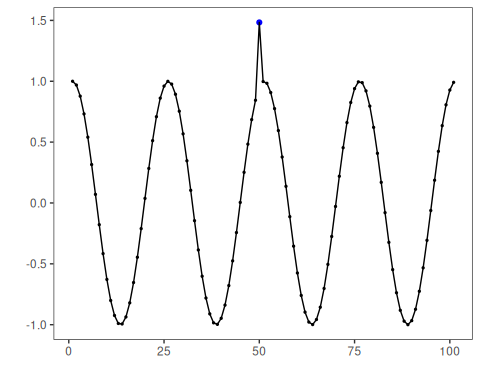
Overview and objectives: This notebook tours common time-series anomaly patterns (point/isolated, contextual, collective/sequence, regime variance shifts) using Harbinger’s base pipeline. For each dataset, we fit a detector, run detection, and visualize predictions against ground truth. The goal is to illustrate how different patterns appear in residual magnitude and plots, and how Harbinger’s unified interface helps compare detectors consistently.

# Install Harbinger (if needed)  
#install.packages("harbinger")

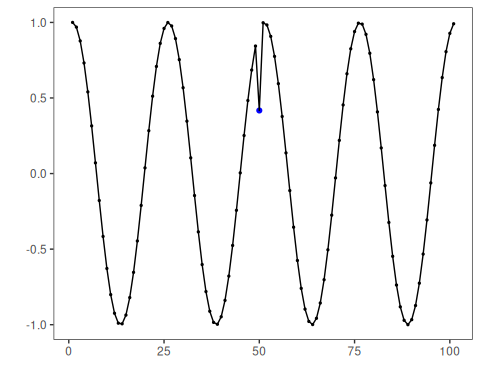
# Load required packages  
library(daltoolbox)  
library(harbinger)

# Load example anomaly datasets and create a base object  
data(examples\_anomalies)  
model <- harbinger()

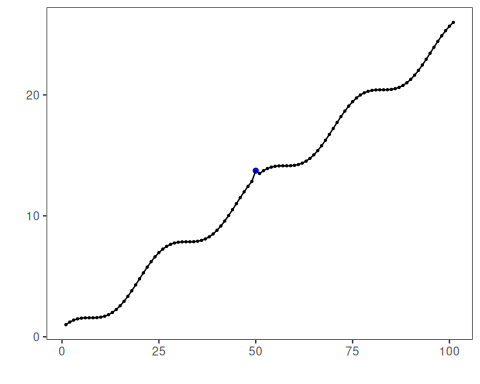
# Simple anomalies: isolated spikes  
dataset <- examples\_anomalies$simple  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



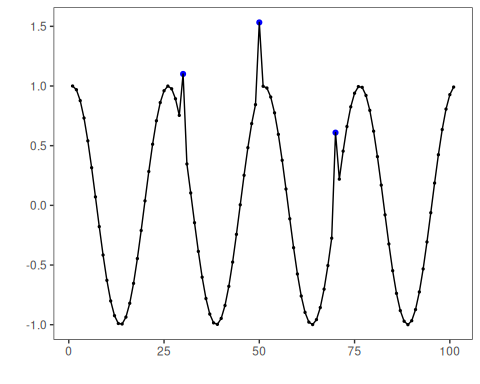
# Contextual anomalies: depend on local context  
dataset <- examples\_anomalies$contextual  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



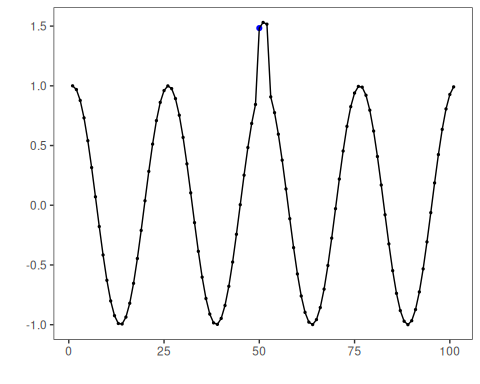
# Trend with anomalies  
dataset <- examples\_anomalies$trend  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



