NeuroScript

About NeuroScript

NeuroScript's MS Windows-based software provides a unique tool for accurately measuring and analyzing human movements of the hand and fingers, for a wide variety of applications in research, psychiatry, neurology, education, forensics, artificial intelligence, and computer interaction. This technology was originally designed for handwriting and drawing movements, goal-directed movements, and bimanual grip force coordination.

Company:
NeuroScript

Industry:
Human Movement Measurement and Analysis

Requirements:
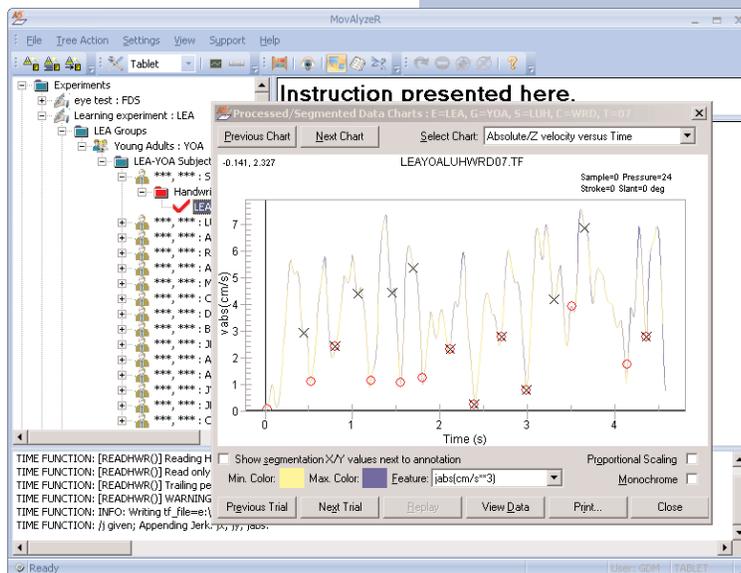Performance, reliability and control.

Currently, this cutting edge technology has expanded towards a wide variety of applications ranging from testing patients with nerve disease, effects of medication, helping teachers and children with handwriting instruction, comparing true and forged handwritings, signature recognition and verification, etc.. For example, using NeuroScript's technology, a neurologist will now be able to quickly and easily document quantitatively any changes over time in Parkinson's disease patients, examine responsiveness to various medications, and progression of the disease. Recently, the software was expanded to allow the detailed analysis of submovements, i.e., the fine adjustments of the hand and fingers before reaching a goal. The movements can be recorded using a pen and a digitizer, but also using the standard PC mouse or using a proprietary grip force measurement device.

Under the direction of Dr. Hans-Leo Teulings, NeuroScript has created this easy-to-use software that is virtually without peers today. Dr. Teulings is considered one of the experts with the longest experience in the field of handwriting movement research in the world.

Application Overview

MovAlyzeR utilizes FairCom's c-tree technology to store and retrieve research-quality movement tests for handwriting and drawing, goal-directed movements, and submovement analysis. This software enables scientists to

measure and manage many movement features and to compare present data against previous data or statistical averages of patient populations.

The simple and easy-to-use design contributes to the high usability of MovAlyzeR. Not only does the Microsoft Windows compliant user interface provide an intuitive, user-friendly interface, but the easy and secure installation, setup, and usage also allow non-computer-experts to gain instant access to movement measurement, instant results, data summaries, and analysis charts. Movement analysis should be fast, simple, reproducible and objective so the system can be quickly used by professionals in spite of the complexity of human movement analysis. Indeed, NeuroScript's slogan is "Measure Motor Skills TODAY".

"If I can get [MovAlyzeR] in their hands, it would spread like wildfire. Also, with pharmaceutical support, it might come in useful for large-scale clinical trials. They've been using my other instruments for the past few years in some small scale studies. As you know, these instruments are not user friendly, so they have limits. MovAlyzeR is different."

Prof. Dr. Michael Caligiuri
Dept. of Psychiatry
University of California, San Diego

FairCom and NeuroScript

FairCom's c-tree client/server architecture allows users to share data collected by MovAlyzeR in any c-tree Server accessible through the internet. Data can be uploaded or downloaded so that various MovAlyzeR client workstations can share common experimental procedures and results. Exploiting the security features that c-tree provides, NeuroScript is also working towards a secure centralized worldwide database for researchers and medical practitioners and for multi-site studies involving handwriting tests.

