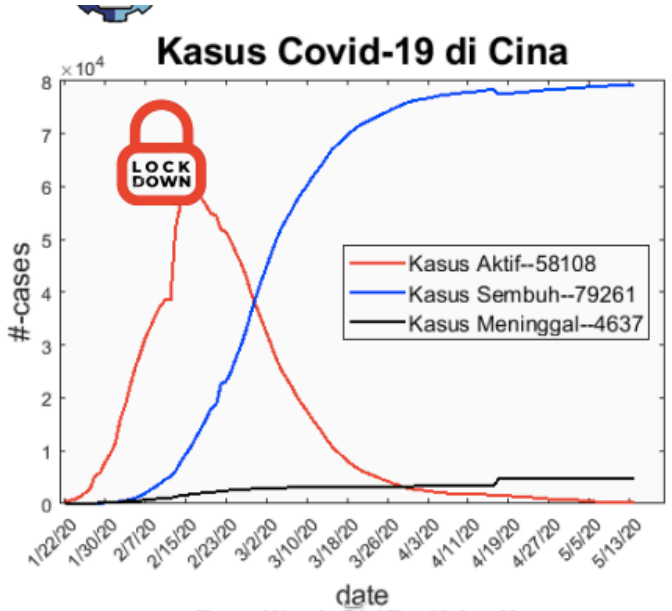
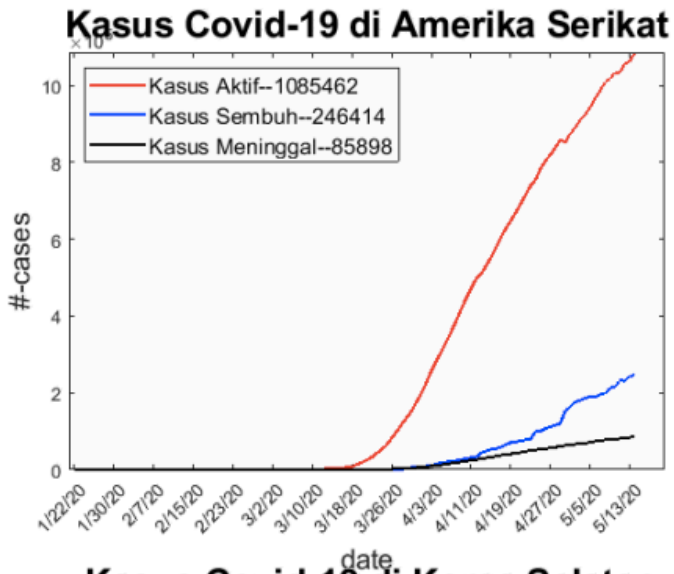
Analisa Data Covid 19 ensemble-SVR

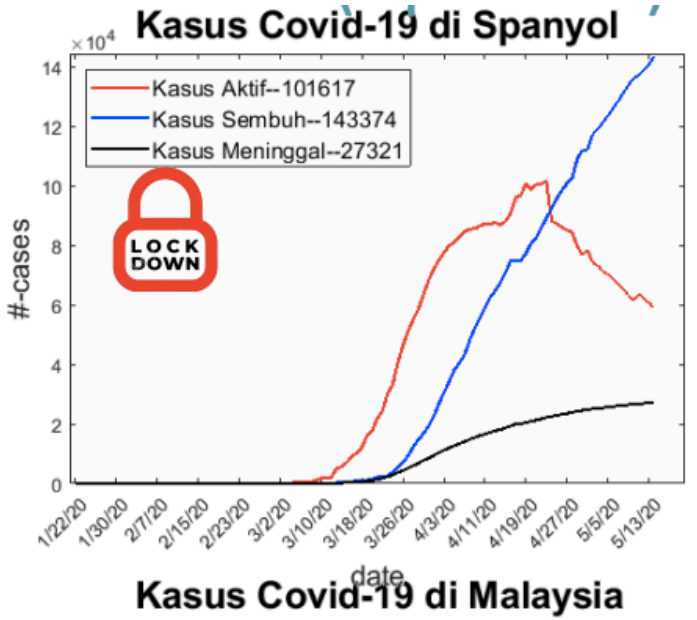
Mohammad Iqbal
Imam Mukhlash
Endah RMP

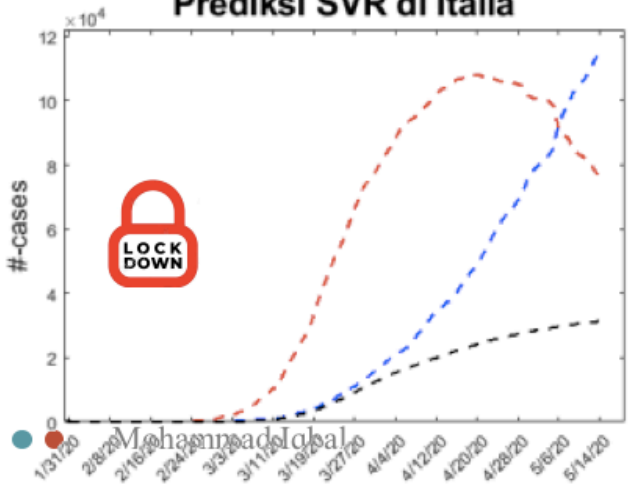
INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)
Surabaya - Indonesia

