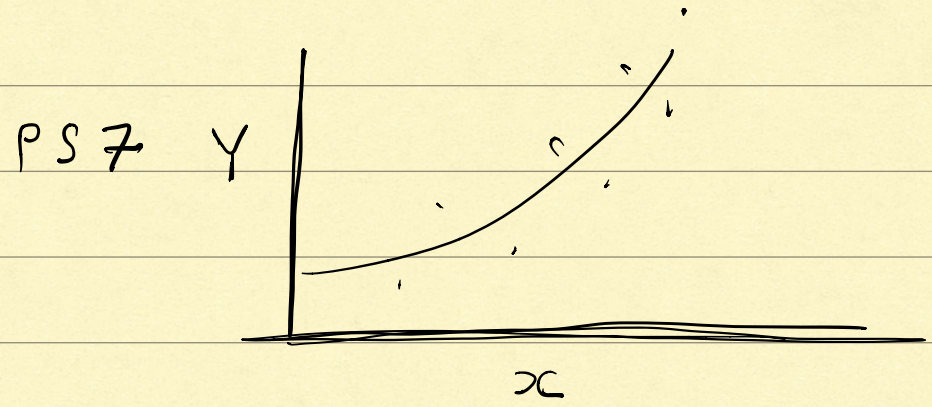
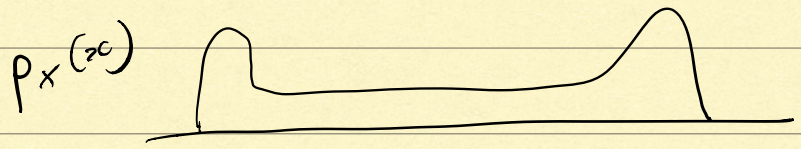
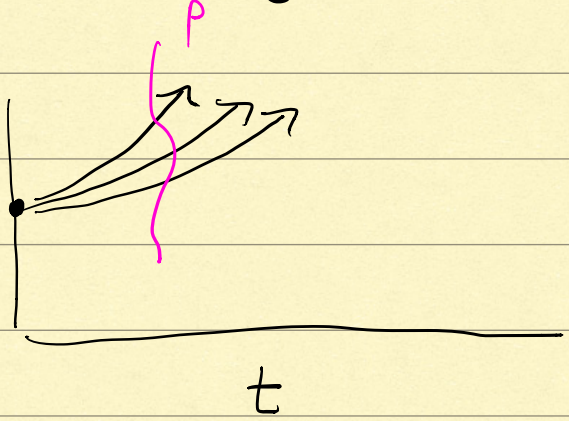


