

# A DIGITAL CLONE TO BETTER CONCEIVE THE WORK IN THE OPERATING ROOM



**Professor Luc SOLER**  
**VISIBLE PATIENT**  
**President**

Photo credit: Michel Christen



Before surgery and during the intervention, 3D representation of patient organs is a precious and innovative tool. For surgeons, the interest is real and French private health insurances also endorse it...

## PATIENT ANATOMY WITH MILLIMETER ACCURACY

In September 1991, during an international medical congress, Dr. Rick Satava presented his futuristic vision of surgery. The animated movie worthy of a video game showed a patient who was scanned, then virtually reconstructed in 3D and finally operated thanks to this model by a surgical robot. Prof. Jacques Marescaux was in the auditorium, and decided that day to make this vision a reality within a research institute, IRCAD (Research Institute against Digestive Cancer), that he founded in 1994. This is how the project came to life that led to the first online laboratory for 3D medical image analysis, Visible Patient, unique 3D modelling service covered by French private health insurances.

The principle: the practitioner requests the 3D analysis via a secure platform and sends the patient images. Visible Patient teams then model the patient's anatomy using its own certified software. "Our programs extract information from the medical imaging, explains Prof. Luc Soler, president of the company. We detect the contour of each anatomical and pathological structure (arteries, veins, bronchial anatomy...) required for 3D digital modelling". The result undergoes then double-check by specifically trained radiology technicians, who verify and correct the model if necessary. The accuracy of the result is that of the slice thickness of the provided image.



## GPS FOR SURGERY

In practice, this digital clone will greatly enlighten surgeons, in particular when preparing the intervention. "Thanks to this model, we write the precise surgery scenario in advance, states Prof. François Becmeur, head of the visceral and plastic paediatric surgery department of the Hautepierre hospital in Strasbourg. Our work is based on reality and no longer on assumptions! Because although we all know general anatomy, each patient is a particular case.

This accuracy generates great mental comfort. We can work better".

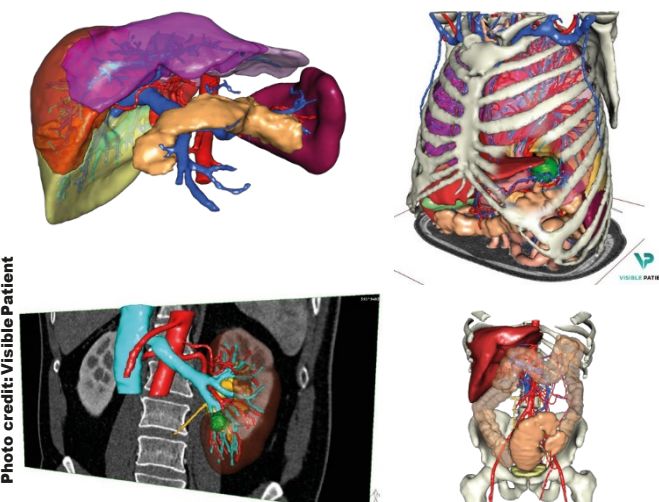


Photo credit: Visible



The New Civil Hospital in Strasbourg (NHC) takes the same line, Dr. Michel Vix, specialist in endocrine and digestive surgery, says: "We can finally anticipate the traps of each anatomy, better locate, find access paths and identify vessels we will come across. During surgery also, this is strategic. This is somewhat like a GPS to navigate inside the organ".

And to exploit all the image functionalities, the Visible Patient Planning software is required. This certified but free software, running on Windows and MacOS, gives access to volume computation (tumour, organ, resected part...). "Since April we have a CE marked version for iPhone. The main function is virtual clip applying, details Prof. Luc Soler. It simulates the remaining volume after cutting and the devascularized territory". "We can thus reduce incision size and propose less invasive surgery, notes Dr. Michel Vix. Post-surgery effects are improved".

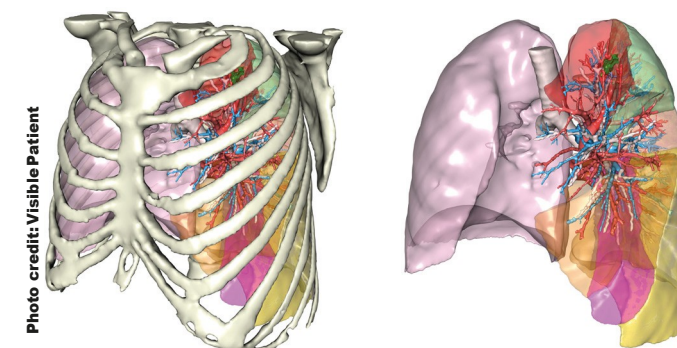


Photo credit: Visible Patient

## AN EDUCATIONAL TOOL

Another use: when requesting a second opinion. Among professionals, in case of complex surgery, it can be useful to communicate. It is however not always easy to speak the same language from 2D images: "We do not necessarily have the same interpretation, the same reconstruction, specifies Prof. Jacques Marescaux, NHC surgeon and IRCAD founder. Now we all speak the same language, which allows to improve our strategies". In educational terms, the tool is also useful for the patient. He/she has to be the actor of his/her therapy and therefore has to understand it. "There is nothing better than 3D visualization for that, adds Prof. Jacques Marescaux. Patients are thus better equipped to fight ». Healthcare professionals and patients alike, "you just have to present the solution to convince of its usefulness", summarizes Prof. François Becmeur.



Photo credit: C. Hanebina -

Photo credit: Visible

## COVERAGE BY PRIVATE HEALTH INSURANCES

"Our certified tool meets the needs of surgeons. The only obstacle for some hospitals remains the financial aspect within the current context, acknowledges Prof. Luc Soler. This is why the Visible Patient company turned to French private health insurances. They can cover the 3D modelling. More and more insurances now cover this cost (30 million patients are already 100% covered and 65 additional French private health insurances are planned by the end of the year).

It has to be highlighted that all coverage requests by private health insurances are treated by the company's medical advisor who deals with these requests.

Finally, to reach more practitioners, the company has announced the signature of a global exclusive marketing and sales collaboration with Ethicon from Johnson & Johnson, the surgery giant. "A new step for our service to be proposed more easily around the world", projects Prof. Luc Soler.

## Marion BOIS

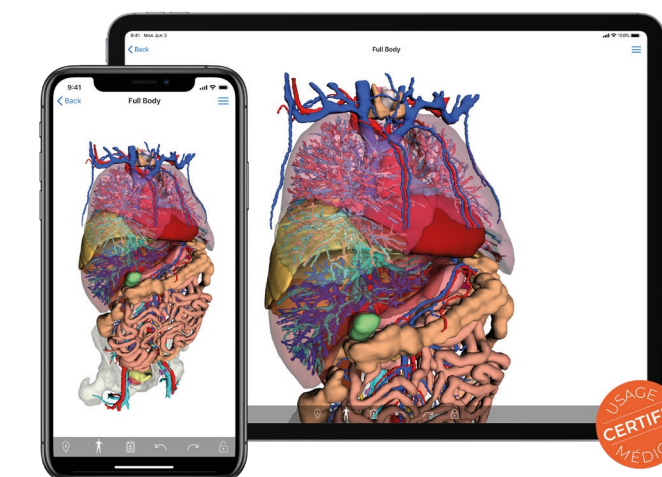


Photo credit: Visible Patient