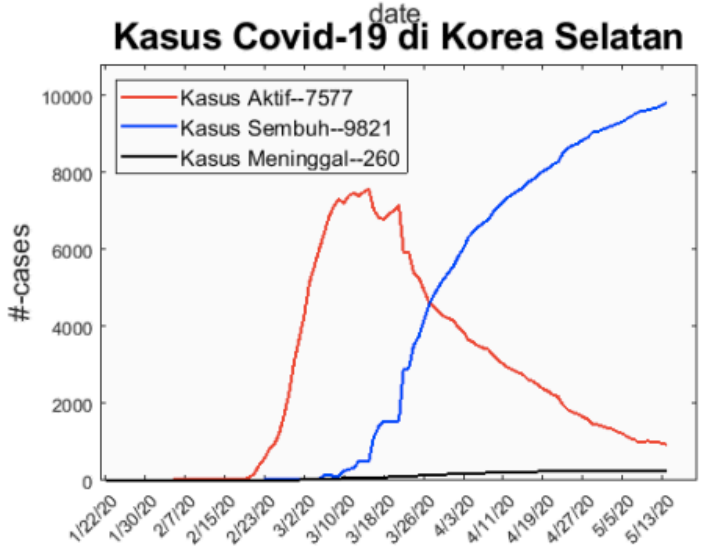
Covid-19 cases in several countries (updated)

