

# Sift Overview

**Sift. Your Ultimate Biomechanics Data Analysis Companion.**



Tailored for users handling large biomechanical datasets, Sift is your solution for seamless data analysis with no exporting necessary. Load multiple CMZ libraries simultaneously, simplify data management, and conquer unwieldy databases effortlessly. Dive straight into your datasets with a variety of visualization tools, cutting-edge analysis techniques, and seamless integration of the Visual3D engine into this stand alone application. From incorporating Visual3D pipeline commands to performing Statistical Parametric Mapping, Principal Component Analysis, or outlier detection algorithms, Sift empowers you to complete comprehensive biomechanics analyses within a single application. Experience the power of Sift and unlock the true potential of your data today!

Sift allows users to: load multiple [C3D](#) files, detect and remove outliers manually or through statistical algorithms, group signals based on unique conditions, complete advanced analyses through built in Principal Component Analysis, curve registration, Statistical Parametric Mapping, and gait measures, and produce customized visualizations.

Sift is designed to integrate seamlessly with [Visual3D](#). Where Visual3D is primarily a session-based tool for processing motion capture data, Sift lets researchers take their Visual3D results and process them at study-level. Users can leverage the power of the Visual3D engine by running pipeline commands on loaded CMZ libraries directly through Sift's interface.

At its heart, Sift is all about helping researchers through the knowledge discovery process: **collecting**, **cleaning**, **shaping**, and **analysing** their data before **communicating** their results.

**Collecting data:** Sift lets you load [CMZ](#) files containing all of the [C3D](#) files associated with your study. Sift enables you to build CMZ libraries using raw C3D files from the Sift interface. Additionally, you can seamlessly integrate and merge Theia3D files into Sift.

**Cleaning data:** Your data can be visualized easily as individual traces, workspace means, or group means. You can click on specific data traces and choose to exclude them from analysis. Early data visualization and formal outlier detection techniques help you ensure that only valid data is used for your analysis. Take this a step further by performing Dynamic Time Warping and QA techniques to verify that you didn't miss any outlier traces or subjects in one thorough sweep.

**Shaping data:** A single study can contain multiple questions, each looking at the underlying data in different ways. Sift can automatically group signals for you or you can define your own custom queries based on tags, events, or expressions. Common signal groups include Left and Right signals, Affected and Unaffected sides, and Pitching vs. Non-pitching sides.

**Performing analysis:** Sift implements common data analysis techniques such as [Summary Statistics](#) calculation, [Principal Component Analysis](#), [Statistical Parametric Mapping](#), [Curve Registration](#), [Dynamic Time Warping](#), [Gait Measures](#), and [Clustering](#) algorithms.

**Communicating results:** Analysis results can be exported to a number of different text formats including [Visual3D ASCII](#), [P2D](#), and SPSS. Sift is also equipped with an advanced visualization toolbox that allows you to plot Signal-Time, Signal-Signal, Metric, and Metric-Metric styles, all while customizing colours, fonts, and plot styles with Sift's visualization control panel.

Ready to experience the power of Sift and unlock the true potential of your data? [Get Started!](#)

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