

## LabCom BRAIN e-NOVATION

LabCom BRAIN e-NOVATION is a joint laboratory between the Brain and Spine Institute (ICM) and GENIOUS Group. Competencies of the two structures (Health & Technologies) are really complementary. The laboratory has been set up following a seed investment provided by the French National Research Agency in 2013.



The main objective of this laboratory is to create **innovative digital tools** in the health domain, measure their clinical efficacy and bring them to the market. Our lab develops **therapeutics videogames** for physical and cognitive rehabilitation, with clinical tests integrated into the game.

For example, **X-TORP** is a naval battle game created for Alzheimer's disease patients. This game was clinically tested for feasibility and acceptability in Nice hospital. Multiple neurophysiological tests were integrated into the game like Trail Making Test. The results show a really good acceptance with really promising results, reduction of apathy and cognitive and physical stimulation. The article about this study is available since August 2016 in Journal of Alzheimer's Disease (<https://ic.cx/oEiT>)

**TOAP run** is the game created for gait and balance disorders in Parkinson's disease with a financial support from the *World Innovation Competition 2014*. This game was clinically tested for feasibility and acceptability in ICM. 10 patients participated in the study. Preliminary results show a really good acceptance and feasibility, as well as efficiency as a secondary outcome. Both game examples use Kinect™ motion capture system (Microsoft) for movement detection.



Patient are playing in front of a Kinect™ motion detector



Examples of therapeutic videogames for neurological diseases and serious games in health

Patients can use our digital solution in institution with their therapist, alone or with other patients. Once at home they can continue to play alone or with their friends and family, **all that being remotely followed up by their therapist**, who can change the game parameters if necessary, and he can observe the progress of his patients.

Indeed, our digital therapies are available at the web site **Curapy.com**. It's an on-line platform, completely free of charge for health professionals, and currently being used by more than 2500 health professionals in different kinds of institutions, in France and French speaking countries. Curapy was declared as a medical device few weeks ago.