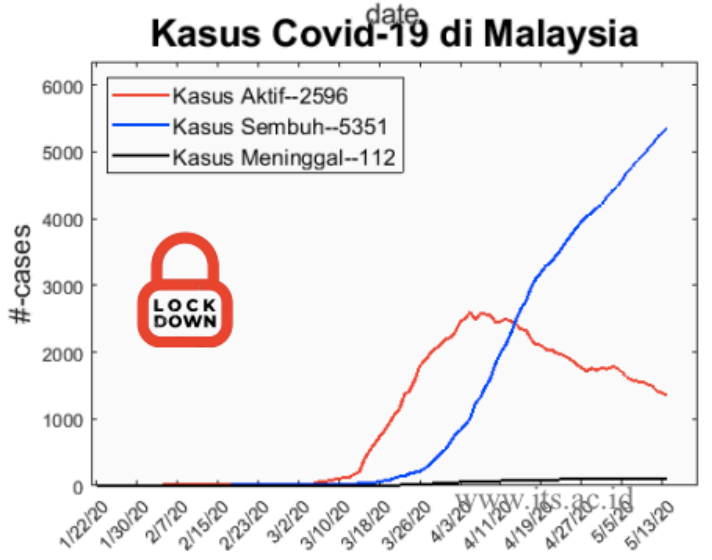




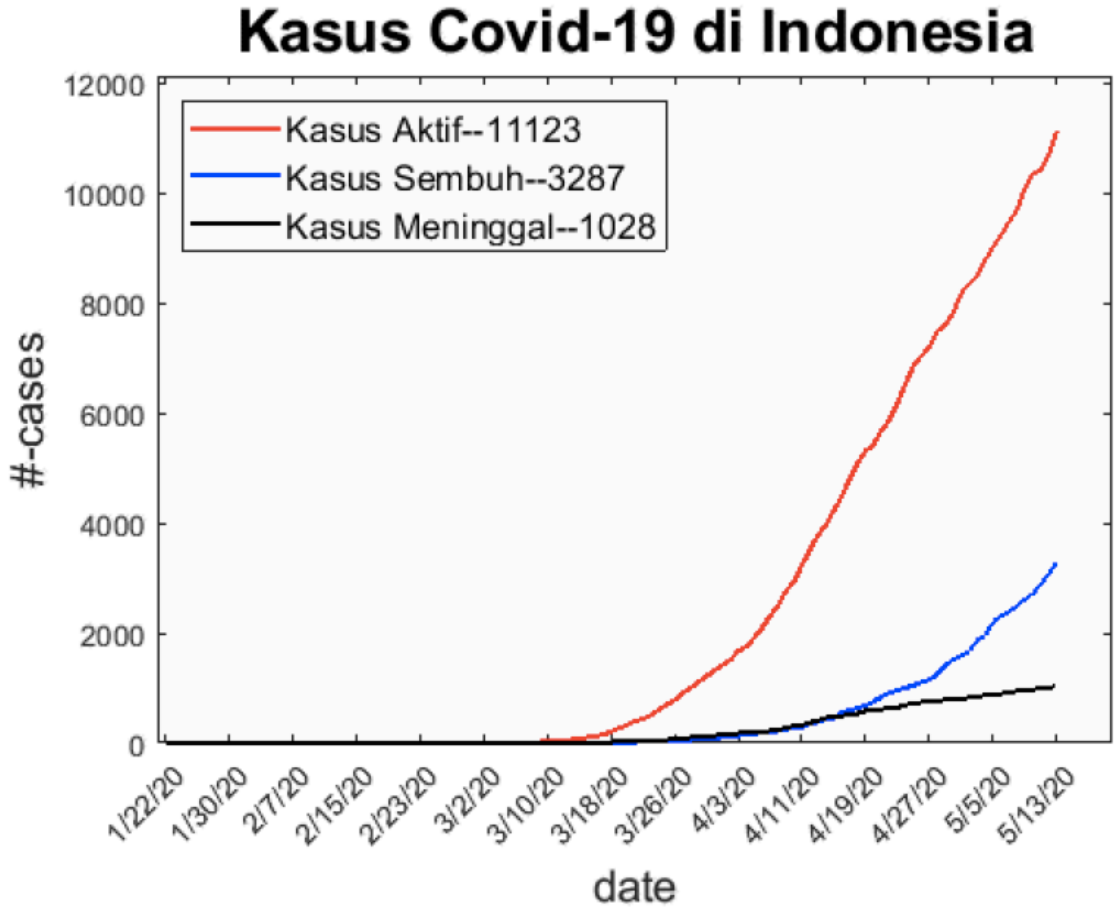






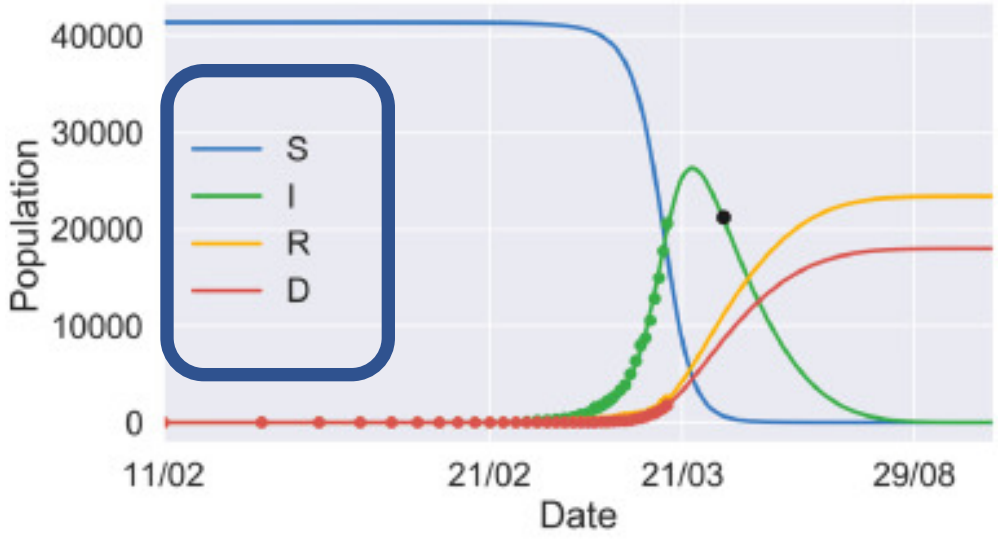


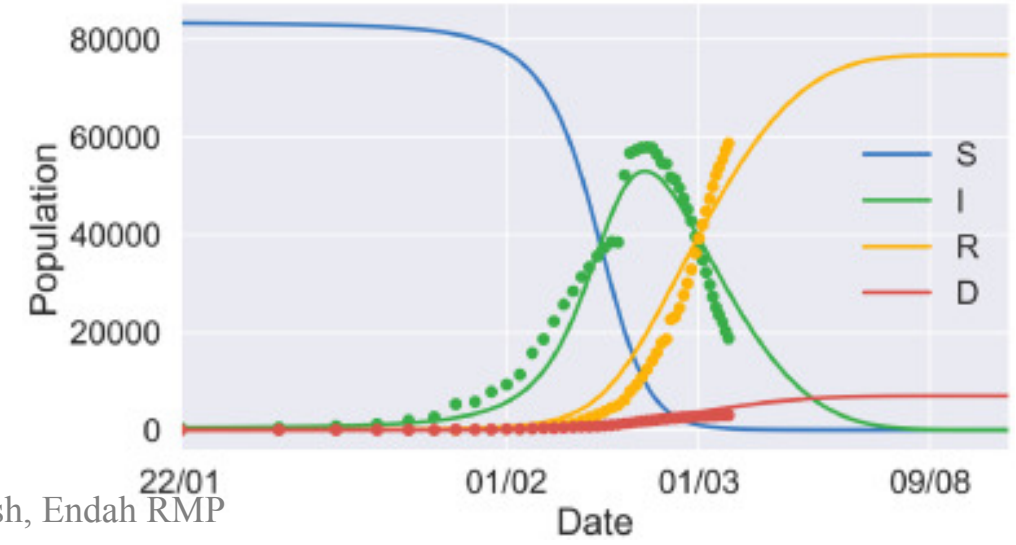
Covid-19 cases in Indonesia (updated)



