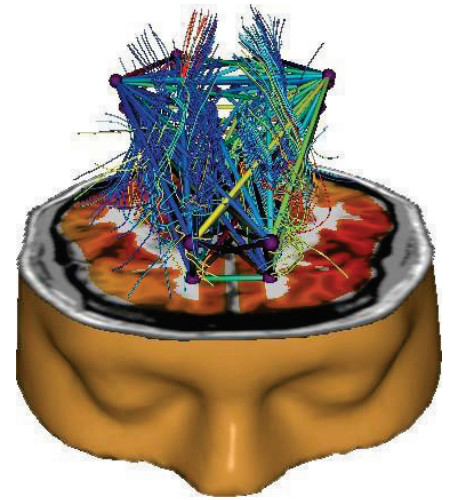
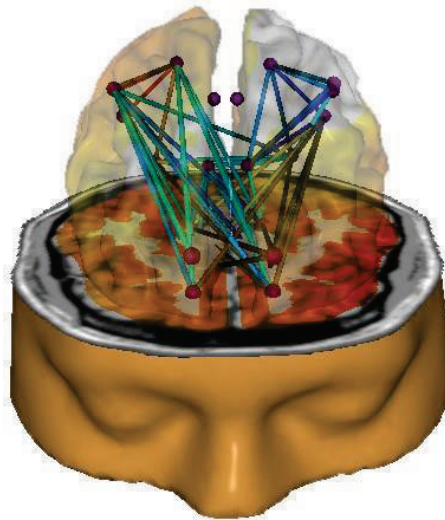
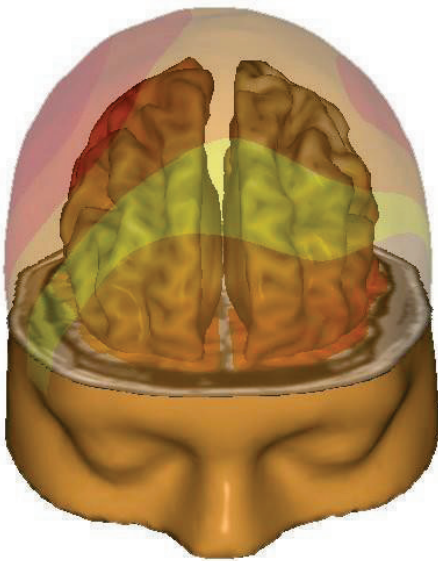




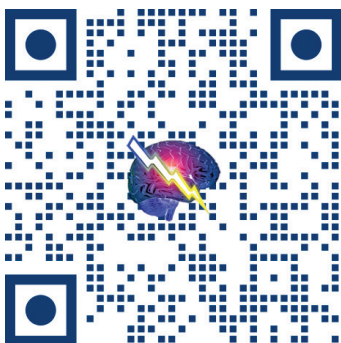
NeuroGuide™

by Applied Neuroscience, Inc.



The Seamless Integration of QEEG & EEG Neurofeedback

NeuroGuide™ is the most affordable and comprehensive EEG assessment and neurofeedback software available. With over 32 options and add-ons, it is an integrated system which has all the tools necessary to explore and assess brain function and do targeted neurofeedback, from the leaders who pioneered z-score, sLORETA, swLORETA, surface and swLORETA Cross Frequency Coupling Training.



Applied Neuroscience, Inc.

3831 Tyrone Blvd. N., Suite 103

St. Petersburg, FL 33709

727-804-3596 or 727-657-4349

qeeg@appliedneuroscience.com

The Complete Assessment Tool

With NeuroGuide™ You Can:

EASILY record and select samples for analysis either manually or by using the powerful Automatic Sample Select option.

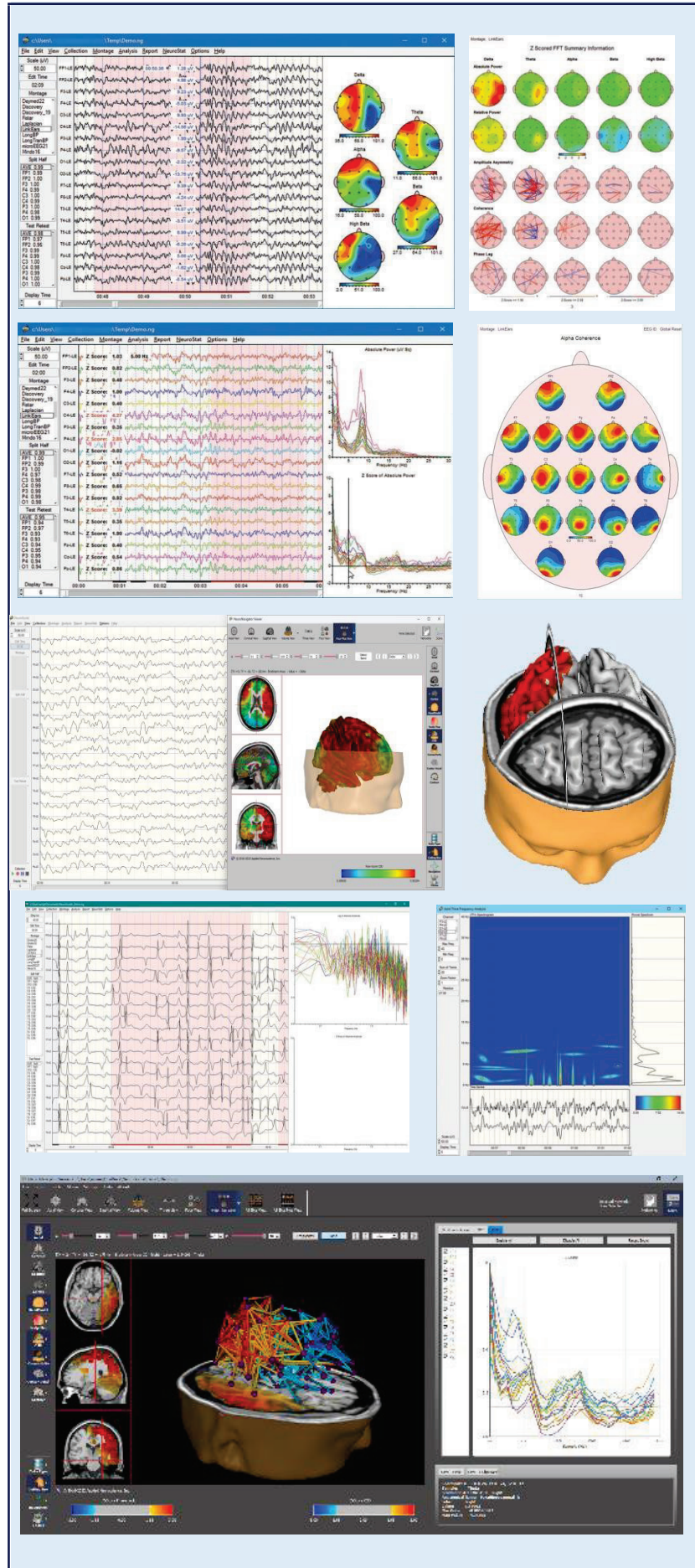
EFFICIENTLY review the recording's characteristics using the many visualizations and numerical output options that are available.

