sVIEW

Simulation Techniques, Inc.

Machine Science Analytics Platform

From Automotive to Aerospace Manufacturing, the stiAnalytics sVIEW platform provides Engineering and Manufacturing Operations with comprehensive and customizable data analytics for developing and implementing an environment for monitoring and optimizing machines and manufacturing processes. sVIEW employs the MATLAB™ 4M+ User Technical Computing Environment and incorporates a robust Machine and Process Science Toolbox.

Application Areas

- Machine Monitoring
- Process Monitoring
- Process Development
- Machine Design Development

Key Capabilities

- Multi-channel Data Viewer & Editor
- User Customization Plug-Ins
- Batch Processor
- Event Isolation & Analysis
- Spectral Analysis
- Acoustic Analysis
- Rotating Equipment Analysis
- Time-Frequency Analysis
- System Modeling

Data Viewer & Editor

The sVIEW Data Viewer is optimized for multi-channel data analysis and the viewer window provides intelligent menus for editing and analysis operations. Key features include:

- Data import, export, editing, scaling, and multi-channel math functions.
- Data Cursors, Event Markers, and Event Isolation Windows.
- Axis limits, scale, grid, spectrum units and synchronized zoom options.
- Plot editing tools for figure customization.
- Copy, paste, and save figures in common graphics formats.
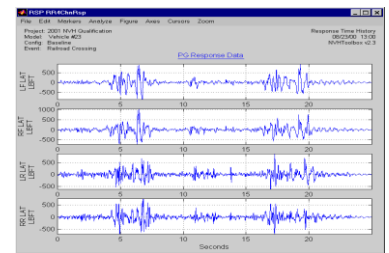
Event Isolation & Analysis

sVIEW provides extensive capabilities for analyzing transient events. These features are particularly well suited for development projects that require the capture, synchronization and analysis of the dynamic response associated with transient operating events. Transient Event Analysis features include:

- Configurable event triggers provide automated selection and identification of dataset events.
- Event data analysis with automatic calculation and display of multiple repeat statistical properties.
- Data Markers for interactive graphical event identification, annotation and data extraction.
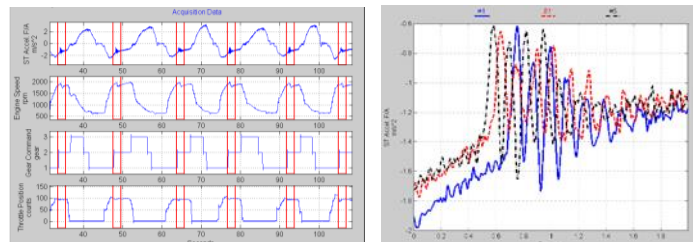

Machine & Process Monitoring

sVIEW provides extensive capabilities for Machine Performance and Process Monitoring features include:

- Comprehensive statistics for multichannel dataset and entire Event collections.
- Trend Analysis with Date and Time support
- Polynomial Curve fitting to trend data sets.

Signal Processing & Spectral Analysis

sVIEW includes a complete set of signal processing, spectral analysis, and filtering functions for analyzing and manipulating machine and process data. All functions are optimized for multi-channel data sets. Option templates simplify analysis and provide a convenient method for standardizing procedures. Capabilities include:

- Digital Filters (LP, HP, BP, Notch, SPL A,B,C).
- Auto Spectrum, Coherence, and Envelope Functions.
- Spectrograms (vs. Time & Tracked).
- RMS in Frequency Band (vs. Time & Tracked).
- MIMO Frequency Response & Coherent Response.
- Signal Integration and Differentiation.
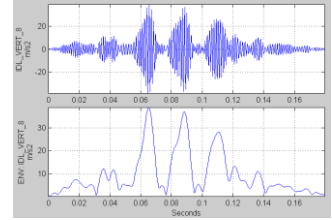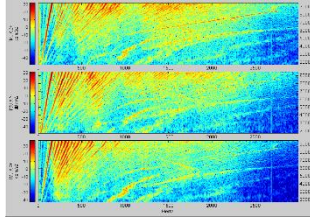
Acoustic Analysis

The sVIEW Acoustic Analysis module provides tools for analyzing acoustic data and working with sound quality metrics. All metrics can be averaged, time sequenced or tracked against another channel. Key features include:

- Sound Level (Leq) with SPL Weighting Options.
- Sound Spectrum (Narrowband & 1/3-Octave)
- Specific Loudness (FFT and Filter Methods).
- Sharpness, Roughness & Fluctuation Strength
- Zwicker Loudness ISO 532B (FFT and Filter Methods).
- Reverberation Time & Sound Absorption Coefficients.
- Sound Transmission Loss & Insertion Loss.
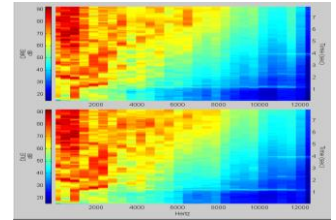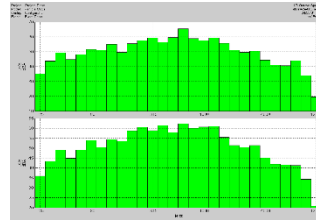
Fatigue Analysis

