimisi from MSR and partially funds the PhDs of Pawel Mlynarski.

7.1.2. Spin-off company Therapixel

Therapixel[0] is a spin-off of the Asclepios (Inria Sophia Antipolis) and Parietal (Inria Saclay) project teams founded in 2013. Therapixel makes surgical information systems. It relies on depth sensing, advanced software processing and innovative user interfaces to provide touchless control of the computer. This technology allows for a direct control of the computer, which sterility constraints made impractical in the past. In 2015, Therapixel obtained the CE marking of its product on touchless visualization of medical images.

7.1.3. Spin-off company inHEART

inHEART[0] is a spin-off of the Asclepios team and IHU Liryc founded in 2017. inHEART provides a service to generate detailed anatomical and structural meshes from medical images, that can be used during ablation interventions. inHEART received 2 awards, one from Aquitaine region and one i-LAB from the BPI.

7.1.4. Siemens HealthCare

Siemens Healthcare, Medical Imaging Technologies, Princeton, NJ (U.S.A). is funding the PhD work of Julian Krebs which aims at developing robust medical image registration methods

7.1.5. Median Technologies

Median technologies, Sophia Antipolis (FR) funded the 5 months gap year internship of Souhaiel Riahi and the 6 months Master 2 level internship of Nour Ediine al Orjany, co-advised by Xavier Pennec and Hervé Delingette on the characterization of hepatic lesions and fibrosis in CT image using machine learning methods

[0] http://www.msr-inria.fr/projects/4d-cardiac-mr-images
[0] http://www.msr-inria.fr/projects/medilearn
[0] http://www.therapixel.com/
[0] http://www.inheart.fr/

GALEN-POST Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

PhD Contract with General Electric Healthcare
Project title: Minimally invasive assessement of coronary disease
Duration: 2018-2021
Leader: Hugues Talbot

PhD Contract with General Electric Healthcare
Project title: Optimization methods for breast tomosynthesis
Duration: 2017-2020
Leader: J.-C. Pesquet

PhD Contract with IFP Energies nouvelles
Project title: Graph-based learning from integrated multi-omics and multi-species data
Duration: 2019-2022
Leader: F. Malliaros and J.-C. Pesquet

GPU grant from NVIDIA
NVIDIA's Academic Programs Team is dedicated to empowering and collaborating with professors and researchers at universities worldwide. For a research project on compressing CNNs input, Edouard Oyallon received a TitanXP from NVIDIA.

MATHNEURO Team (section vide)

MIMESIS Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

- **Altran:** A global leader in innovation and high-tech engineering consulting, Altran accompanies supports its clients in the creation and development of their new products and services. We have a common history of successful collaboration via CIFRE Ph.D. thesis of Rosalie Plantefève.
- **Siemens:** A global leader in healthcare industry. Via IHU, we collaborate with Siemens in the context of the IHU project CIOS Alpha Fusion dealing with augmentation of the intra-operative image provided by a fluoroscopic imaging modality with pre-operative data.
- **Naviworks:** A South Korean company specialized in ICT convergence simulation/IoT smart controlling. We collaborate on simulation and visualization in the context of interventional radiology.

MNEMOSYNE Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

8.1.1. Contract with Algotech

Participants: Frédéric Alexandre, Ikram Chraibi Kaadoud, Nicolas Rougier, Thierry Viéville.

Algotech is a SME working in the domain of CADD software edition for electrical circuit diagram interpretation and design. Its activity is interesting for our team because they are also interested in the design, by learning, of perception (for diagram identification) and action aspects of loops (for diagram genesis) with the specificity of working at a small scale, considering the variety of items to be manipulated. This is consequently a very interesting benchmark for transfering our bio-inspired models to the domain of classical machine learning. Particularly, during the PhD of Ikram Chraibi Kaadoud (defended this year), we have worked on the extraction of implicit knowledge, from the learning of sequences, extracted from diagrams.

8.1.2. Contract with CEA Cesta

Participants: Frédéric Alexandre, Guillaume Padiolleau.