SIMPLY generate outputs showing the location of the deviations from Normal of key functional measures.

QUICKLY generate an Automatic Clinical Report of the findings and problem areas to be addressed.

OBJECTIVELY follow the course of treatment or track the history of a Patient's network injury(s). During treatment, confirm the Patient's previous diagnosis of a Mild Traumatic Brain Injury or Learning Disability or evaluate a Patient's Brain Performance, or statistically compare pre and post conditions using NeuroStat or NaviStat.

...and Much Much More.



NeuroGuide™ Features

The Basic NeuroGuide™ Includes the Following Features:

- ✓ Dynamic Normative EEG Comparisons in real-time during editing
- ✓ Automatic Artifact Rejection with optional Manual Editing Capability
- ✓ Multiple EEG File Imports Calibrated by Microvolt sine waves
- ✓ Instantaneous Split-Half Reliability and Test Re-Test Reliability
- ✓ Eyes Open and Eyes Closed Lifespan Norms for different common and bipolar references
- ✓ Compute EEG Coherence, Phase Delays, Amplitude Asymmetry and Power
- ✓ Export to the Key Institute LORETA Equation & Talairach Atlas
- ✓ Time Domain Output Files Formatted for Easy Import to LORETA Key Inst.
- ✓ EEG Filter Selections - Band pass, band stop, hi-pass and low-pass flexible settings
- ✓ Tab Delimited Output Files for easy importing into other programs
- ✓ Single channel examination with a mouse click and joint-time-frequency-analyses (JTFA)
- ✓ Raw or Edited EEG Printouts of Different Montage Selections for Conventional EEG Analyses
- ✓ FFT using a 0.5 Hz resolution and 1 Hz Color Maps from 1 to 50 Hz
- ✓ Export edited EEG in EDF file format as well as Lexicor and ASCII
- ✓ FFT Normative Power Ratios and Peak Frequency in Different Bands
- ✓ Multiple Color Topographic Maps
- ✓ Select from Different Topographic Map Colors and Z Score Ranges
- ✓ Joint-Time Frequency-Analysis (JTFA) for Time and Frequency Analyses of EEG
- ✓ Dynamic Time-Frequency Z Scores to Facilitate Visual Examination of the EEG
- ✓ Time Domain LORETA Z Scores for the Localizing Sharp Waves and Conventional EEG Features
- ✓ Automatic Eye Movement and Drowsiness Detection Routines
- ✓ One Year of Free Updates and Lifetime Customer Support

NeuroGuide™ Add-Ons Include:

- NeuroStat (NS) & NaviStat (NNNS) - Pre vs. Post treatment analysis, Group comparisons, sLORETA and swLORETA Statistics - Paired, independent & group t-tests and descriptive stats with mapping.
- NeuroBatch (NB) for automatic processing of large numbers of EEG files
- Discriminant Functions - Mild Head Injury and Learning Disability (DIS)
- Brain Performance Index - Prediction of Neuropsychological test scores (BPI)
- Surface Normative Databases - EO & EC - birth to 82 years for Amplitude Asymmetry, Coherence, Phase, Cross Spectral Power, Connectivity (CS), Effective Connectivity (ECS) plus Surface Cross-Frequency: Power Correlation (CFP-S), Coherence (CFC-S), Phase Amplitude (CFPA-S) and Phase Reset (CFPR-S)
- LORETA Normative Databases - EO and EC - birth to 82 years for Current Density (LOR), Coherence & Phase (LCP), Phase Reset, Phase Shift & Phase Lock Duration (LPR), Source Correlations & ROI (SC), Effective Connectivity (ECL) and Cross-Frequency Coherence (CFC-L)
- Dynamic Bi-Spectral Analyses for Instantaneous Absolute Power & Amplitude, Coherence, Phase Difference & Reset and Amplitude Asymmetry (BS)
- BrainSurfer Network Viewer (BSV)
- NeuroNavigator (NN) a swLORETA Viewer with Raw Current Source Density, includes the Real Time NeuroNavigator & NeuroNavigator Time Domain Capture
- swLORETA EO and EC Normative Databases for the NeuroNavigator - Current Source Density Z Scores (NNZ), Functional Connectivity (NNF), Effective Connectivity (NNI), Phase Reset (Phase Shift and Phase Lock Duration) (NNPR) and Diffusion Tensor Imaging Overlays (NNDTI) with Built in Symptom Checklist for Protocol Prep.
- Neurofeedback Options: Surface Z Score (NF1), sLORETA Z Score (NF2), Surface Cross-Frequency Coupling Z Score (NF3), swLORETA Z Score (swNF), swLORETA Cross-Frequency Z Score (swXNF), swBrainSurfer (swSurf) and BrainSurfer (Surf)
- ANI Streamer use YouTube Videos, Netflix, or any other window as a NFB Display option (Stream)
- Symptom Checklist - Link Symptoms to Networks in the Brain (SCL)
- Visual Evoked Potentials and Event Related Potentials Cognitive P-300 (ERP)

The Comprehensive Neurofeedback Tool

NeuroGuide's Neurofeedback Training Philosophy:

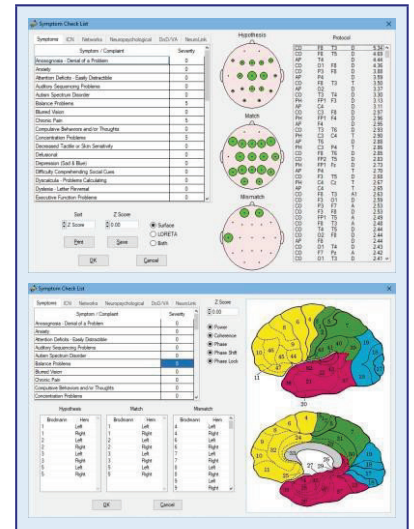
There are 2 main aspects of ANI's Neurofeedback Training Philosophy that is incorporated in NeuroGuide:

Symptoms are caused by dysregulations of brain areas and/or networks. Therefore, to alleviate a symptom, you need to link the symptom to the brain areas/networks responsible for them.

You need to train the metrics of dysregulated brain areas and/or networks towards normal (regulation). To accomplish this, ANI invented Z-Score training whereby it is possible to train numerous brain metrics, which include current source densities, functional connectivity, phase shift and phase lock durations, simply and efficiently by lowering the overall deviation from normal.