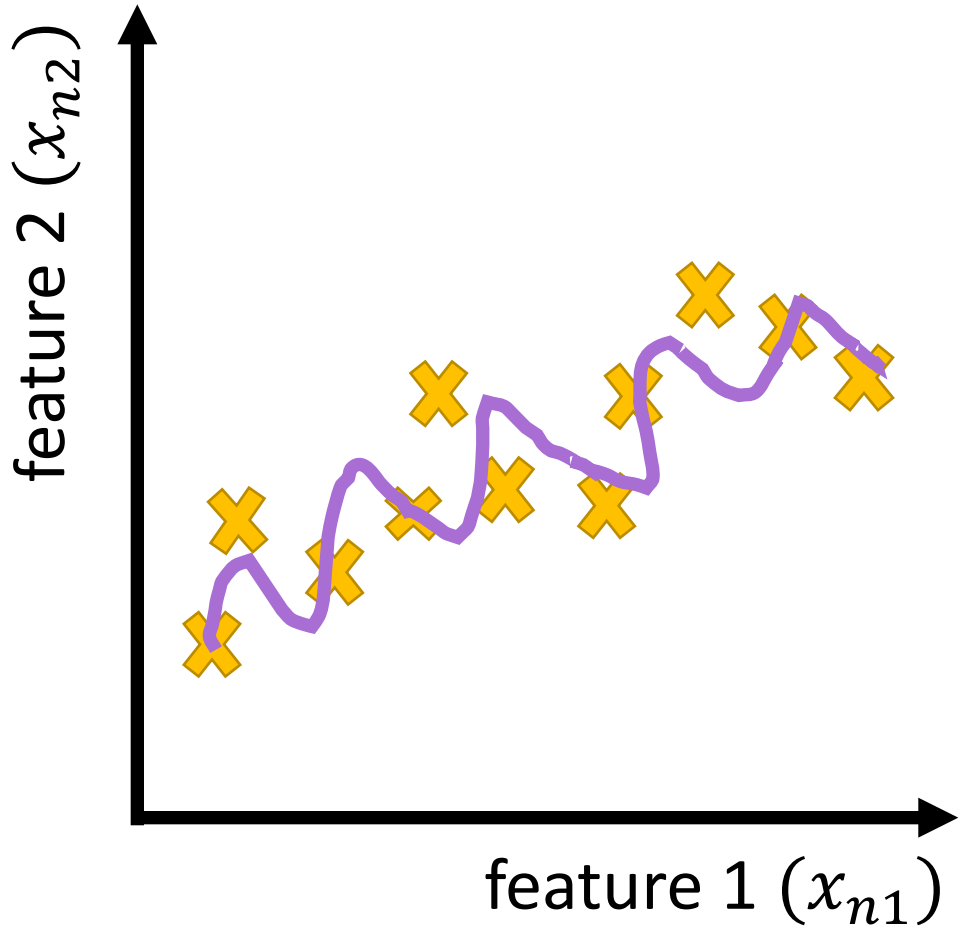
So far, first wave prediction

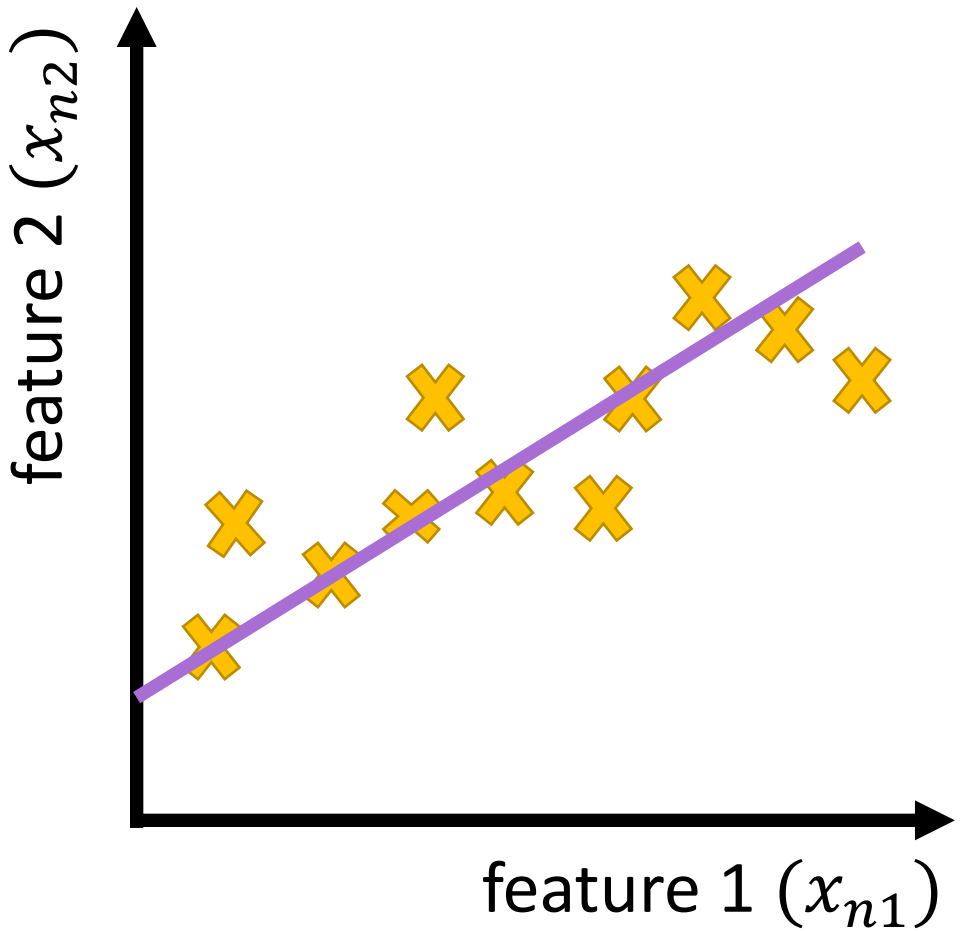
https://www.sciencedirect.com/science/article/pii/S0960077920301636



