

Signal Preprocessing and Feature Extraction for Data Analytics with MATLAB

OEM: MathWorks • Duration: 1 Day (8 hrs) • Code: MW-SIGNAL-PREPROCESSING-AND-FEATURE-EXTR

COURSE MODULES & TOPICS

Day 1 of 1

Explore and Analyze Signals (Time Series) in MATLAB

- Import, visualize, and browse signals to gain insights
- Make measurements on signals
- Compare multiple signals in the time and frequency domain
- Perform interactive spectral analysis
- Extract regions of interest for focused analysis
- Recreate analysis with auto-generated MATLAB scripts

Preprocess Signals to Improve Data Set Quality

- Perform resampling to ensure a common time base across signals
- Work with non-uniformly sampled data
- Find gaps in data and remove or fill gaps
- Remove noise and unwanted frequency content
- Perform wavelet denoising
- Use the envelope spectrum to perform fault analysis
- Locate outlier values in data and replace them with acceptable data
- Locate signal changepoints and use boundaries to automatically create signal segments

Extract Features from Signals

- Locate peaks
- Locate desired signals from patterns in the time and spectral domains
- Use spectral analysis to extract features from signals
- Perform classification using supervised learning
- Use the Classification Learner app to interactively train and evaluate classification algorithms