In the context of the PhD of Guillaume Padiolleau, we are working with the CEA on possible interactions between model-based and model-free approaches of reinforcement learning, based on cognitive consideration. Particularly, to decrease the complexity of exploration of a large data space in model-free approaches, we aim at considering introducing a priori knowledge coming from a model and we also propose to consider motivation as another way to orient the search in the learning space. This is applied in the robotic domain to manipulations by a robotic arm.

8.1.3. Contract with Ubisoft

Participants: Frédéric Alexandre, Pramod Kaushik.

Together with the Inria Project-team Flowers, we are working with the video game editor Ubisoft to define original bio-inspired learning methods, to qualify the behavior of human players observed during runs of games. Such learning algorithms will be specifically considered in the PhD of Pramod Kaushik.

NEUROSYS Project-Team (section vide)

PARIETAL Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

In 2018, a CIFRE PhD thesis was launched with the Canadian company Interaxon https://choosemuse.com. This contract supports the PhD thesis of Hubert Banville.

VISAGES Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

8.1.1. Siemens

In the context of the Neurinfo imaging platform, a master research agreement between Siemens SAS - Healthcare and University of Rennes 1 defines the terms of the collaboration between Siemens, Visages and the Neurinfo platform. Relying on this research agreement contract, Neurinfo has received work in progress (WIP) sequences from Siemens in the form of object code for evaluation in the context of clinical research. The Neurinfo platform has also received source code of selected MRI sequences. As an example, the diffusion sequence code was modified to load arbitrary diffusion gradient waveforms for the FastMicroDiff project led by E. Caruyer. This is crucial in the collaboration since it enables the development of MRI sequences on site. Siemens currently provides research resources through the funding of a PhD student (Cédric Meurée: CIFRE Inria / Siemens grant). The MR Diffusion pulse sequence source code was modified in collaboration with our Siemens clinical scientist as part of our Master Research Agreement, Marc Lapert, in order to play arbitrary gradient waveforms. This was done on the Syngo VB17 software version and again on VE11C (nearly finished).

The PhD of Cédric Meurée is funded by Siemens Healthineers under a CIFRE grant.

AIRSEA Project-Team

7. Bilateral Contracts and Grants with Industry

7.1. Bilateral Contracts with Industry

A 2-year contract with Mercator-Ocean on the thematic "The AGRIF software in the NEMO European ocean model": see 5.1

Contract with IFPEN (Institut Français du pétrole et des énergies nouvelles), for the supervision of a PhD (Adrien Hirvoas). Research subject: Development of a data assimilation method for the calibration and continuous update of wind turbines digital twins

The Chair OQUAIDO – for "Optimisation et QUAntification d'Incertitudes pour les Données Onéreuses" in French – is the chair in applied mathematics held at Mines Saint-Étienne (France). It aims at gathering academical and technological partners to work on problems involving costly-to-evaluate numerical simulators for uncertainty quantification, optimization and inverse problems. This Chair, created in January 2016, is the continuation of the projects DICE and ReDICE which respectively covered the periods 2006-2009 and 2011-2015. Reda El Amri's PhD thesis is funded by OQUAIDO.

A 3-year contract (from June 2016 to June 2019) named ALBATROSS with Mercator-Ocean on the topic « Interaction océan, vagues, atmosphère à haute résolution » (PI: F. Lemarié).

ANGE Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

- A contract (2016-2018) has been made (130.000 euros) with SAUR, IAV (Institut d'Aménagement de la Vilaine) and Agence de l'eau Loire-Bretagne in collaboration with SciWorks Technologies. It deals with the modelling and the simulation of chlorides entry in the Vilaine reservoir.
- A part of the ANR project Hyflo-Eflu relies on a collaboration with the company "HydroTube Energie". It comprises the recruitment of a young engineer (J. Ledoux) and regular meetings with industrial (Bordeaux) and academic partners (Nantes). See below for more details about the scientific content of this project.
- A part of the ANR project ESTIMAIR includes the SME NUMTECH for a commercial deployment of the project results. (Bordeaux) and academic partners (Nantes). See below for more details about the scientific content of this project.
- J. Sainte-Marie, C. Guichard, Y. Penel, J. Salomon are part of an agreement between Institut Carnot SMILES (Sorbonne Univ., Thomas Boiveau) and the corporation GTT about the improvement of a modeling tool for gas flows in the isolation spaces of LNG tanks

8.2. Bilateral Grants with Industry

P. Quémar's PhD thesis is funded by EDF (CIFRE). His PhD is entitled "3D numerical simulations of environmental hydrolics: application to Telemac".

