

Executive Summary - SPATIAL COGNITIVE TRAINER (SCT[®])

Geneva, December 5 2014

The SCT[®] (Spatial Cognitive Trainer) is a software application that trains surgeons and surgical students in various invasive operations. With integrated tools for tracking skill development, medical students and physicians can regularly monitor their progress in developing and maintaining the necessary spatial cognitive and manipulative skills for performing surgical minimal invasive procedures.

Surgery requires a large amount of training. Currently, most training is realized either on cadavers or dummy body corpses, which is costly and not easily accessible. While there are some existing computer training programs, these programs generally lack the learning tools needed to manipulate 3D objects from a limited number of 2D representations. SCT[®] - a PC based program - provides the user with the ability to hone gradually their dexterity skills in a 3D environment through the use of haptic arms with exercises of increased complexity. The various program levels provide constant feedback so the users can monitor their progress in a systematic way.

Sellable Product

The SCT[®] is a haptic training software application initially developed for hand wrist surgeons, who need to gain a high level dexterity in a simulated 3D environment.

The SCT[®] software, which inter-acts with off-the-shelf PC based haptic arms, are designed to run as a standalone, as an on-the-site trainer or as a cloud based solution with an array of customization (anatomy / intervention specific modules) and more complex evaluative features. The training application can be sold as a bundle with hardware, monthly subscription or freemium (basic services are provided free of charge; whereas, more advanced features must be paid for).

Unique Selling Proposition (USP)

- Affordable and accessible: Microsoft compatible, the all-in costs (including hardware) are up to 10x less costly than the current market available products.
- Intuitive in use with modules providing increasing levels of complexity to allow for stepped-up training with steep learning curve.
- Scientific cognitive methodology allowing quantification and benchmarking of learning progress in manipulating laparoscopic surgical tools to effectively measure the user's acquisition of the dexterity skills needed in surgery.

How it Works

The SCT[®] is a software application where the trainees are immersed in a 3D real time environment. They gradually progress through different modules with an increased complexity of exercises based on the manipulation and assembly of objects in an increasingly challenging 3D environment. The first module (level 0 to 3) trains the user through the use of geometric shapes that require assembly in formations of increasing difficulty. The second module (level 4 and 5) is specifically oriented toward surgery (first module in wrist surgery) and requires the trainee to accurately replace bones of a broken hand wrist and place implants, in situations of increasing complexity.

Future Products

A working demonstrator is operational and has been used and tested by over 50 physicians in three different locations. A third SCT[®] module is currently under development. The third module will simulate plate fixation for distal radius reduction. Modules with other anatomic interventions are envisaged e.g. shoulder, knee and hip. Future versions of the SCT[®] will also interact with other haptic surgical tools such as drills and scalpels.

Manipulation with other tools such as for high contamination bacteriology or radiation laboratory are also envisioned along with motion detection and a tablet interface environments.

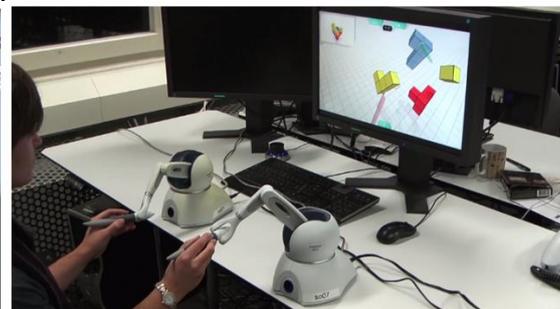
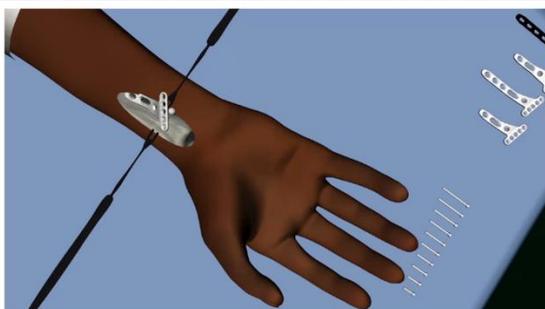
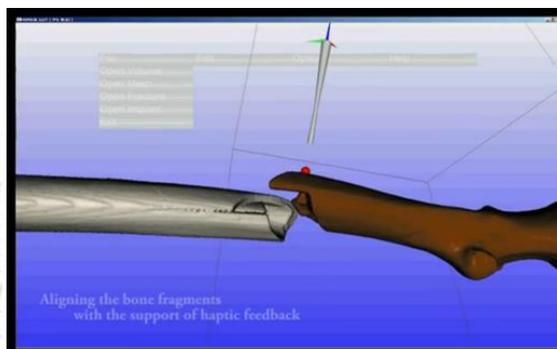
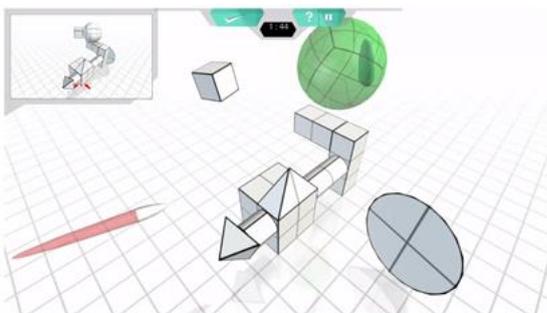
The Team

Scientific team working for +3 years on development of this technique is ready to convert academic project into commercial product. Global Concept Leader: Dr. Rosita Haddad

Geneva University, TECFA:	Dr. Rosita Haddad, Dr. Sandra Berney
Bern University, Applied Sciences:	Prof. Urs Künzler
University of Nottingham:	Robert Hauck
Lyon University, Claude Bernard:	Dr. Nady Hoyek
AO Medical Advisor:	Dominik Hoigné
Infography and Programming:	Frédéric Urien, Raphael Bonaventure, R. Hauck

Next Steps

We are ready to custom-develop modules for specific instrumentation and working environments and develop user training and certification programs for specific surgical applications, products and medical device corporations.



Upon your interest and preliminary discussion a short movie is available describing SCT[®]

All correspondence and questions should be directed to:
tomas.svoboda@tagator.com Cell: +41 79 774'59'27