The sVIEW Fatigue module includes automated fatigue sensitive editing capabilities to easily identify and extract the damaging sections of a response history. Damage reduction can include multiple principle channels and provides automated construction of a synchronized multi-channel response. Other features include:

- Turning Point Reduction and Rainflow Counting.
- Load, Stress, and Strain Life with Mean Correction.
- Cumulative Damage & Damage Intensity Functions.
- Materials Database with editor and viewer functions.
- Export of drive files in common formats.
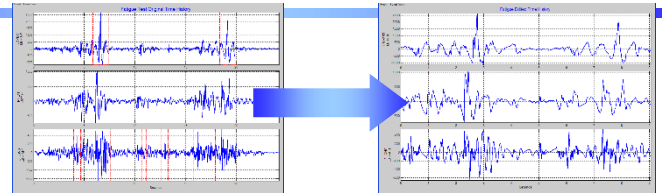
Time-Frequency Analysis

Many response signals contain frequency components that vary rapidly with time. Classical spectrum analysis methods are often ineffective in analyzing the frequency content of these signals. sVIEW provides robust joint time-frequency analysis capabilities to assist in the analysis of these time-variant signals. Time-Frequency Analysis features include:

- Easy to setup and use.
- Robust time frequency distribution (TFD) algorithm.
- Extensive TFD graphical display options including image, contour, and rotating 3D surface plots.
- Optional Time Response and Spectral Function Windows.
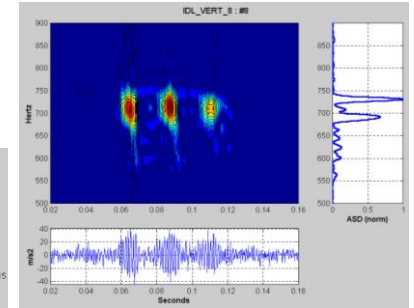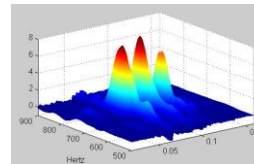
Rotating Equipment Analysis

sVIEW provides a comprehensive set of analysis functions to assist in NVH development of rotating equipment. These functions can be used to examine and quantify the order related components of a dynamic response measurement. Analysis features include:

- Computed Order Tracking algorithm provides precision analysis results.
- RPM Tracked Order and Frequency Maps.
- Multi-channel Order Cuts (Tracks).
- Multi-channel Frequency Cuts.
- Tachometer signal to RPM conversions.
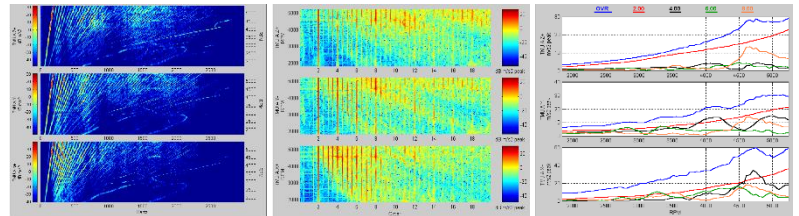
Batch Processor

sVIEW includes a powerful Batch Processor for automating and standardizing data analysis procedures. The Batch Processor uses a Point-and-Click interface which makes developing even the most complex data analysis procedures an easy task. Key features include:

- Control Panel for creating, editing and viewing process status and parameters.
- Unlimited data set size. Analyze and entire disk of data with a single click.
- Hierarchal design for building complex analysis procedures with reusable components.
- Clipboard support to Cut, Copy, & Paste tasks and operations.
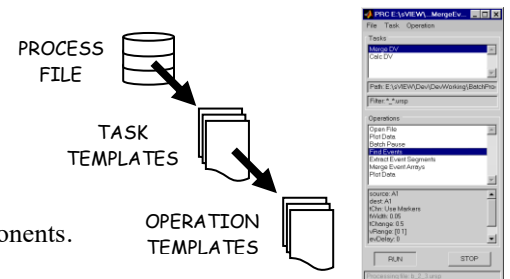
Plug-Ins & User Programmibility

Plug-Ins are user written programs that integrate with the sVIEW environment and work with sVIEW data and graphics. The sVIEW Plug-In architecture allows users to easily add their own data processing and analysis programs to the sVIEW menus and have direct access to sVIEW data structures and options templates. In addition, sVIEW includes the NVH Toolbox development library that contains a broad set of high-level data analysis, visualization and GUI functions specifically designed for developing signal processing and NVH analysis solutions within the sVIEW and MATLAB environments.

Simulation Techniques, Inc.

Simulation Techniques has been providing dynamic analysis and simulation control products and services to the testing community since 1992. Our staff is comprised of industry-recognized experts in dynamic analysis, control, and NVH refinement. We offer dynamic analysis software and data acquisition and analysis systems along with expert NVH engineering consulting services.