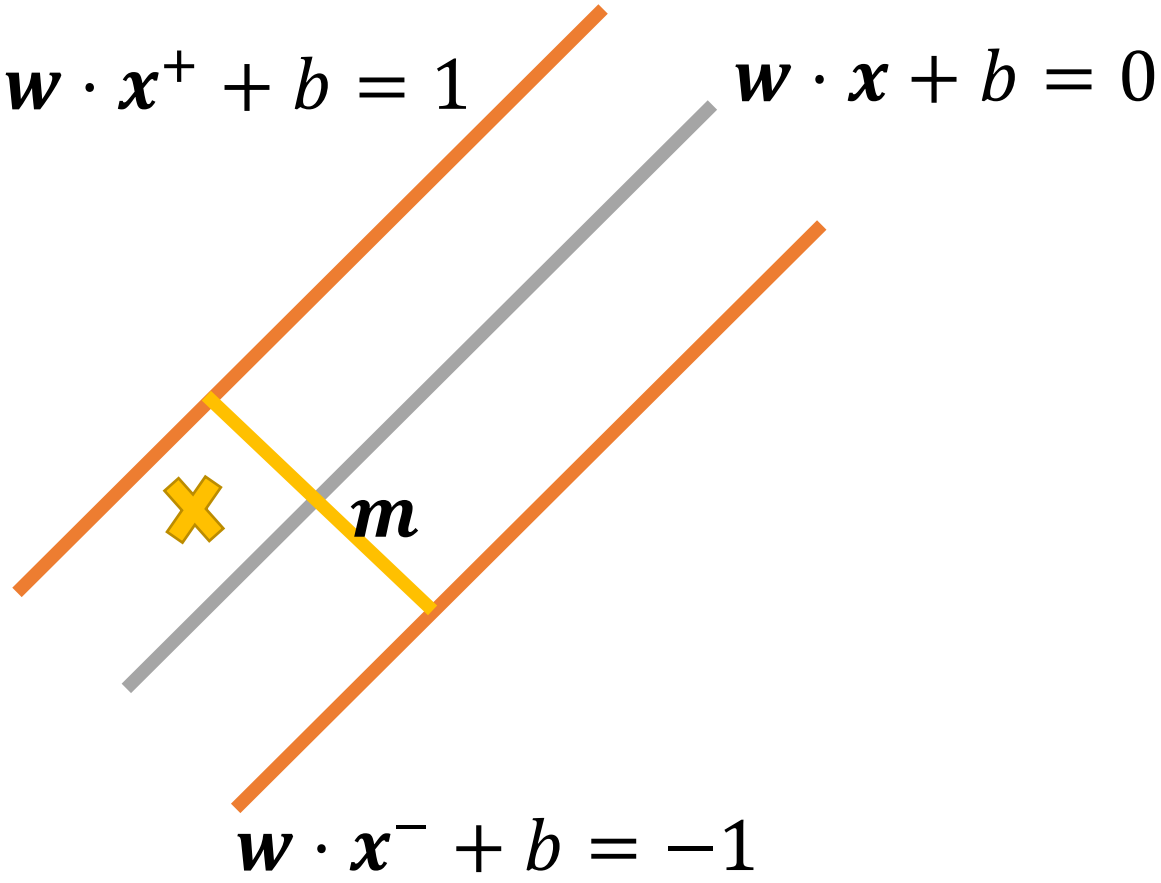


Support Vector Regression





Support Vector Regression



HOW TO SOLVE IT?

Problem Formulation (Primal):

