Press release

IFPEN and Inria join forces in the field of high-performance and real-time scientific computation

Paris, 20 April 2015 - IFP Energies nouvelles (IFPEN) and Inria have just signed a framework agreement relating to research in the field of high-performance and real-time computation applied to energy technologies. The objective for both parties is to cooperate on the joint development of methodologies and algorithms derived from digital sciences research in order to anticipate the needs of industry.

New tools for the development of innovations in the energy sector

Digital simulation using high-performance computation (HPC) and real-time computation are essential tools for the development of breakthrough innovations, particularly in the energy sector. Because it contributes to a better understanding of physical phenomena or because it makes it possible to optimize and more effectively control complex systems, the use of intensive computation helps reduce the timescales and costs involved in the emergence of innovations. It is therefore a useful lever to boost company competitiveness.

Through this agreement, the two signatories hope to launch a structured joint program aimed at overcoming some major obstacles relating to high-performance and real-time computation issues.

Collaboration between two areas of expertise

As a developer of technological and software innovations in the energy sector, IFPEN has built up substantial expertise in the application and adaptation of advances in the field of digital sciences (digital methods, HPC simulation, software architectures, optimization and control, real time, modeling and data processing, etc.) to its various research areas (oil exploration and production, production of fuels and chemical intermediates from fossil resources and biomass, fuel-efficient, environmentally-friendly transport systems, offshore wind energy, the circular economy, etc.).

The contributions of Inria (French Institute for Research in Computer Science and Automation) primarily concern the development of models, grids, effective digital methods, such as discretization or the resolution of algebraic systems, as well as the optimization of scientific computation tools. To aid "real-time" decision-making, Inria works on the management of systems of systems, notably using design algorithms (generation of metamodels, automatic solution
generation, comparison of options, etc.), command algorithms (multiphysical, multifield or multiscale systems) or optimal control algorithms. Other areas of expertise will also be brought into play, such as the quantification of uncertainties for system reliability and safety.

The complementarity between the two players will help meet the digital requirements of the new challenges facing the energy sector.

"Inria and IFPEN have been successfully collaborating for a number of years in the field of digital sciences applied to energy optimization and the environment. Inria is delighted to be able to step up this collaboration and structure it around the two major challenges of scientific computation and real-time computing", Antoine Petit, Chairman and CEO of Inria.

"This alliance with Inria in the field of high-performance and real-time computation is of strategic importance for IFPEN. By pooling our research efforts, we will help drive innovations in the energy field", Didier Houssin, Chairman and CEO of IFPEN.

Inria, the digital science research institute, promotes “scientific excellence in the service of technology transfer and society”. Graduates of the world’s top universities, Inria’s 2,700 employees rise to the challenges of the computer sciences and mathematics. Thanks to its flexible model, Inria is able to explore original ways of working with its partners in industry and academia so that it can quickly respond to the challenges of the digital economy, which requires new applications drawing on multiple disciplines. Inria is at the forefront of many innovations that create added value and jobs.

IFP Energies nouvelles (IFPEN) is a public research and training player. It has an international scope, covering the fields of energy, transport and the environment. From research to industry, technological innovation is central to all its activities.

As part of the public-interest mission with which it has been tasked by the public authorities, IFPEN focuses on:

- providing solutions to take up the challenges facing society in terms of energy and the climate, promoting the emergence of a sustainable energy mix;
- creating wealth and jobs by supporting French and European economic activity, and the competitiveness of related industrial sectors.

An integral part of IFPEN, its graduate engineering school prepares future generations to take up these challenges.

Press contact IFPEN
Patricia Fulgoni – patricia.fulgoni@ifpen.fr – +33 1 47 52 67 21

Press contact Inria
Laurence Goussu – laurence.goussu@inria.fr - +33 1 39 63 57 29

Press contacts Thomas Marko & Associés
Mathilde Folliot – mathilde.f@tmarkoagency.com - +33 1 44 90 87 42
Constance Nisio – constance.n@tmarkoagency.com – + 33 1 44 90 87 40