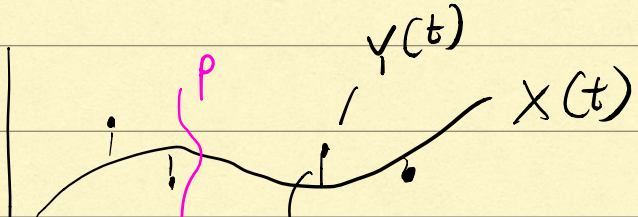


OVERVIEW OF STOCHASTICITY

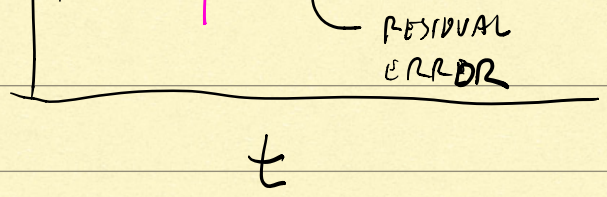
STOCHASTIC DYNAMICS
STOCHASTIC PROCESS



PARAMETRIC NOISE
HETEROGENEITY
BATCH EFFECT



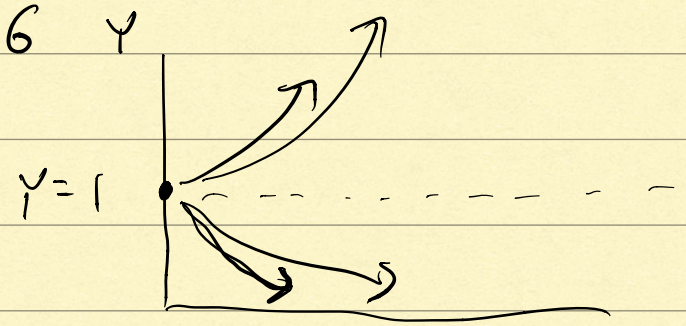
OBSERVATION NOISE



t

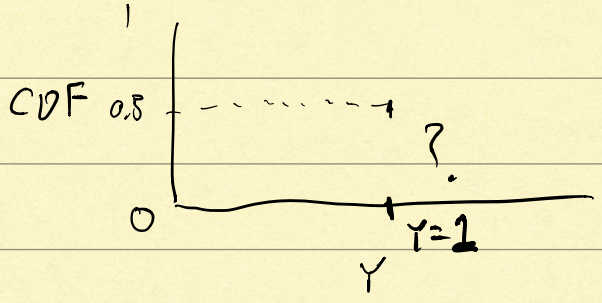
MAXIMUM LIKELIHOOD STRATEGY ALWAYS EXISTS

PSG Y

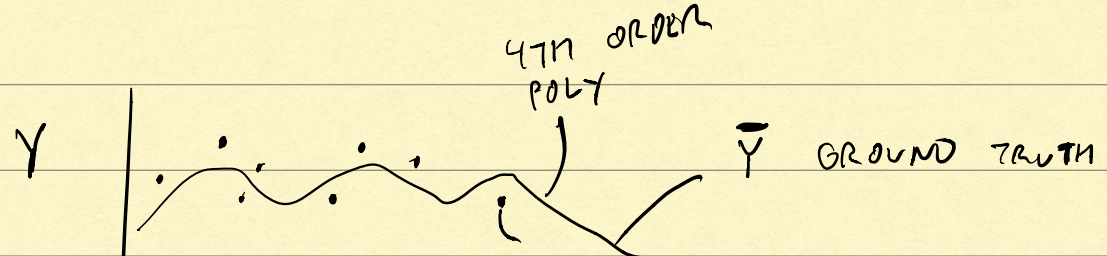


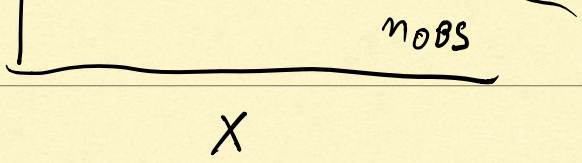
t

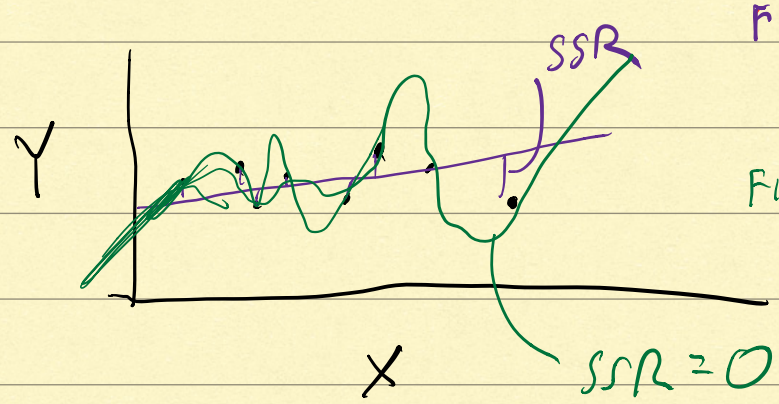
$$P(Y(t) \geq 1) = \int_1^{\infty} p_Y(y;t)\, dy$$