CASTOR Project-Team (section vide)

COFFEE Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

- Contract with Andra financing the two year postdoctoral position of Joubine Aghili (october 2017 - september 2019) and dealing with the simulation of compositional liquid gas Darcy flows in highly heterogeneous porous medium with network of fractures using Discrete Fracture Matrix models (DFM). It is applied to the simulation of the desaturation of the nuclear waste storage in the neighbourhood of the galleries. Supervision Roland Masson and Konstantin Brenner from LJAD-Inria, Jean-Raynald de Dreuzy from Geosciences Rennes and Laurent Trenty from Andra.

FLUMINANCE Project-Team

7. Bilateral Contracts and Grants with Industry

7.1. Bilateral Contracts with Industry

7.1.1. Contract ITGA

Participants: Dominique Heitz, Etienne Mémin.

duration 36 months. This partnership between Inria, Irstea and ITGA funds the PhD of Romain Schuster. The goal of this PhD is to design new image-based flow measurement methods for the study of industrial fluid flows. Those techniques will be used in particular to calibrate industrial fume hood.

7.1.2. Contract CSTB

Participants: Mohamed Yacine Ben Ali, Dominique Heitz, Etienne Mémin.

duration 36 months. This partnership between Inria, Irstea and CSTB funds the PhD of Yacine Ben Ali. This PhD aims to design new data assimilation scheme for Reynolds Average Simulation (RANS) of flows involved in wind engineering and buildings construction. The goal pursued here consists to couple RANS models and surface pressure data in order to define data driven models with accurate turbulent parameterization.

LEMON Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

LEMON has been collaborating for a while with Olivier Boutron (La Tour du Valat) and we had a specific contract in 2018 to adapt our software SW2D to specificities of Camargue lakes and lagoons. This has lead to a common paper.

MAGIQUE-3D Project-Team

7. Bilateral Contracts and Grants with Industry

7.1. Contracts with TOTAL

- Depth Imaging Partnership (DIP)

  Period: 2014 May - 2019 April , Management: Inria Bordeaux Sud-Ouest, Amount: 120000 euros/year.

- Approximations hybrides par éléments finis discontinus pour l'élasto-acoustique

  Period: 2016 November - 2018 October, Management: Inria Bordeaux Sud-Ouest, Amount: 165000 euros.

- FWI (Full Waveform Inversion) dans le domaine temporel utilisant des méthodes numériques hybrides pour la caractérisation de milieux élasto-acoustiques. Period: 2017 October - 2020 December , Management: Inria Bordeaux Sud-Ouest, Amount: 180000 euros.

- Utilisation d'images 3D DRP à différentes échelles et résolutions pour vérifier l'applicabilité des problèmes acoustiques Period: 2017 November - 2019 October, Management: Inria Bordeaux Sud-Ouest, Amount: 170000 euros.

- Petrophysics in pre-salt carbonate rocks

  Period: 2017 December - 2019 November, Management: Inria Bordeaux Sud-Ouest, Amount: 190000 euros.

SERENA Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

Three two-part contracts with EDF accompanying the PhD theses of Amina Benaceur, Nicolas Pignet, and Riccardo Milani.

Two two-part contract with CEA accompanying the PhD thesis of Frédéric Marazzato and the postdoc of Guillaume Delay.

Three-part contract Inria–EDF–Sciworks Technologies (from April 2017) on "Form-L for the formalization of constraints of complex systems". SERENA representants are Sébastien Furic and Pierre Weis.

AMIES NEF-PEPS1 (Dec. 2018–Feb. 2020) Collaboration with the joint laboratory LabCom fractory (ITASCA, Géosciences Rennes). SERENA representants are F. Clément, Sébastien Furic, Florent Hédin, M. Kern and G. Pichot (Coordinator).

Two-part contract with IFP Energies Nouvelles for co-supervision of the post-doc of G. Mallik.