$$\max \frac{2}{\|w\|}$$

Similar with

$$\min \frac{1}{2} w^T w$$

With subject to

$$y_i(w^T x_i + b) \geq 1. \forall i$$

Ensemble SVR

Historical Data → Prediction

#-meninggal #-sembuh #-aktif

$t = 1 \ldots T$

#-meninggal #-sembuh #-aktif

$t = T + 1$

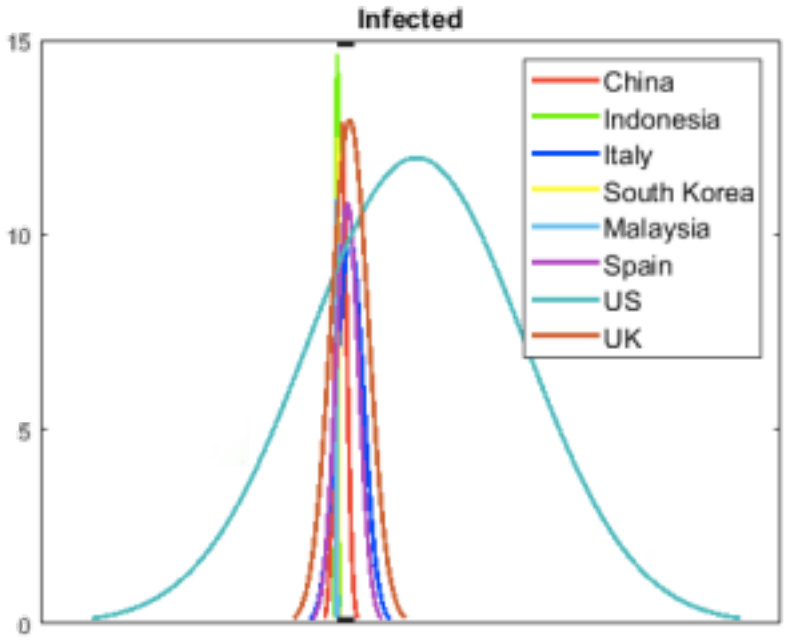
$t = T + 1, \cdots ?$

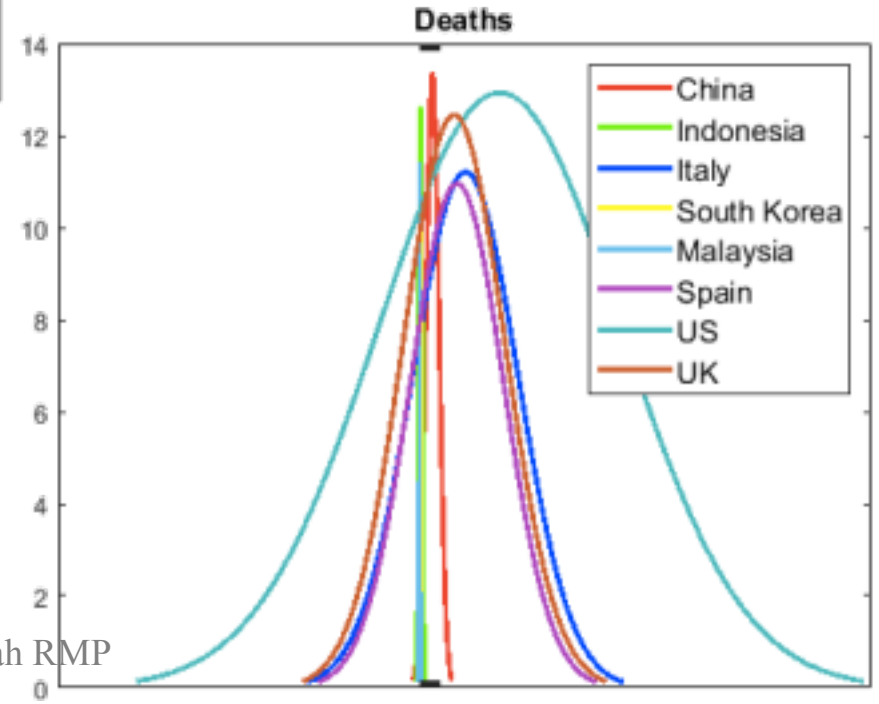
Generating Data

