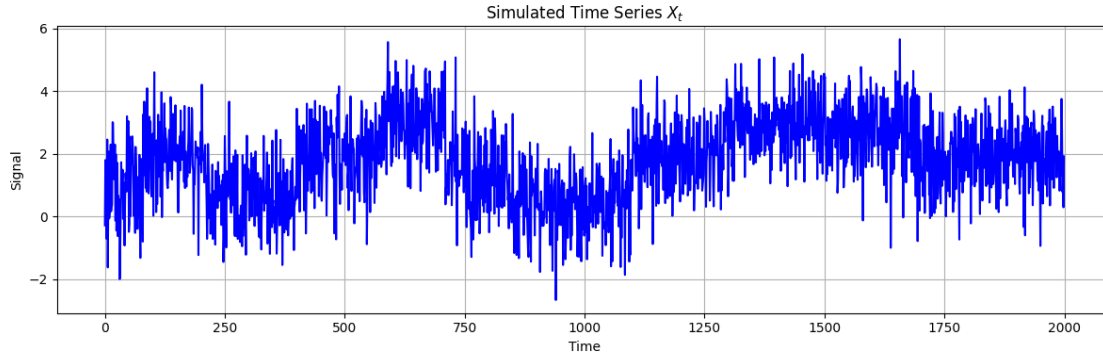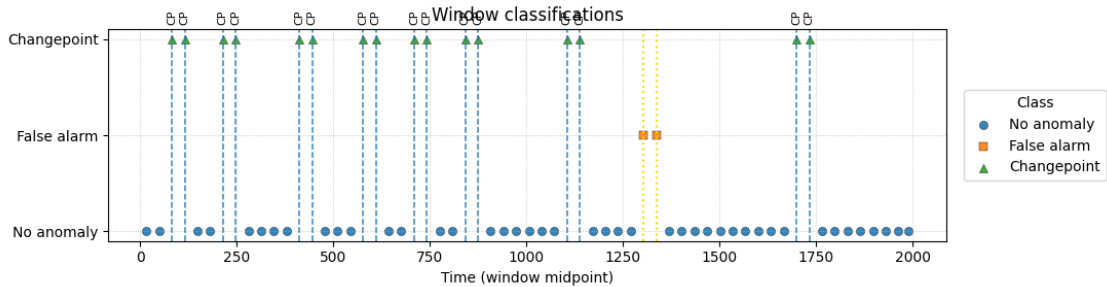## 1.3   Simulation Setup and Visual Illustration

(a) Simulated time series X_t exhibiting multiple changes in the mean and variability.

(b) Window-based classification into no anomaly, false alarm, and changepoint regimes.

Figure 2: Illustration of the proposed detection framework. The upper panel shows the simulated time series X_t. The lower panel displays the window-based classification results. Vertical dashed blue lines indicate the true changepoint locations used in the simulation, while yellow dashed markers correspond to true transient anomalies (false alarms). The plotted symbols represent the classifications produced by the proposed method, distinguishing detected changepoints, detected false alarms, and no-anomaly windows.