STEEP Project-Team (section vide)

TONUS Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

We are involved in the PhD supervision of Lucie Quibel in collaboration with EDF Chatou (CIFRE support). The objective is to design new Equations Of States (EOS) for the simulation of multiphase flows. The EOS cannot be chosen arbitrarily if one wants to ensure the stability of the fluid model. We are also interested to apply our palindromic method for computing low-Mach liquid-vapor flows.

BIOCORE Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

BioEnTech: the collaboration with the BioEnTech start-up is aiming at developing new functionalities for ODIN in order to improve the advanced monitoring and control of industrial anaerobic digesters.

Inalve: with the Inalve start-up we develop a breakthrough process that we patented, in which microalgae grow within a moving biofilm. The objective of the collaboration is to optimize the process by enhancing productivity, while reducing environmental footprint.

8.2. Bilateral Grants with Industry

Exactcure: in the collaboration with the start-up Exactcure (Nice), the goal of the project is to study pharmacokinetic models. Exactcure funded the M2 internship of J.B. Excoffier.

CARMEN Project-Team (section vide)

DRACULA Project-Team (section vide)

M3DISIM Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

- Contract with start-up 3c-industry for quantitative imaging of their printed product (1.5keuros)
- Contract with L'Oreal for the development of an experimental set-up (29.8keuros)

MAMBA Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

Contract with Orange labs (2016-2018) for Veronica Quintuna's PhD. See Reference [2].

MONC Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

Research contract between the pharmaceutical company Roche and the MONC team.

NUMED Project-Team (section vide)

REO Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

8.1.1. Philips Research

Participants: Miguel Ángel Fernández Varela, Jean-Frédéric Gerbeau, Alexandre This.

CIFRE convention and contract with Philips Research for the PhD thesis of Alexandre This (January 2016 - December 2018) on fusion data/simulation for the assessment of mitral regurgitation.

8.1.2. Kephalios & Epygon

Participants: Gautier Bureau, Miguel Ángel Fernández Varela, Jean-Frédéric Gerbeau, Ludovic Boilevin-Kayl, Marina Vidrascu.

REO is an academic partner of the industrial project MIVANA, dedicated to the development of new technologies for mitral valve treatment. It is led by the start-up company Kephalios, with the participation of the start-up company Epygon, by the company MDB Texinov and the research institute IFTH. In this framework, REO has two bilateral contracts with Kephalios and Epygon on the modeling and simulation of two medical devices for mitral valve repair.

8.1.3. Instem/NOTOCORD

Participants: Muriel Boulakia, Damiano Lombardi, Jean-Frédéric Gerbeau, Fabien Raphel.

REO partners with the software company NOTOCORD. The collaboration started in 2013 the framework of the LabCom “cardioXcomp”. In 2016, the ANR funding came to an end, and NOTOCORD was acquired by the company Instem. Our collaboration with Instem/NOTOCORD continues as a bilateral partnership with the purpose of developing the software cardioXcomp dedicated to the safety pharmacology industry. This project is also supported by a grant by AMIES (Agency for Interaction in Mathematics with Business and Society).

8.1.4. ESIEE-Heartflow

Participant: Irene Vignon Clementel.

Research contract with ESIEE-Heartflow on coronary tree modeling.

SISTM Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Contracts and Grants with Industry

Implication in research for the development of Ebola vaccine has lead to several indirect contracts with industry:

- The EBOVAC1, EBOVAC2 and EBOVAC3 project, collaboration with Janssen from Johnson et Johnson.
- The Prevac trial vaccine trial leads to collaboration with Merck and Janssen. The purpose of this study is to evaluate the safety and immunogenicity of three vaccine strategies that may prevent Ebola virus disease (EVD) events in children and adults. Participants will receive either the Ad26.ZEBOV (rHAd26) vaccine with a MVA-BN-Filo (MVA) boost, or the rVSVΔG-ZEBOV-GP (rVSV) vaccine with or without boosting, or placebo. The Prevac-UP project is set as a continuation of Prevac trial in the same framework.

XPOP Project-Team

8. Bilateral Contracts and Grants with Industry

8.1. Bilateral Contracts with Industry

Contract with Dassault Systèmes