

CS 235 HW-1 by Tina Philip

Interaction Design Lessons from Science Fiction

In the French movie Chrysalis (2007), the woman in the picture is attempting to perform Aortic valve replacement Surgery remotely from her residence for a patient who is located in another country. She is controlling two mechanical robotic arms (which can be seen in figure 3) using Holographic User Interface.

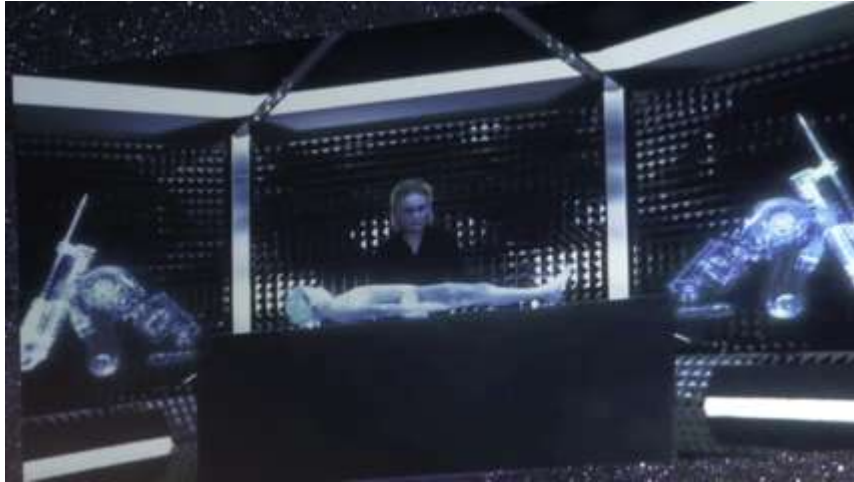


Figure 1 & 2: Holographic user interface used to perform heart surgery



Figure 3: Man watching the Mechanical robotic arm performing the surgery on the patient in a remote location.

A similar version of this technology is currently commercially available in the market by a couple of manufacturers: Intuitive Surgical Inc and Zeus Surgical Systems. This Robotic System makes it possible for surgeons to perform minimally invasive procedures involving complex dissection or reconstruction with less fatigue.

Intuitive Surgical Inc. da Vinci Surgical System & Zeus robotic system allows surgery to be performed using robotic arms controlled via a surgeon-side robotic manipulator controllers. (Figure 4, 5, 6).

In future, Intuitive Surgical Inc is gearing towards using Virtual-reality environment to control and perform the surgery. So it's quite possible that a closely similar holographic system depicted in the movie *Chrysalis* could be a possibility in the near future as Virtual-reality technology matures in the forthcoming years.

Below is a snapshot from Intuitive Surgical press release that states the use of virtual-reality to aid robotic surgery for training. This could be easily scaled to perform actual procedure at some point.

The 2015 call for grant proposals encouraged applicants to focus on specific key areas of interest for *da Vinci* surgeon training, highlighting Intuitive Surgical's identification of training needs and the company's commitment to supporting impactful research to address those needs, including how skills learned in a virtual-reality environment translate to improved inter-operative skills.

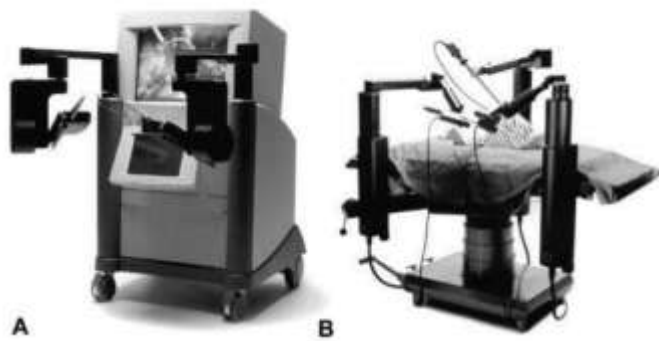
Link: <http://investor.intuitivesurgical.com/phoenix.zhtml?c=122359&p=irol-newsArticle&ID=2074872>

I feel once virtual-reality technology matures, it is going to revolutionize the way we interact with any systems. In this case the surgical robots could be controlled remotely which would help specialty surgeons to perform procedures in Asia from the comfort of his home office in USA.



Zeus Robot

Fig. 15. Zeus robotic surgical system





The Zeus Surgical System



View from Surgeon's Console, Zeus