Automatic Neurofeedback Protocol Creation Options:

Symptom Check List (SCL) Neurofeedback Protocol Generator - Includes the distillation of over 30,000 fMRI and DTI studies and was designed to simplify complex protocol preparation. You can choose to base the protocol on: Psychiatric, Psychological & Neurological Symptoms; Brain Networks; TBI & PTSD Symptoms; and Neuropsychological Symptoms & Categories. Available in both the Training Module and the NeuroNavigator



Neurofeedback Training Options:

All ANI Neurofeedback Add-On Options can train: **Absolute Power, Coherence, Phase, Phase Lock Duration and Phase Shift Duration.** All ANI Z-Score NFB Training Options include the **Symptom Checklist and Z-Score Training** using the corresponding Real-Time Normative Databases.

NF1: Surface Z-Score Neurofeedback – Allows for the training of 1 to 19 channels based on the International 10/20 system using Laplacian, Average Reference, and/or Linked Ears. Plus, NF1 can also train frequency ratios.

NF2: sLORETA Z-Score Neurofeedback – NF2 trains Brodmann areas using instantaneous sLORETA calculations, and all the above-mentioned metrics can be trained simultaneously for all 88 Brodmann areas.

NF3: Surface Z-Score Cross Frequency Coupling Neurofeedback – Unique to ANI, NF3 allows the user to develop and execute protocols to train cross frequency coupling (e.g., cross frequency coherence, etc.) for all 10-20 electrode permutations using the ANI Cross Frequency Coupling Normative Database.

swXNF: swLORETA Cross Frequency Coupling Z-Score Neurofeedback – Allows the user to develop and execute protocols to train cross frequency coupling (e.g. phase-amplitude coupling, cross frequency coherence etc.) for any and all 88 Brodmann areas.

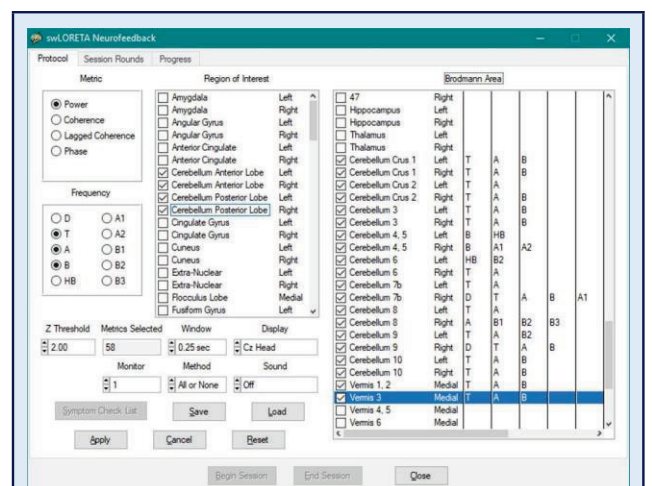
Surf: BrainSurfer, is a brain to computer interface whereby the client is training on an anatomically correct brain image, where both the current source densities and the connectivity measures are displayed.

swNF: swLORETA Z-Score Neurofeedback

This is an enhanced version of our sLORETA Neurofeedback, using Standardized and Weighted LORETA (swLORETA) and 120 Brodmann areas. swNF Now includes the Thalamus, Vermis, Red Nucleus, Nucleus Accumbens, and the Cerebellum which can be selected for Neurofeedback training.

swSurf: swBrainSurfer **Latest Release**

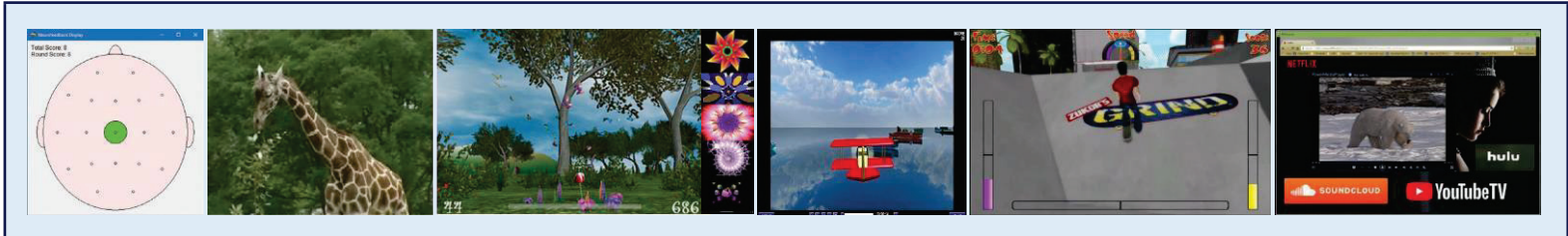
Is a Brain Computer Interface whereby the client is training on an anatomically correct brain image including the Cerebellum. One can visually train either the current source density and the connectivity measures or both at the same time.



Neurofeedback Options

Neurofeedback Display Options:

With NF1, NF2, NF3, swNF and/or swXNF you can Train Using a Variety of Display Options such as: The Cz Head, DVD, Multimedia, Beyond VR's Cybernetic Interface Software (CIS), Zukor Media Player™ and Games, Deymed Games. Finally, ANI offers the Streamer (STREAM) where subscription services (Netflix, YouTube) can be used for Training.



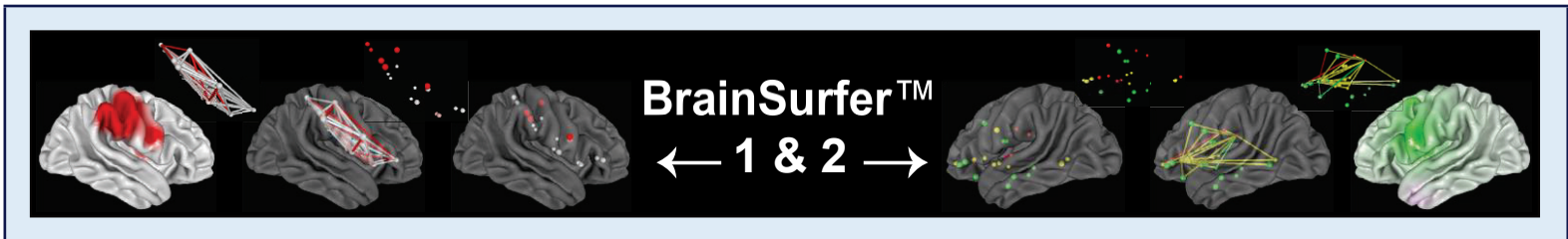
Inter and Intra-Session Progress Charts are available for All NFB and BCI Options:

EASILY Monitor your Patient's Progress During and Between Each Round of the Neurofeedback or BrainSurfer2 Session, and then Graph the Overall Progress of All the Patient's Neurofeedback or BCI Training Sessions.