The MovAlyzeR application, coded in C++, revolves around the c-tree database engine. The ISAM-level API made the storage and retrieval of human movement test results straightforward and fast, driving the application's functionality to its full potential.
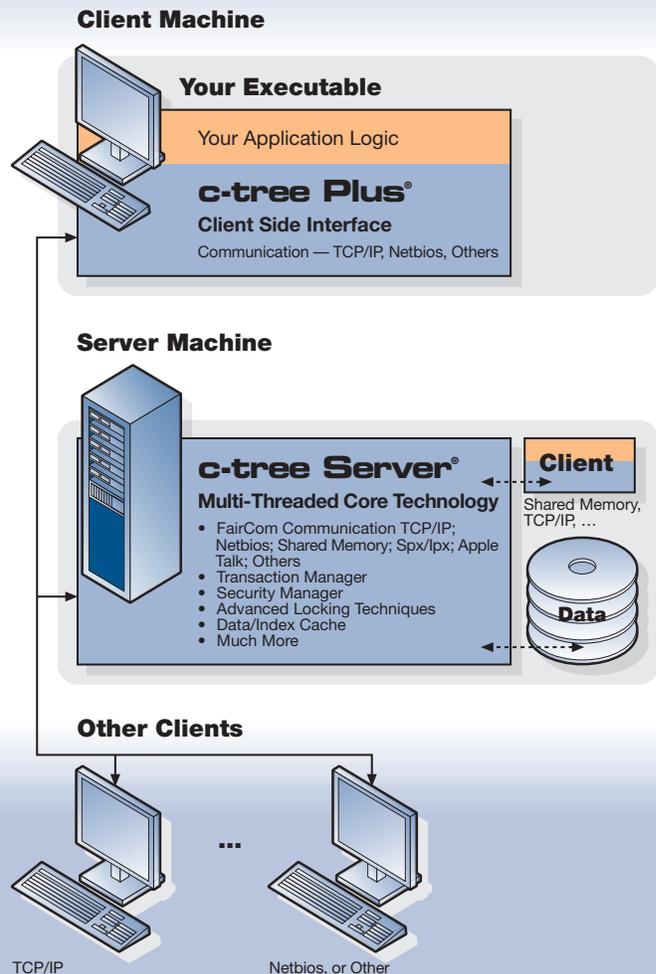
With the long-term effort, support, and quality of FairCom, MovAlyzeR has become a unique product paired with the reliability and stability of c-tree. MovAlyzeR hasn't lost a single recording. NeuroScript's Director of Software Development, Gregory Baker, reports, "We are quite proud to report zero unexplained program crashes using FairCom's database software." Up to today, every crash in our beta releases could be identified and fixed.

The Details

NeuroScript selected FairCom for the underlying data manipulation of MovAlyzeR for several reasons. Gregory Baker had very positive previous experiences using FairCom's database software as he worked on several financial management applications which used c-tree as the underlying database. Mr. Baker has also used Sybase, Oracle and Microsoft SQL in other applications, but when pressed about what technology to use for NeuroScript's data management core, with the final goal of eventually supporting multiple operating systems, he selected FairCom "immediately" for its "power and versatility." Mr. Baker calls FairCom "the Programmer's database" and adds, "To this day, I have never regretted that decision, nor doubt I will (I'm looking forward to playing with the SQL interface of the newer c-tree versions)." Mr. Baker's technical team found the ease of data manipulation implementation of MovAlyzeR so great, that they wished they had, "Access to it sooner"!

For more information about NeuroScript, its products and downloadable trials, please, visit http://www.neuroscript.net/

The c-tree Server

Client Machine

Your Executable

Your Application Logic

c-tree Plus®
Client Side Interface
Communication — TCP/IP, Netbios, Others

Server Machine

c-tree Server®
Multi-Threaded Core Technology
- FairCom Communication TCP/IP; Netbios; Shared Memory; Spx/Ipx; Apple Talk; Others
- Transaction Manager
- Security Manager
- Advanced Locking Techniques
- Data/Index Cache
- Much More

Client
Shared Memory, TCP/IP, …

Data

Other Clients

...

TCP/IP   Netbios, or Other