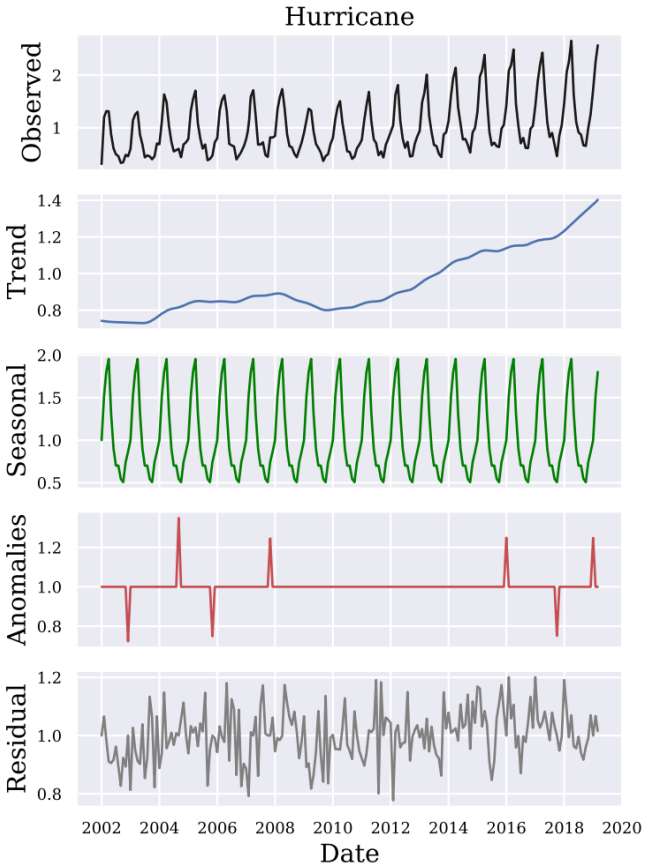
# Lab 4:  Time-series Dataset
# Predicting Stock Price with Deep Learning