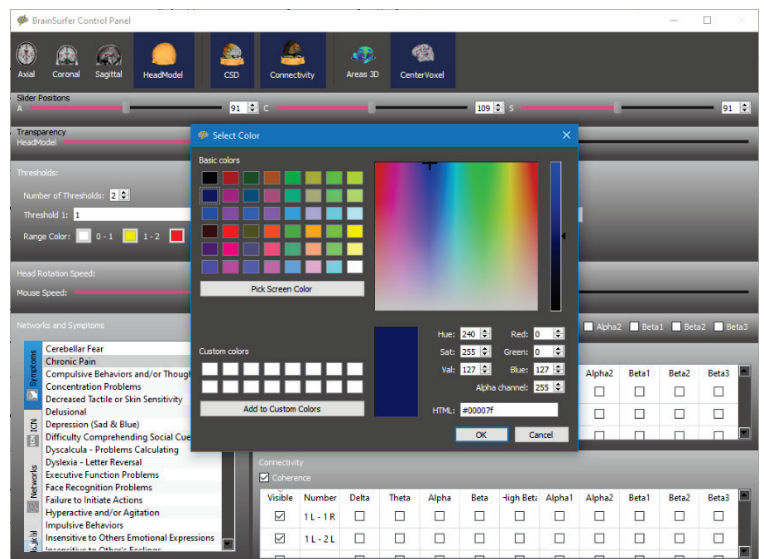
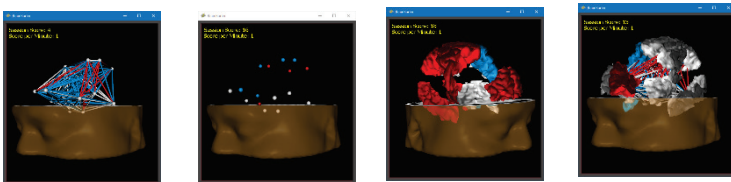
BrainSurfer™ and swBrainSurfer™ - NeuroGuide's Advanced Brain Computer Interface (BCI):

BrainSurfer (Surf) allows you to Effectively Train Using either BrainSurfer 1 or BrainSurfer 2. Both options offer Surface Training or sLORETA Z Score Training of the Connections, Nodes or Both.



swLORETA BrainSurfer (swSurfer):

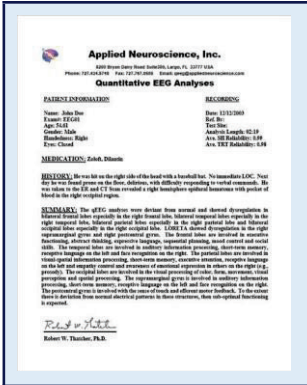
swLORETA BrainSurfer is NeuroGuide's latest Brain Computer Interface (BCI) option. swSurfer allows you to do swLORETA Z Score Training of the Connections, Nodes or Both, in addition to the 3D Areas. You can change the number of Thresholds, plus the Value and Color for each Threshold. Just select a Network or Symptom and then select the Frequency Band(s) that need to be trained.



The Automatic Clinical Report Writer (ACR)

NeuroGuide's Automatic Clinical Report Writer Provides:

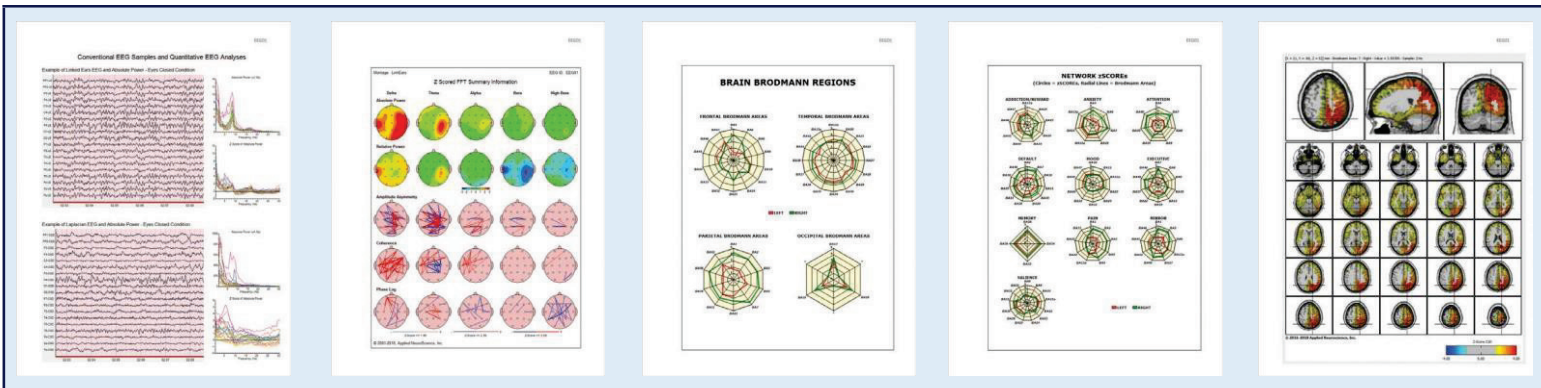
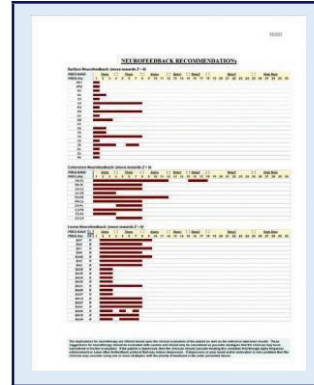
- ✓ A Professional Quality In-House QEEG Clinical Report with Minimal Expense and No Delays
- ✓ Valid Normative Database Comparisons using FDA Compliant NeuroGuide™ Software, without Depending on Internet QEEG Services.
- ✓ Relevant Content and Informative Displays, plus Helpful Neurofeedback Recommendations.



- ✓ The Ability to Generate Third Party Acceptable QEEG Reports using Your Own:
 - Logo
 - Letterhead
 - Signature

NeuroGuide's ACR also Provides:

Empowerment, Simplicity, Accuracy, and Efficiency!



