**Time-Series Forecasting Methods**

1. **Methods**

**Parametric Method**

* Fourier Analysis (Iterative)
* STL Decomposition – Trend + Period + Noise
* Auto-regression Process: AR/MA Process
* Exponential Smoothing Method
* Kalman Filtering

**Learning-Based Method**

* Seq2seq (LSTM / Attention)
* Sliding Window / Expanding Window
* Block Based – Encoder + Decoder
* Step Based

**Non-Parametric Method**

* Gaussian Process

1. **Uneven Sample**

In the face of unevenly sampled data, there might be three solutions

Use continuous model

Treat time as an extra feature

Divide the time series into windows and extract features from each window

Collecting the time series data into bins and come up with a unique value for each bin

1. **CARIMA & Gaussian vs. LSTM**

The CARIMA and Gaussian process model are trained based on each individual lightcurve while the LSTM network is trained based on the entire dataset.

**Reflection**

Problems with LSTM: Deep learning approach requires a large amount of data, however, each light curve has a unique set of parameters that might not be generalizable to all samples