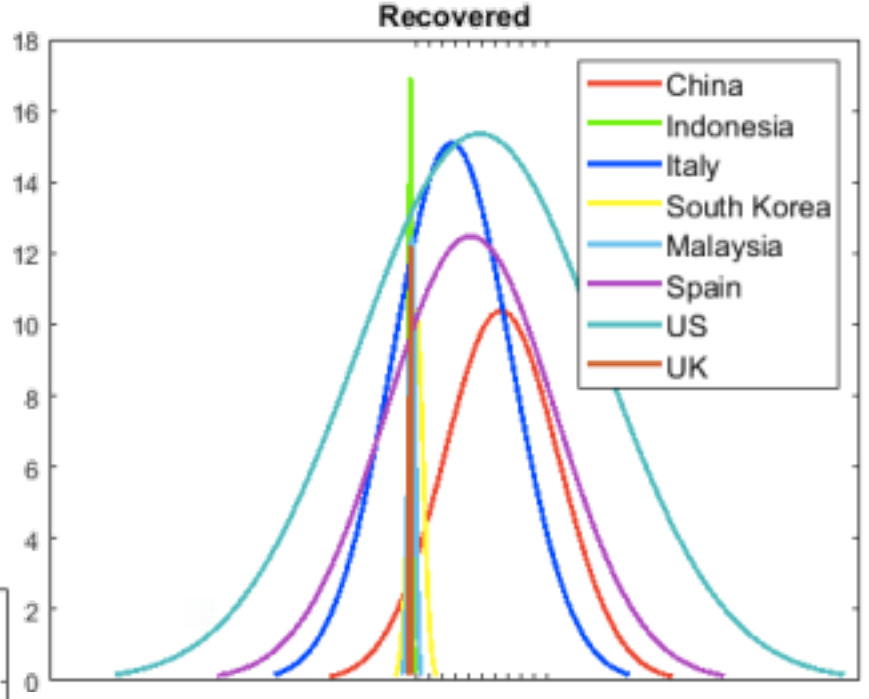
Similar Distribution

Context behavior

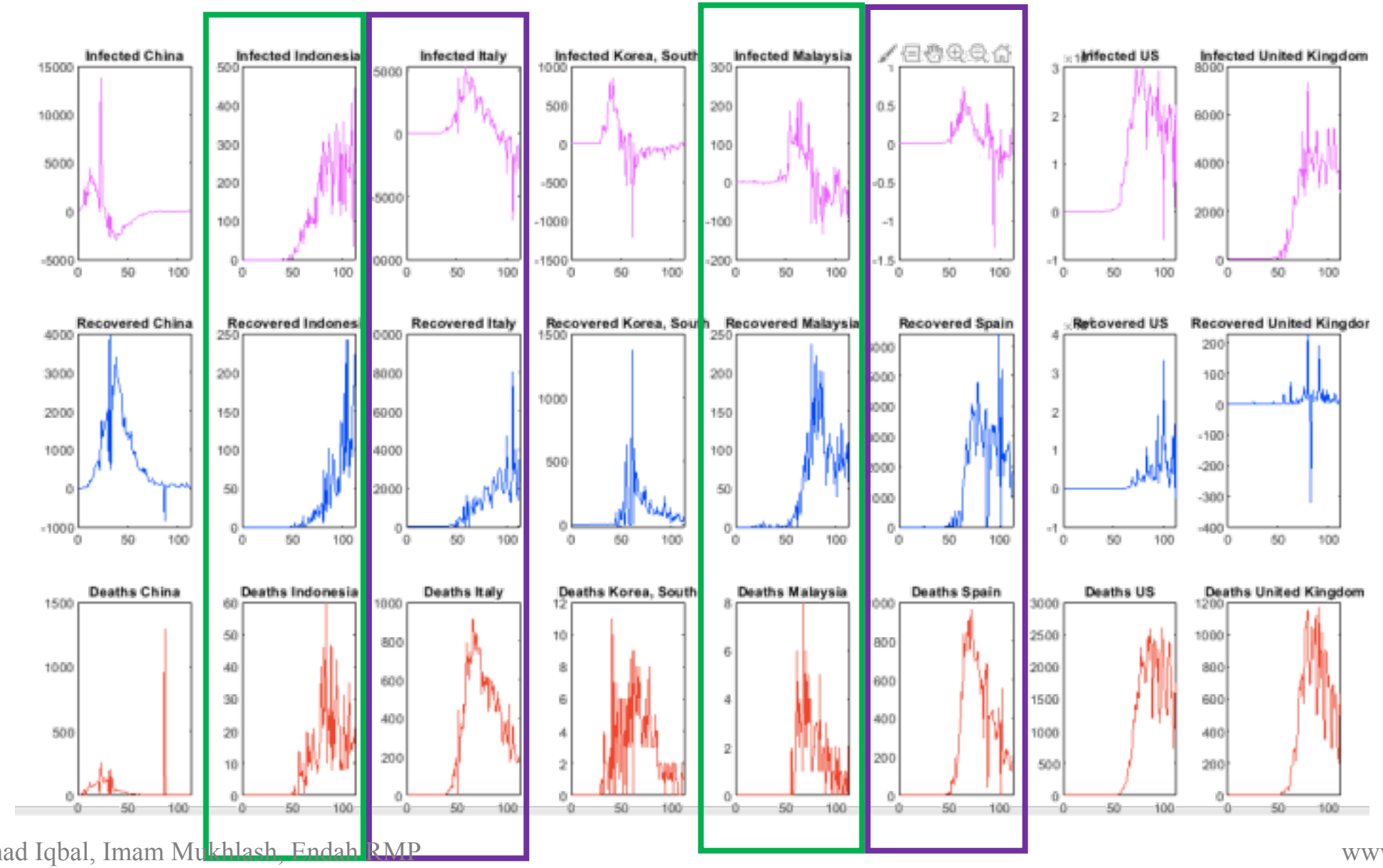
Data Distribution



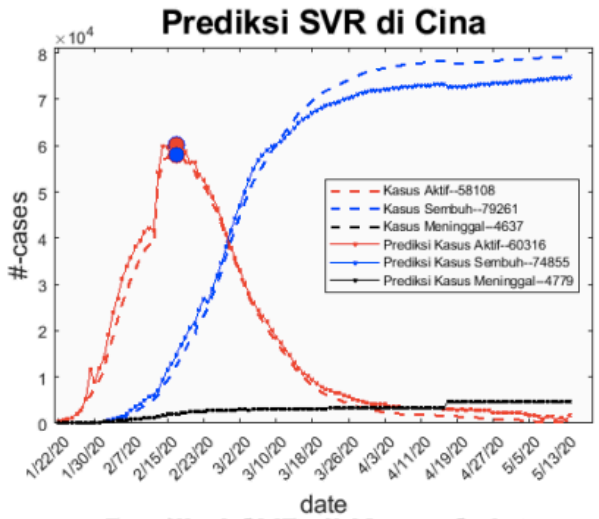


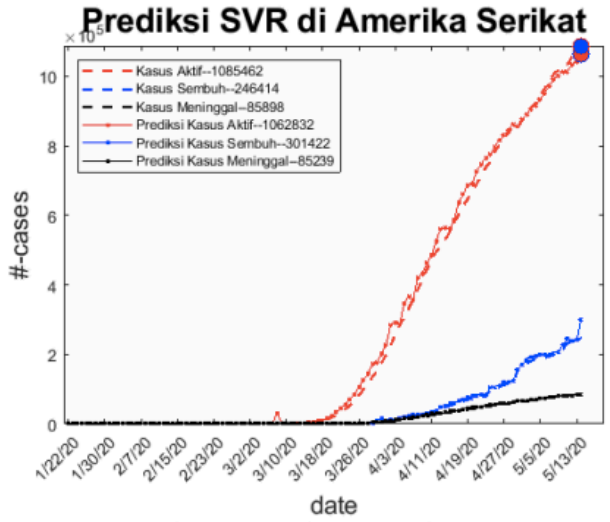


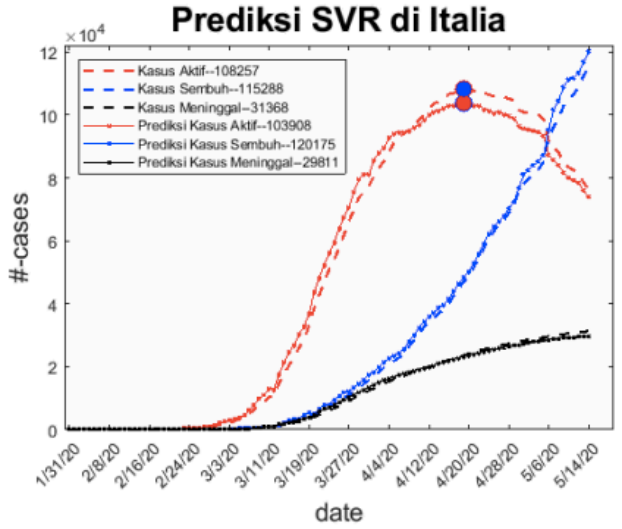
New cases

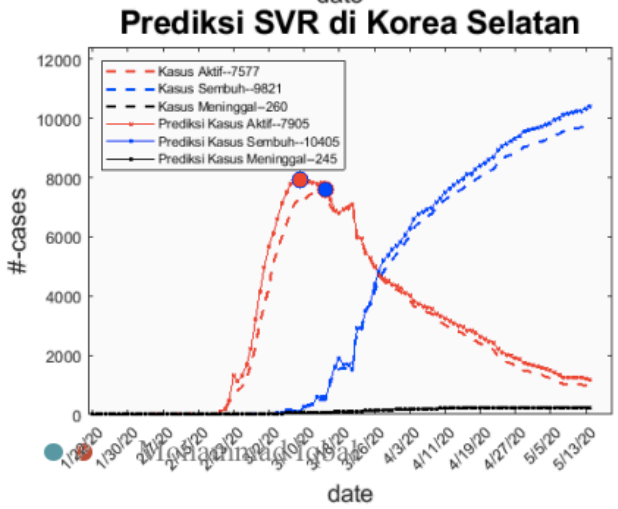

Infected China
Infected Indonesia
Infected Italy
Infected Korea, South
Infected Malaysia