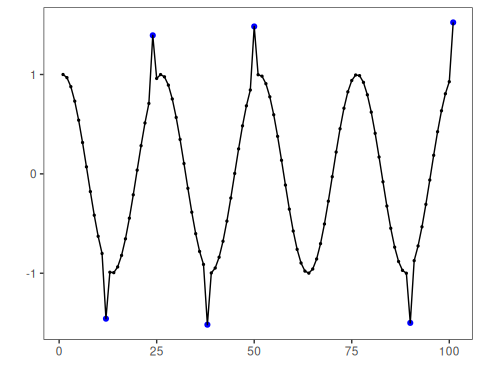
# Multiple anomalies  
dataset <- examples\_anomalies$multiple  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



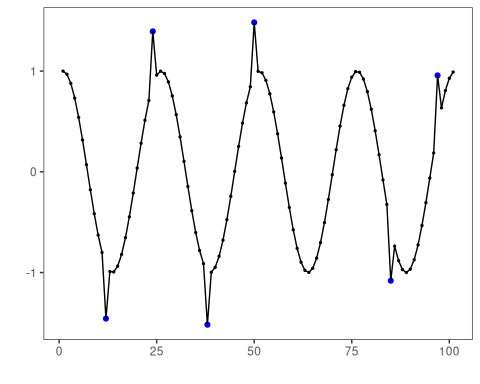
# Anomalous repeating sequences  
dataset <- examples\_anomalies$sequence  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



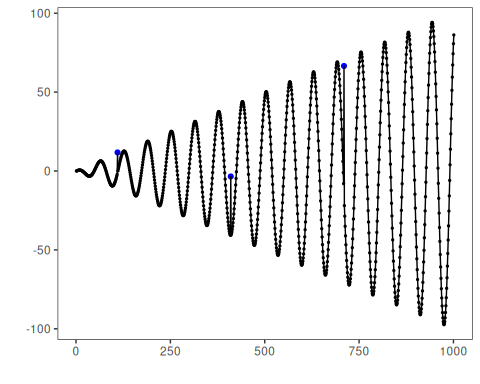
# Train/Test split  
dataset <- examples\_anomalies$tt  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



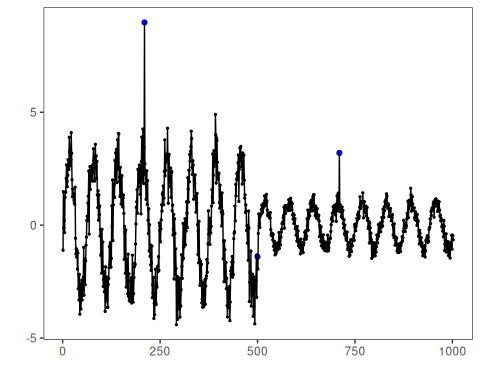
# Train/Test warped  
dataset <- examples\_anomalies$tt\_warped  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



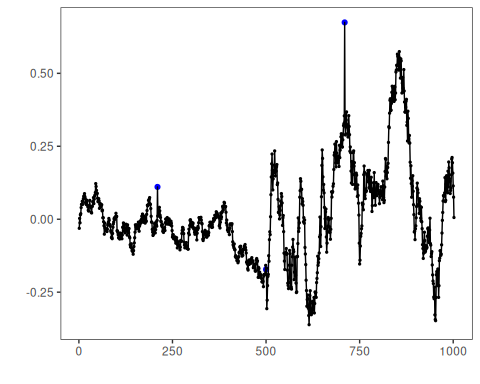
# Increasing amplitude over time  
dataset <- examples\_anomalies$increasing\_amplitude  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



# Decreasing amplitude over time  
dataset <- examples\_anomalies$decreasing\_amplitude  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



# Volatile variance  
dataset <- examples\_anomalies$volatile  
model <- fit(model, dataset$serie)  
detection <- detect(model, dataset$serie)  
har\_plot(model, dataset$serie, detection, dataset$event)



References

* Ogasawara, E., Salles, R., Porto, F., Pacitti, E. Event Detection in Time Series. Springer, 2025. <doi:10.1007/978-3-031-75941-3>
* Chandola, V., Banerjee, A., Kumar, V. (2009). Anomaly detection: A survey. ACM Computing Surveys, 41(3), 1–58.