Add-Ons & Items that Can Be Included in the ACR

Traumatic Brain Injury Discriminant Analyzer

Traumatic Brain Injury Index

Learning Disability Discriminant Analyzer

Learning Disability Discriminant

Predicted Neuropsychological Scores

Brain Performance Index

Brain Optimization Index

Brain Optimization Index

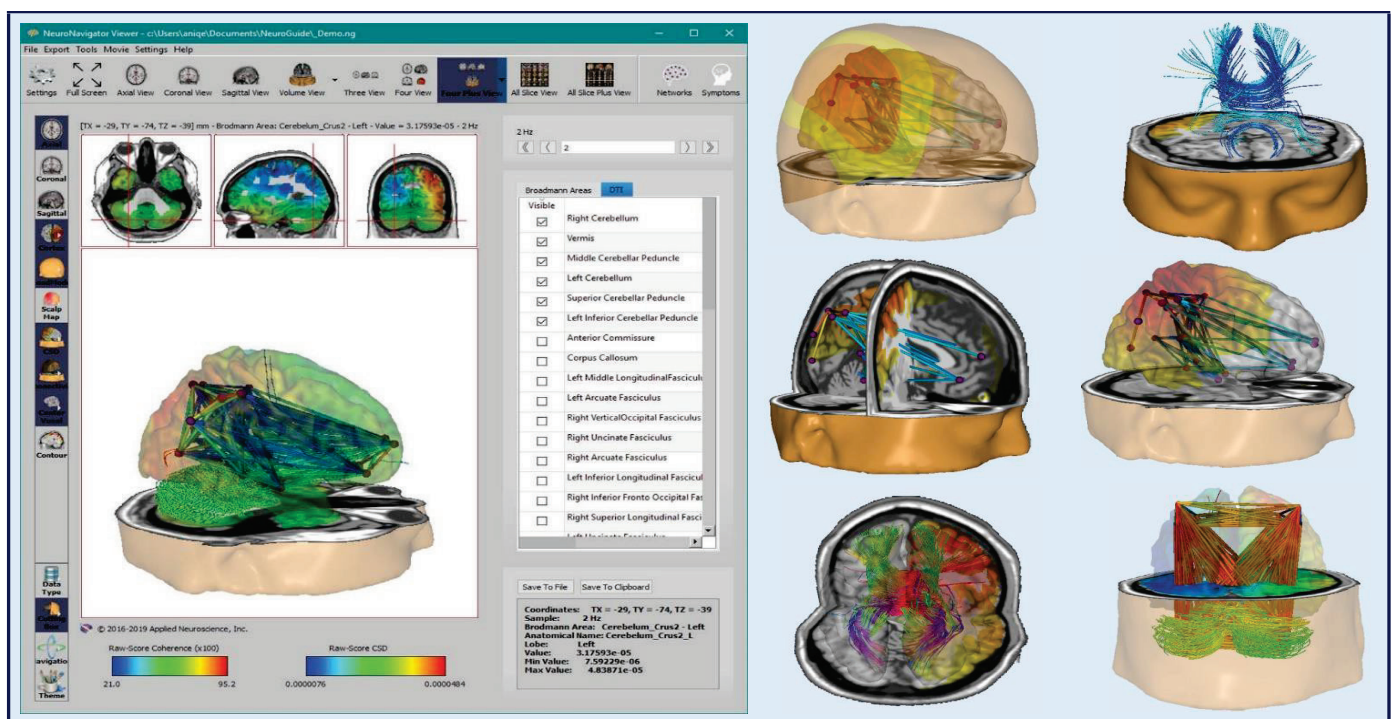
Concussion Index

Concussion Index

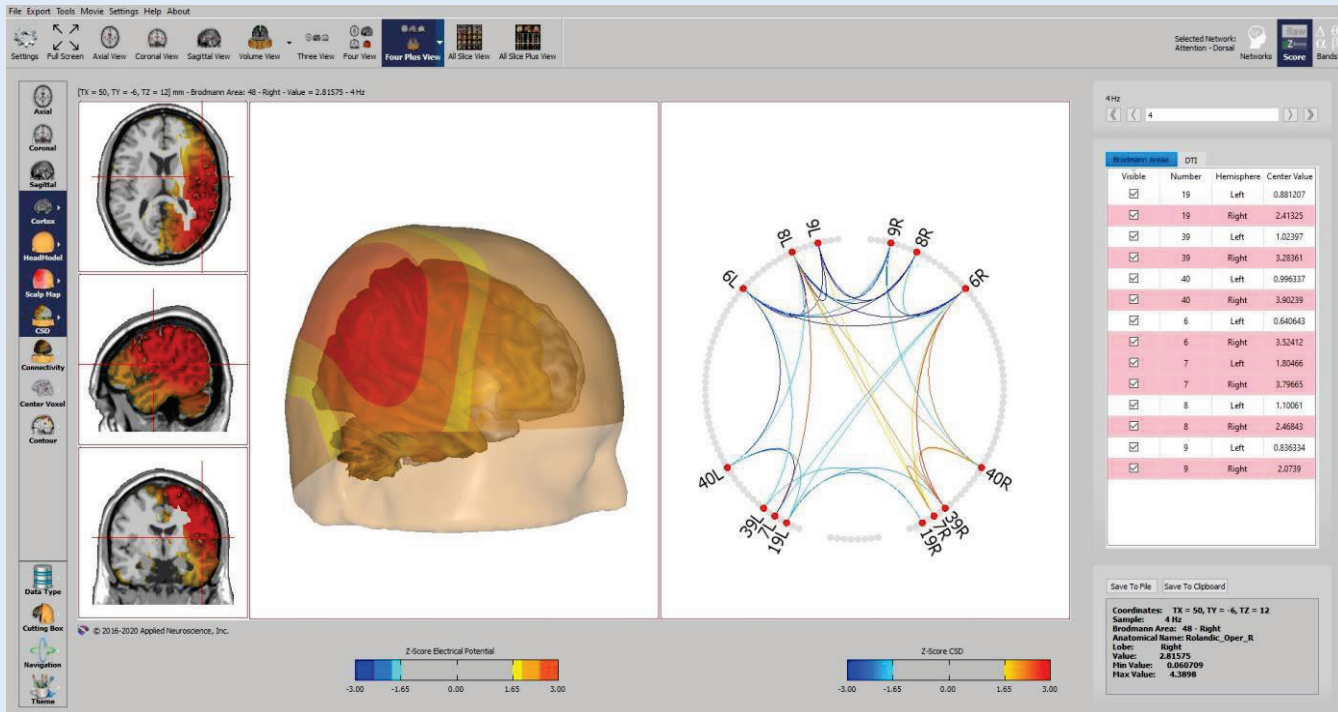
The NeuroNavigator

With the ANI's **NeuroNavigator™** using **swLORETA (standardized and weighted LORETA)** it is now possible to dynamically see the brain's electrical activity starting from the scalp all the way to the lower cortical areas. In addition, it is now possible to assess the electrical activity and connectivity of the **Amygdala, Sub-Thalamus, Thalamus, Vermis, Red Nucleus, Nucleus Accumbens, and the Cerebellum**, both as raw scores and z-scores based on ANI's swLORETA databases for Current Source Densities, Functional Connectivity (Coherence, Lagged Coherence, Phase), Effective Connectivity (information flow) and Phase Reset (Phase Shift and Phase Lock Duration). It also includes a DTI Overlay. Easy to use, intuitive tools allow you to:

- ✓ Slice through the brain using x-y-z cursors
- ✓ Navigate to specific Brodmann areas by entering their coordinates
- ✓ Quickly see the Brodmann areas that are outside the norm in the z-score panel on the left.
- ✓ Paste all images and/or values into desired word processing software with one mouse click
- ✓ Visualize the Networks and the Brodmann Areas linked to the Symptoms of the Symptom Checklist Turn the Atlas feature on to see the boundaries of the Brodmann areas of the networks being displayed
- ✓ Easily change the color scheme, scale, normal range, head model transparency, and many more display features to enhance the view of the underlying data
- ✓ View all the slices of a specific frequency
- ✓ Drill down, starting from the scalp potentials to the lower cortical layers.
- ✓ Automatically prepare a sLORETA and swLORETA Feedback Protocol files (.s05, .s08) for training
- ✓ Easily view the Raw and Z-Score data
- ✓ Monitor treatment and explore changes with NaviStat our swLORETA comparison/statistic module.
- ✓ View the connectivity as in 3 dimensions or as a 2-dimensional Connectome plot.



