

Surgical guidance through lingual electro-stimulation

This project focuses on a sensory substitution device made of a matrix of electrodes put in contact with the tongue upper surface (the *Tongue Display Unit* : TDU, proposed by Paul Bach-y-Rita). We want to use this device in the framework of the surgical guidance of percutaneous gestures like tumor biopsy for example. We try to evaluate the way the TDU could substitute the classical surgical guidance that uses departed screen to provide information to the surgeon.



Publications :

Vazquez-BuenosAires J.O., Payan Y. & Demongeot J. (2003). Electro-stimulation of the tongue as a passive surgical guiding system. *Proceedings of the 11th International Conference on Advanced Robotics, ICAR'2003*, pp. 638-643.

Robineau F., Boy F., Orliaguet J-P., Vázquez-BuenosAires J.O., Demongeot J. & Payan Y. (2005). Control of Surgical Gesture under Lingual Electro-Tactile Stimulation. *Proceedings of the 11th International Conference on Human-Computer Interaction HCI'2005*.

Collaborations : Laboratoire de Psychologie et de NeuroCognition, Grenoble (J.P. Orliaguet) - Center for Neuroscience, University of Wisconsin (P. Bach-y-Rita).

Status : Work in progress. First evaluations carried out with volunteers.

More information : <http://www-timc.imag.fr/Yohan.Payan/>

Contact : Yohan.Payan@imag.fr