Save Step 1: Characterization Step 2: Synthesis Step 3: Analysis 100 Synthetic Data 12 Select File D:\example data\LFP seg SynData.mat 80 **Review Settings** Load rue positive rate (Hz) 8 Pre-selected Bounds True positive rate 60 Lower Bound θL O Specify: Default 23.72 µV  $1.41 \sigma$ Default Specify: 23.72 µV Upper Bound θU 1.41 σ 6 40 Time ( $<\theta$ L) 0.511 % False Peak Rate 12.81 Hz 49.5 % ROC 0.489 % 13.04 Hz Time (> $\theta$ U) True Peak Rate 50.5 % Random TP rate = FP rate (Hz) 20 Select Bounds Maximum Youden's index Youden's index in Hz **Detection Performance and ROC Curve** Operating point 50 Number of Thresholds Default Specify: 20 60 80 40 100 0 False positive rate (%) Normalize Evaluate Detect on 
Amplitude peak Amplitude  $0.6 \, r$ Conditional Probability 0.472 z-score Detection Threshold False peaks Given a Detection Intermediate peaks 44 > the Threshold 0.5 իսոհոյուհամասիսուհամա True peaks 60 90 120 150 180200 μV Detection threshold 22.3 % density (Hz/μV) 8.0 8.0 False (FDR) False Positive Rate 2.56 Hz 0 % Intermediate 20 րակակարարարարարալ True (PPV) 77.7 % 0 10 20 30 40 50 60 70 80 90 100 Results Preselected bounds are calculated. Rate 0.2 Upper bound is changed from 1.11  $\sigma$  to 1.41  $\sigma$ Detecting on amplitude peak. 0.1 Optimal threshold: Maximum Youden: 0.472 Z-score, 44.1 µV Maximum Youden (in Hz): 0.472 Z-score, 44.1 µV 200 50 100 150 250 Detection threshold: 44.08 µV, False positive rate: 20.01 % Amplitude peak (µV)