LVC 3 - Glossary of Notation

X = Random Variable

X_t = Random Variable at time t

h = lag value i.e if h=1 then X_{t+h} is X at lag 1

$\forall$ = indicates the “for all”

μ_t = mean of the stochastic process

$E(X_t)$ = Expected value of Stochastic Process X_t

μ = mean of stochastic process is constant value

t_1, t_2 = t_1 and t_2 are the two different time stamps

$\sum$ = Summation

$R_X(t1, t2)$= AutoCovariance

λ = window size of the time series (Random point which we choose)

N = The total number of samples

$\hat{\mu}$ = The summation of X values where i is ranging from λ to $N - 1$ divided by the subtraction of total number of samples and λ

τ = t_1 - t_2 i.e, difference between past value and present value

$\widehat{R_X}(\tau)$ = Sample autocovariance at each λ

S_t = Seasonal Component of the time series

k = Seasonal period

Y_t = Sequence of random variables

$\widehat{Y_t}$ = time series after applying smoothing(removing the fine-grained variation between time steps)

γ = parameter value from the fitting of the smoothing equation

w = A continuous value taken from a sample distribution of data

w_t = White Noise

σ^2 = Varaince

$\delta_{t1 - t2}$ = delta i.e change in time

p = The number of past orders to be included in the model

a = parameter of the Auto Regressive model

z = Variable of the polynomial

b = parameter of the Moving Average model

q = The order of moving average

$X_t - X_{t-1}$ = First Order differencing

$A(z)$ = Matrix that represents the regressor values

|| || = Denotes the Norm of a Vector