A Revolutionary Tool for Navigating the Sources of the Brain's Electrical Activity



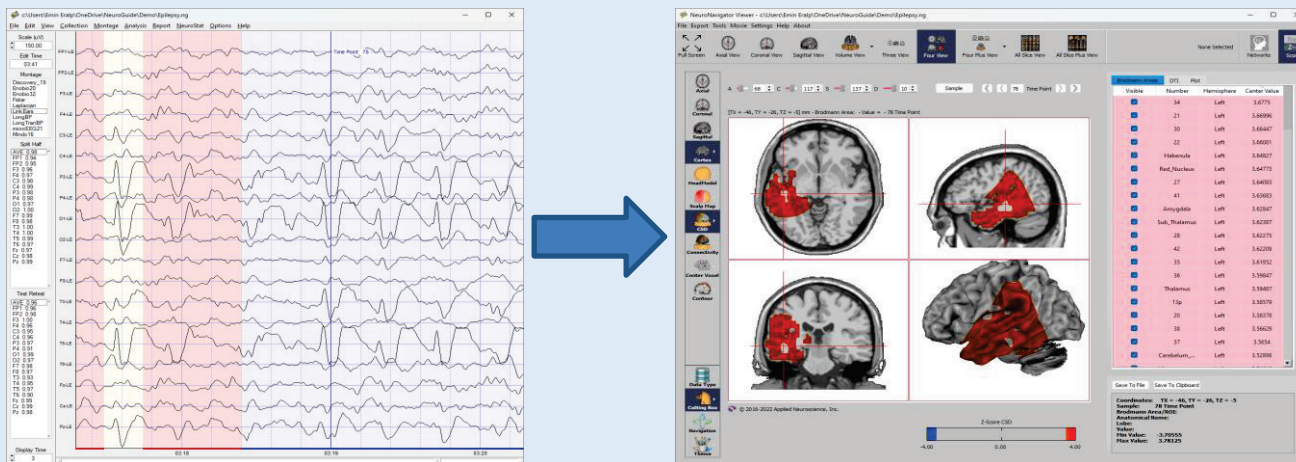
With the ANI's **NeuroNavigator** it is now possible to dynamically see the brain's electrical activity starting from the scalp all the way to the lower cortical areas. Potentials can be mapped in both absolute values and z-scores (based on ANI's new **swLORETA database**). Easy to use, intuitive tools allow you to:

- Slice through the brain using easy to use x-y-z cursors
- Navigate to specific Brodmann areas by entering their coordinates
- Quickly see the Brodmann areas that are outside the norm in the relocatable z-score panel
- Paste all images and/or values into desired word processing software with one mouse click
- Visualize the Networks and the Brodmann areas linked to the Symptoms of the Symptom Checklist. All the options of the Symptom Checklist are included.
- Turn the Atlas feature on to see the boundaries of the Brodmann areas of the networks being displayed
- Easily change the color scheme, scale, normal range, head model transparency, and many more display features to enhance the view of the underlying data.
- View all the slices of a specific frequency, or collapse the frequencies into bands (i.e., delta, theta etc.)
- Drill down, starting from the scalp potentials to the lower cortical and cerebellar layers. NeuroNavigator now includes the Amygdala, Sub-Thalamus, Thalamus, Hippocampus, Vermis, Red Nucleus, Nucleus Accumbens and the Cerebellum.
- View Functional and Effective Connectivity as well as Phase Reset measures both as raw and z-scores.
- View the Functional Connectivity on the brain and/or as a Connectome.
- Automatically prepare a sLORETA or swLORETA Feedback Protocol Files for NeuroGuide.
- Output Center Voxel values and Connectivity measures as text files.

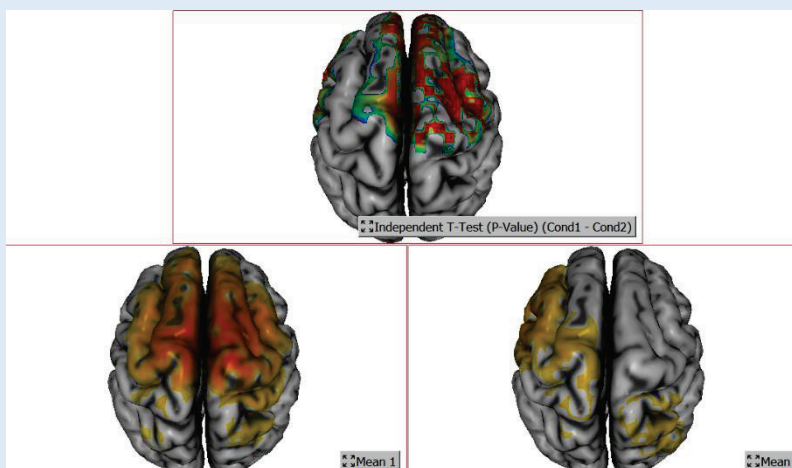
... AND MUCH MUCH MORE

NEURONAVIGATOR™ IN ACTION

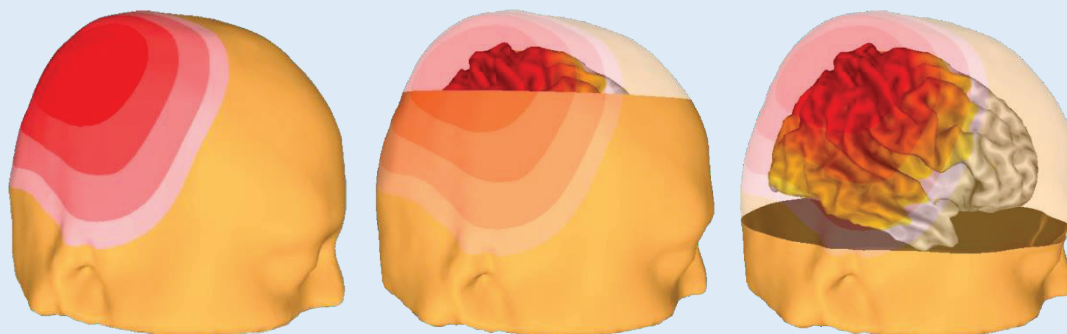
Localizing Sources and Identifying ROI's for Training