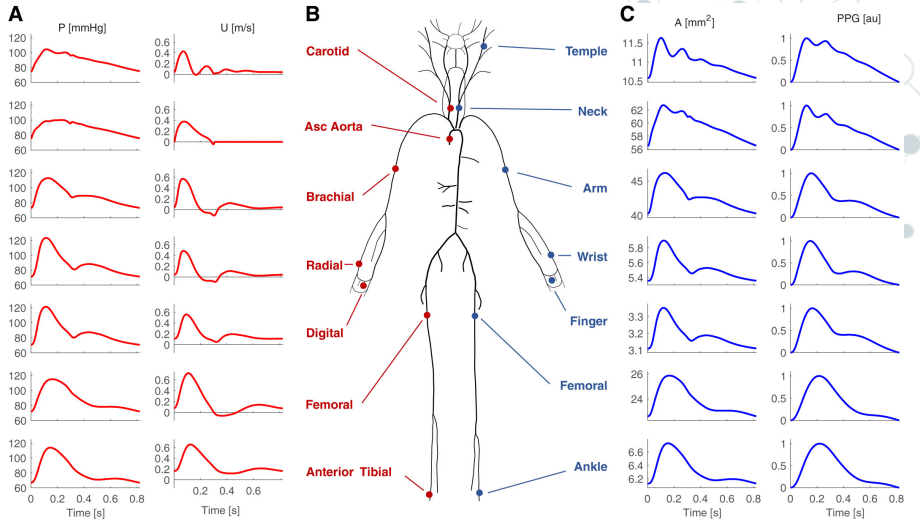
11220IEEM513600

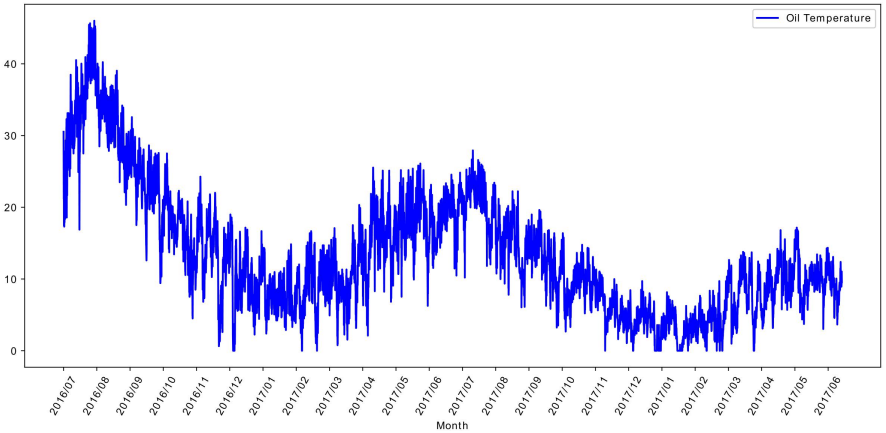
Deep Learning for Industrial Applications

2024/04/18 Taco




Source: https://paperswithcode.com/datasets?mod=time-series



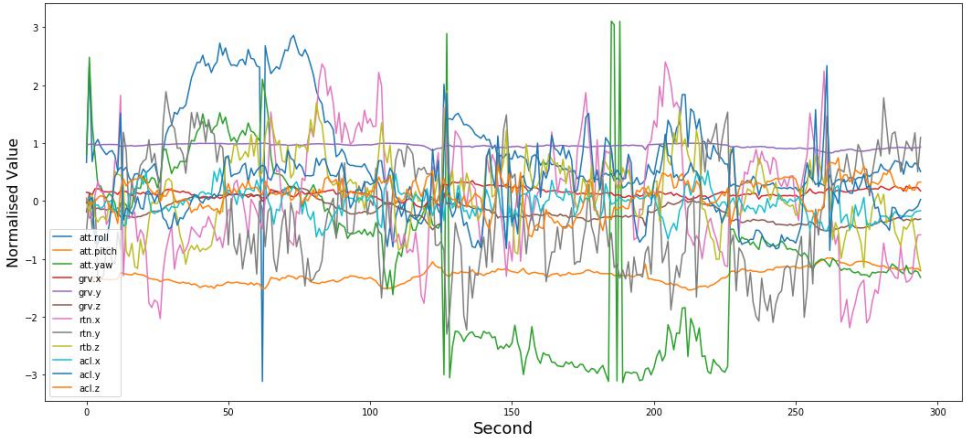
# MotionSense

## Device and sampling rate

Introduced by Malekzadeh et al. in Protecting Sensory Data against Sensitive Inferences

This dataset includes time-series data generated by accelerometer and gyroscope sensors (attitude, gravity, userAcceleration, and rotationRate). It is collected with an iPhone 6s kept in the participant's front pocket using SensingKit which collects information from Core Motion framework on iOS devices. All data is collected in 50Hz sample rate. A total of 24 participants in a range of gender, age, weight, and height performed 6 activities in 15 trials in the same environment and conditions: downstairs, upstairs, walking, jogging, sitting, and standing.

Source: https://github.com/mmalekzadeh/motion-sense




Source: https://paperswithcode.com/dataset/motionsense

# What’s Time-series Dataset?

- A time-series dataset is a sequence of data points collected or recorded at specific time intervals.
- Each data point in a time-series dataset typically has a time stamp associated with it, which provides information about when the data was collected.
- This type of dataset is essential for analyzing trends, patterns, and predictions over time.

# Key Characteristics

- **Temporal Order**: The data points in a time-series are naturally ordered by time.
- **Seasonality**: Many time-series datasets exhibit seasonal variations, which are patterns that repeat at regular intervals. For example, retail sales might increase during certain holidays every year.
- **Cyclical Patterns**: Unlike seasonal variations, cyclical patterns occur over irregular, typically longer periods. These might be tied to economic conditions or other external factors.
- **Noise**: This is the random variation in the data. Distinguishing the noise from the true underlying patterns can be one of the challenges of time-series analysis.

# CODING TIME!!

When you finish a course on time series analysis