VARIANCE- BIAS TRADE OFF & MODEL COMPLEXITY

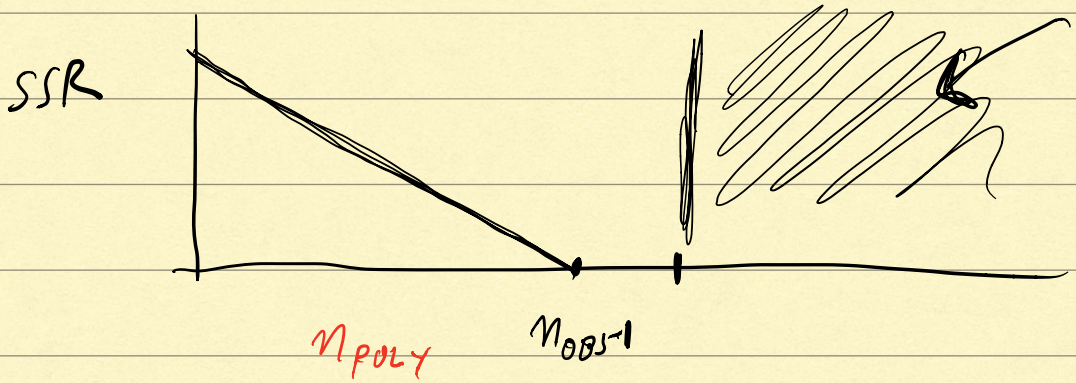






FIT TO $n_{POLY} = 1$ POLYNOMIAL

FIT TO $n_{POLY} = 7$ POLYNOMIAL



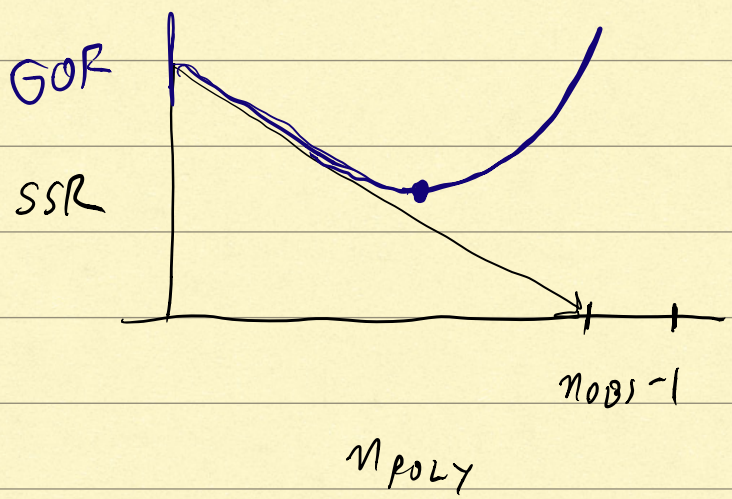
PARAMETERS UNDETERMINED

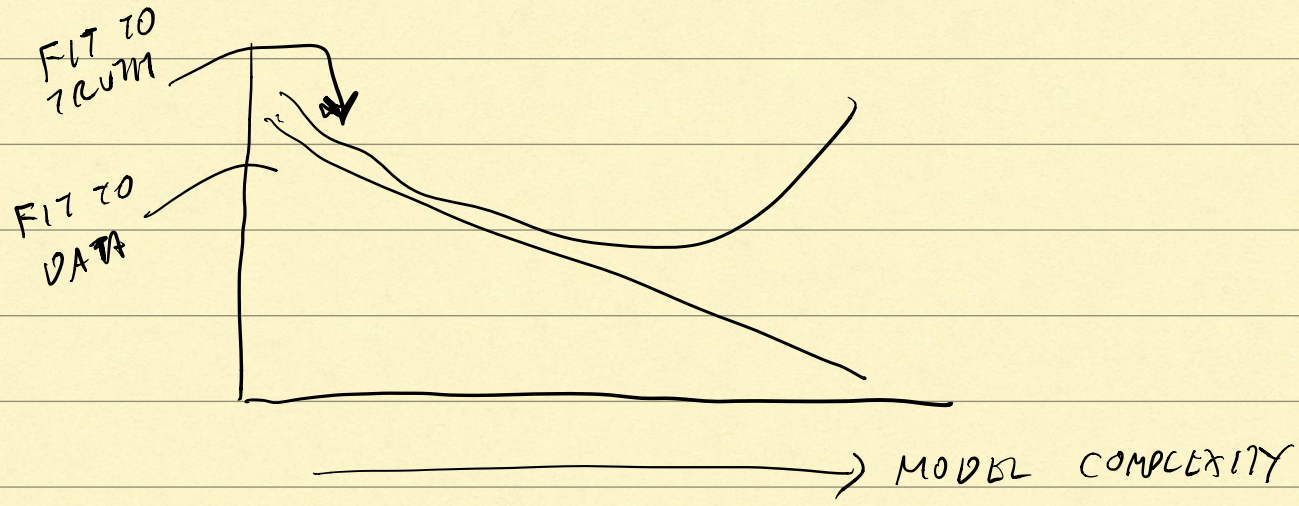
GOODNESS OF FIT

$$GOF = \sum_{i=1}^{n_{OBS}} \left(\bar{Y} - y(t_i)\right)^2$$

FIT

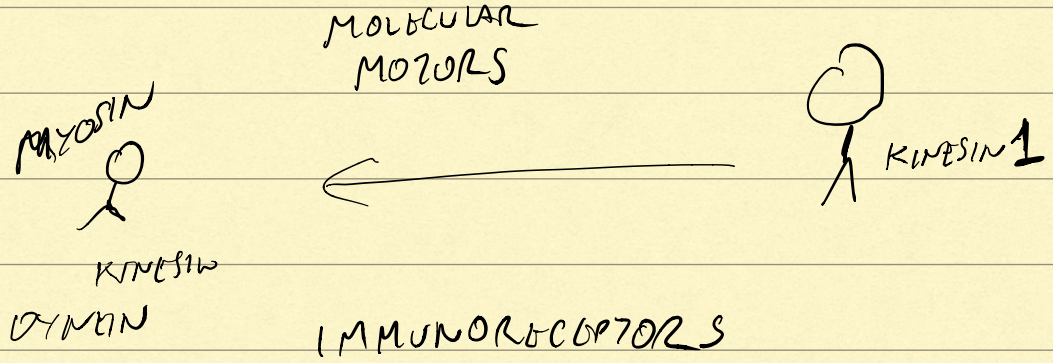
GROUND TRUTH





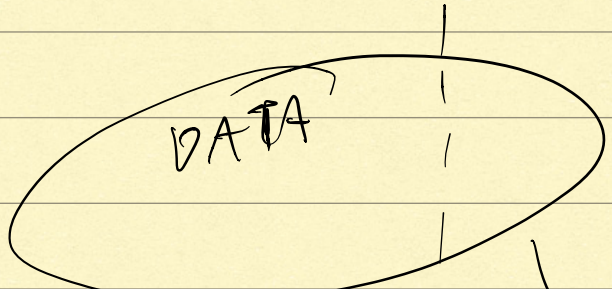
LOW VARIANCE → VARIANCE
HIGH BIAS ← LOW BIAS

EX



ALL IMMUNO RECEPTORS ← PD1 MOUSE
PD1 HUMAN

CROSS VALIDATION



VALIDATION SET

GOODNESS OF FIT

TRAINING SET

SSR