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Sift provides a number of ways to visualize and interact with the results of PCA. An overview of all PCA visualizations can be found in [Sift - Analyse Page](#). More detail on the mathematics behind PCA can be found on our page: [The Math of Principal Component Analysis \(PCA\)](#).

This page includes:

- Visualizing the [variance explained by each PC individually](#);
- Visualizing the [variance explained by each PC at each point in the signal's cycle](#);
- [Scatter-plotting workspace scores](#) in PC-space;
- Showing the [distribution of scores by group](#) for each PC;
- Visualizing the [mean and extreme values](#) that result from reconstructing the underlying data with each PC; and
- Visualizing how the signals can be [reconstructed from the computed PCs](#).

Further Analysis

Sift has several built in modules to take you further with you PCA Analysis, including:

- [T-Squared Tests](#): Finding outliers using a Multi Variate T-Squared Distribution.
- [Q-Tests](#): Finding Outliers on small datasets using a Q-Test.
- [Mahalanobis Distances](#): Finding outliers through their Mahalanobis Distances.
- [Local Outlier Factors](#): Finding outliers through the Local Outlier Factor.
- [K-Means Analysis](#): Clustering PCA results through K-Means clustering.

Tutorials

For a step-by-step example of how to use Sift to perform PCA on your data, see the [PCA Tutorial](#).

For a step-by-step example of how to use Sift to perform further statistical testing on PCA results, see the [Tutorial: Run K-Means](#).

For a step-by-step example of processing and analyzing large data sets in Sift and using PCA to distinguish between groups, see the [Tutorial: Treadmill Walking In Healthy Individuals](#) and the [Tutorial: Analysis of Baseball Hitters](#).

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