



Overview of the French American Innovation Day 2019 edition in Houston

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Entitled "Procedural medicine in the digital age", this 2019 FAID dealt with two innovation topics: Computer-Assisted Surgery (simulation and 3D visualization tools) and Artificial Intelligence empowered health technologies, such as medical imaging diagnosis, patient data and neuroscience. The conference was held at the Innovation Institute of **Texas Medical Center (TMC)** - the largest medical center in the world.

Event booklet accessible [here](#)

The conference

The conference was opened by the Consul General of France in Houston and Dr. Barbara Bass, Director of the Department of Surgery at Houston Methodist Hospital and former Chair of the American Board of Surgery. Welcoming introductions were also given by Dr. Yves Frenot, Counselor for Science and Technology at the French Embassy.

The conference hosted sixteen French and American speakers. French speakers came from national research institutes like the **French national research institute for digital sciences INRIA**, the **French National Institute of Health and Medical Research INSERM**, and several universities from the region Auvergne Région Rhône-Alpes (**University Grenoble Alps**, **University of Lyon**). On the American side, speakers came from various TMC research centers, including the **MD Anderson Cancer Center**, the **Houston Methodist Hospital** and the **Jan and Duncan Neurological Research Institute**. Texas universities were also in the spotlight with researchers from **Rice**, the **University of Houston** and the **University of Texas at San Antonio (UTSA)**.

As a keynote speaker, Dr Jennifer Fogarty, Director of NASA's Human Research Program discussed the key role of medical robotics, artificial intelligence and decision support systems in outer space exploration. Also, Dr Hugues Berry, Deputy Scientific Director of INRIA presented the leading role that INRIA plays in innovative digital health technologies in France through by fostering multidisciplinary approaches at the crossroads of biological data, machine learning, simulation and computer modelling.



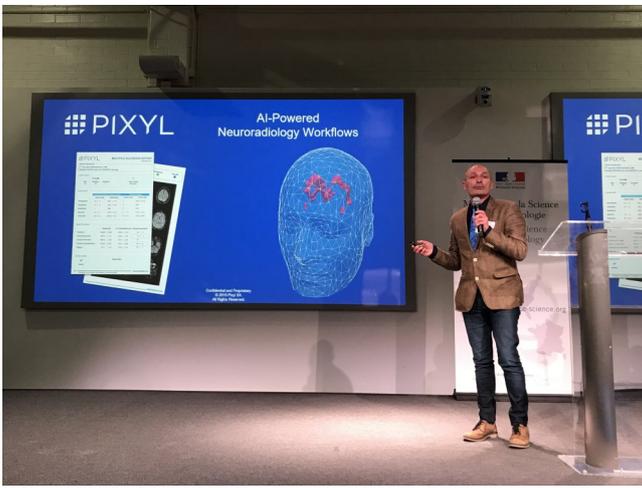
The first session of the conference focused on computer-assisted surgery and the use of 3D modeling in surgical planning and intervention. Prof. Philippe Cinquin, Professor of Public Health in medical informatics at the University of Grenoble-Alps, presented the various contributions of digital technology in assisting surgeons and assessing patient health, developing for instance the in vivo integration of miniaturized sensors (stethoscopes, spirometers) powered by a glucose bio-cell. History of surgical robotics, in particular its increasing use in urology, was then detailed by Dr. Surena Matin, Director of the Center for Minimally Invasive Surgery at the MD Anderson Cancer Center. The presentation by Prof. James Xia, Director of the Surgical Planning Laboratory with the Department of Oral and Maxillofacial Surgery at The Methodist Hospital, highlighted the capabilities of 3D calculation for prosthetic manufacturing and customized jaw reconstruction.



The afternoon was dedicated to the use of artificial intelligence in medical applications, ranging from imaging to patient data tracking. Dr. John Hazle, Chair of the Department of Physical Imaging at the MD Anderson Cancer Center, discussed the possible substitution of radiologists by algorithms within 20 years, and the opportunities that deep learning offers in detection in comparison with the human eye. Later, Prof. Stephen Wong, Chair of Biomedical Engineering at the Houston Methodist, presented his work in assessing breast cancer risks or stroke probability, based on a broad cross-reference of information and its reading at different levels of AI (machine learning / deep learning). On the French side, the INSERM Research Director at the *Institut des Neurosciences de Grenoble*, Michel Dojat, addressed the subject of patient data and its sharing, storage and interpretation within the medical community.

This session was ended by the intervention of Amina Qutub from the University of Texas at San Antonio, and her work in neurology to understand how the neural network works and in order to reproduce the cells' interaction with an algorithm.

One of the highlights of the conference was the session of startup pitches, during which [representatives of French and American startups](#) presented their high tech products.



The conference gathered about 170 attendees, including high school students from the Awty International School of Houston.

The event was well received by the public and participants, thanks to the valuable support of the French Foreign Trade Advisors (CCEF), the French-American Chamber of Commerce (FACC) of Houston, but also to the assistance of Prof. Marc Garbey, Director of the Computational Surgery Center at the Houston Methodist, and Prof. Philippe Cinquin, Director of the CNRS TIMC-IMAG laboratory at Grenoble-Alps University.

Immersion program for French participants



In order to promote R&D opportunities at the Texas Medical Center, the Office for Science & Technology also organized a three-day immersion program for French participants to discover the Houstonian innovation ecosystem. This program included visits to medical incubators - [TMCx](#), [JLabs](#), and the recently inaugurated [Johnson & Johnson Center for Device Innovation](#)), a meeting workshop with innovation stakeholders in Houston, and an exchange with a successful French Medtech entrepreneur based in Texas.



This immersion program ended with a tour of the [Houston Methodist Institute for Technology, Innovation & Education \(MITIE\)](#), a training center at the forefront of medical technology, where surgeons train their skills on innovative tools.

Overall, French and American FAID participants discussed the possibility of setting up scientific collaborations, research or clinical study projects with the different contacts they met - clinicians, researchers, startups.