Treatment Monitoring with NaviStat

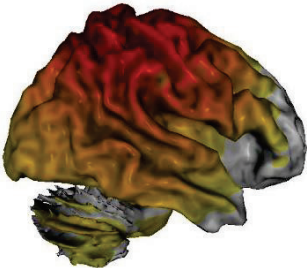
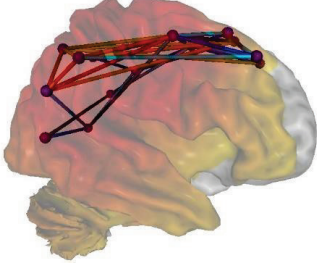
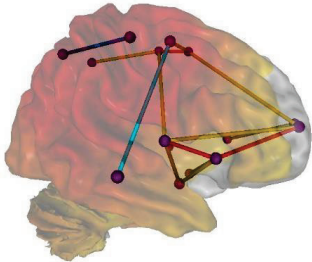
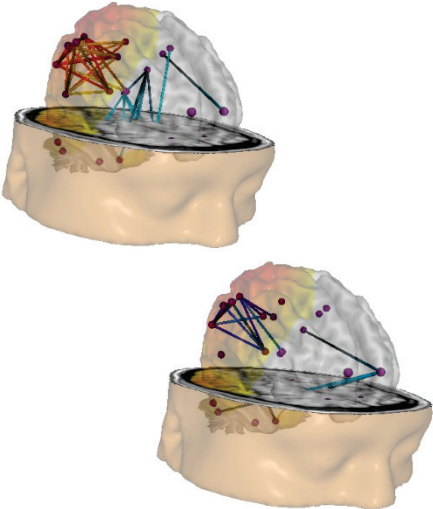
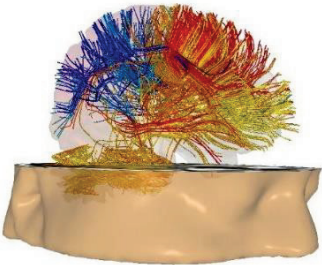


Correlating Scalp and Cortical Fields



The NeuroNavigator™ is very versatile and due to its design, which incorporates much higher voxel resolution and weighting for deeper sources, will enable you to explore and navigate the brain's biopotentials accurately, and precisely.

swLORETA DATABASES

<p>Current Source Density</p>		<p>With the Current Source Density, you can explore the deviations in either the individual frequencies or the bands (Delta, Theta, Alpha, Beta, Alpha1, Alpha2, Beta1, Beta2, Beta3) and precisely determine the ROI of the deviation(s).</p>
<p>Functional Connectivity</p>		<p>The Functional Connectivity (i.e., Coherence, Lagged Coherence and Phase measures) are displayed in the form of connection lines where reds indicate positive deviation from normal, blue, negative deviation from normal</p>
<p>Effective Connectivity</p>		<p>To understand the magnitude and direction of information flow (Effective Connectivity), lines indicating the communicating areas will be drawn where the size of the line indicates the magnitude of information flow.</p>
<p>Phase Reset (Phase Shift Duration and Phase Lock Duration)</p>		<p>With the Phase Shift Duration and Phase Lock Duration databases it is possible to assess the dysregulation of the task dynamics of the brain by looking at whether the phase shift duration and/or the phase lock durations are within normal ranges.</p>
<p>Diffusion Tensor Imaging Overlay</p>		<p>Finally, it is possible to view the Functional Connectivity and Effective Connectivity over the fibers, where the color indicates the magnitude with the DTI Overlay.</p>

With the swLORETA databases it is simple to explore and determine deviations from normal in all the different QEEG measures. With the enhanced NeuroNavigator it is easy to select a symptom or a network (which are identical to the ones in the NeuroGuide Symptom Checklist) and export the finding into a NeuroGuide compatible protocol file (for both sLORETA and swLORETA).

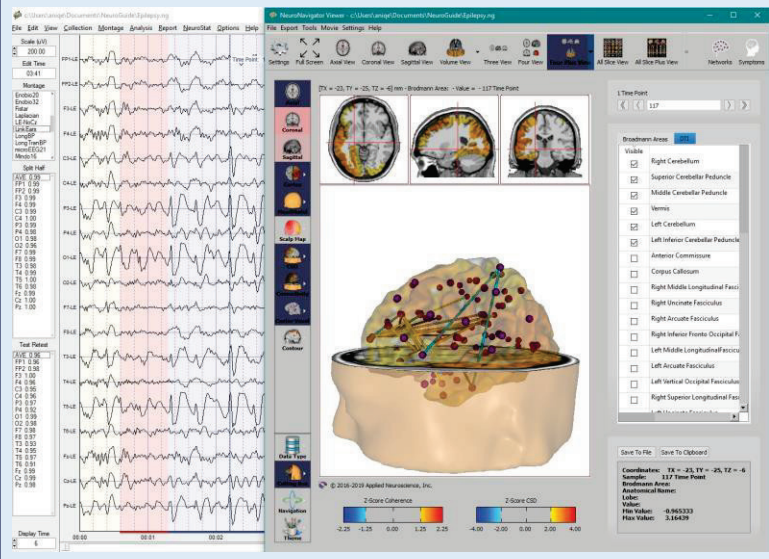
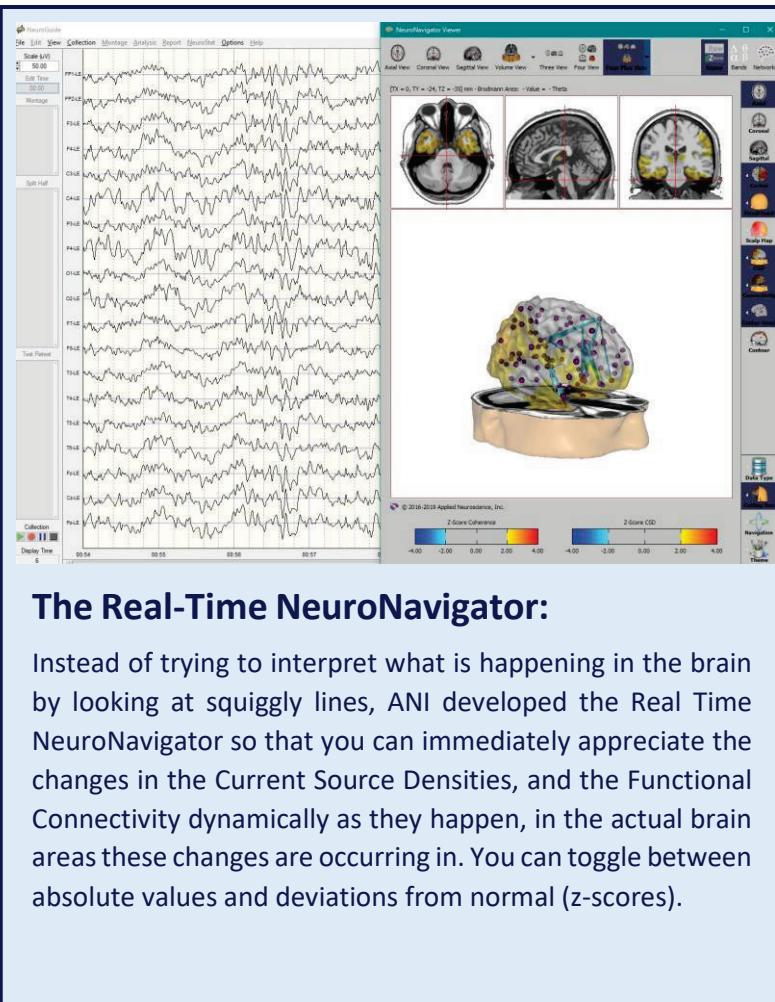
Included with NeuroNavigator

NeuroNavigator Time Domain Capture:

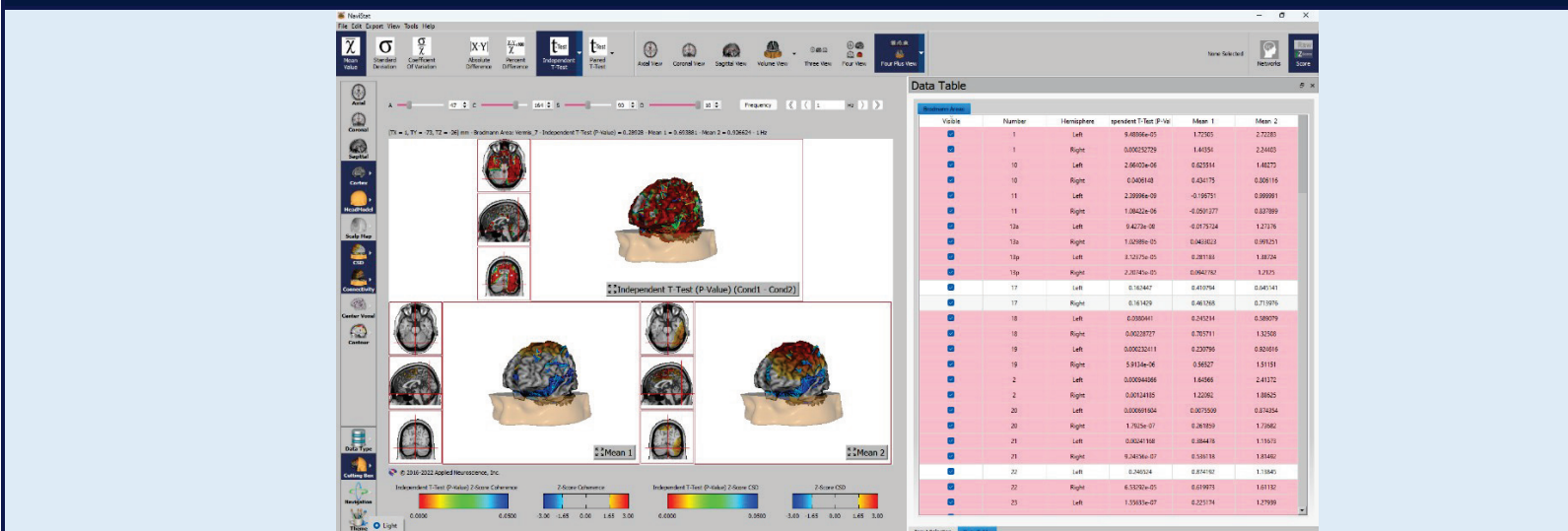
It is difficult to assess the effect on the brain of paroxysmal events by just looking at the EEG. The NeuroNavigator Time Domain Capture option allows you to see the effect of paroxysmal activities (like bursts, sharp waves, spike & wave complexes etc.) on the brain. You can see the sources, which brain areas are affected, and more importantly which brain areas remain intact. All this is accomplished by using swLORETA to finely pinpoint sources and changes in connectivity

The Real-Time NeuroNavigator:

Instead of trying to interpret what is happening in the brain by looking at squiggly lines, ANI developed the Real Time NeuroNavigator so that you can immediately appreciate the changes in the Current Source Densities, and the Functional Connectivity dynamically as they happen, in the actual brain areas these changes are occurring in. You can toggle between absolute values and deviations from normal (z-scores).



NaviStat

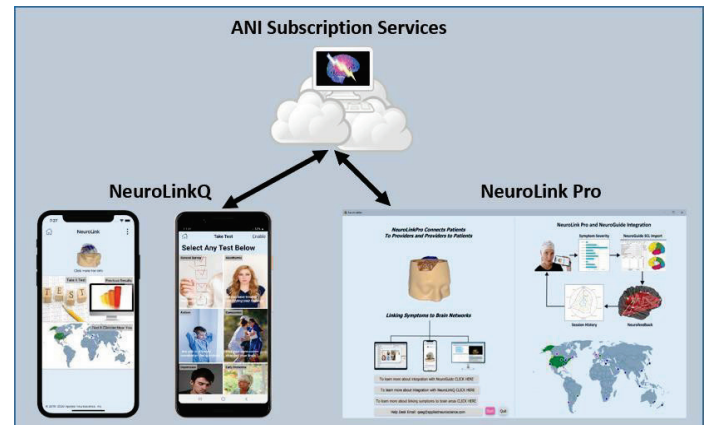


With NaviStat you can assess the changes induced by the treatment. The changes can be assessed by looking at the difference, the percent difference or the statistical difference using a t-test. The two windows on the bottom show you the pre and post values, and you can display the means, the standard deviations, or the coefficient of variability. The resultant window on the top shows the result of the comparison. When doing the statistical comparison, you can display either the t-value or the p-value. NaviStat also provides a data table with all of the values and the results. Comparisons can be made on individuals or groups.

More Information and Links

NeuroLinkQ and NeuroLink Pro - Self Assessment Software:

NeuroLinkQ is available as a FREE smartphone App and allows the user to explore their brain function based on the answers, they give to a self-rating questionnaire that links symptoms to brain areas and be linked to providers who have NeuroGuide in their area. NeuroGuide users can download and use the NeuroLink Pro which manages client rating scales and allows them to confidentially mail questionnaire results to the user and allows them to process the results. For a small fee the NeuroGuide user can be placed on the provider map on ANI's website. (See our NeuroLink Brochure for more information)



Our NeuroGuide Software is FDA 510k Registered: K041263

Download the FREE NeuroGuide™ Demo that includes all the options of a complete NeuroGuide System visit: appliedneuroscience.com/download-neuroguide-demo/

To learn more about NeuroGuide™ and the various Add-Ons, including QEEG Assessment and Neurofeedback watch the FREE webinars available at: appliedneuroscience.com/webinars/

You can also watch our Vimeo and YouTube Videos: appliedneuroscience.com/video-library/ to learn more about NeuroGuide.

Want to attend a 2-Day NeuroGuide Workshop presented by Dr. Robert W. Thatcher, use the link to learn more or to Signup: <https://appliedneuroscience.com/attend-ng-workshops/>

To learn more about or Download a FREE NeuroLinkQ smartphone Apps or the NeuroLink Pro visit: anineurolink.com

For more information about NeuroGuide™ or to receive a Quote visit our Booth or Contact: 727-804-3596 / 727-657-4349 or send an email to: qeeq@appliedneuroscience.com

To learn about or to purchase a “Living” e-book of the Handbook of QEEG & EEG Biofeedback written by Robert W. Thatcher, Ph.D. visit our Booth or go to: anipublishing.com



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