Infected US
Infected United Kingdom
Recovered China
Recovered Italy
Recovered Korea, South
Recovered Malaysia
Recovered Spain
Recovered US
Recovered United Kingdom
Deaths China
Deaths Indonesia
Deaths Italy
Deaths Korea, South
Deaths Malaysia
Deaths Spain
Deaths US
Deaths United Kingdom

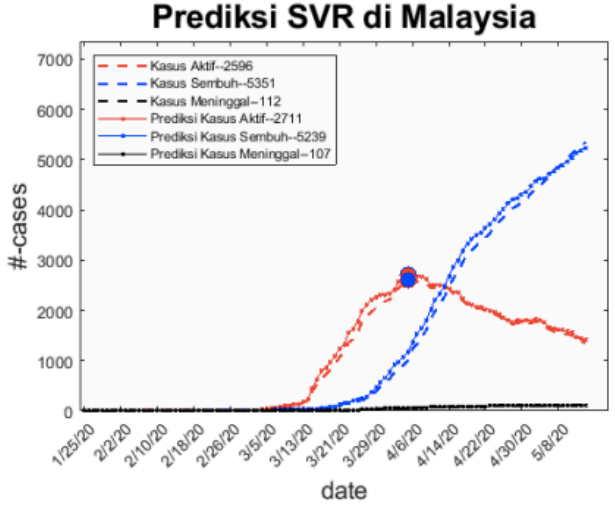
Time series forecasting

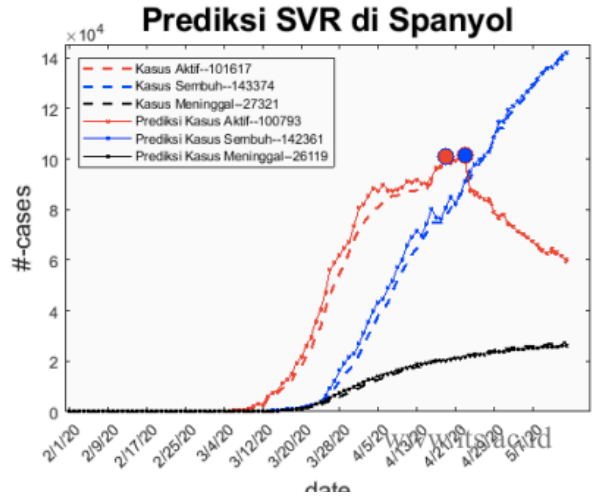




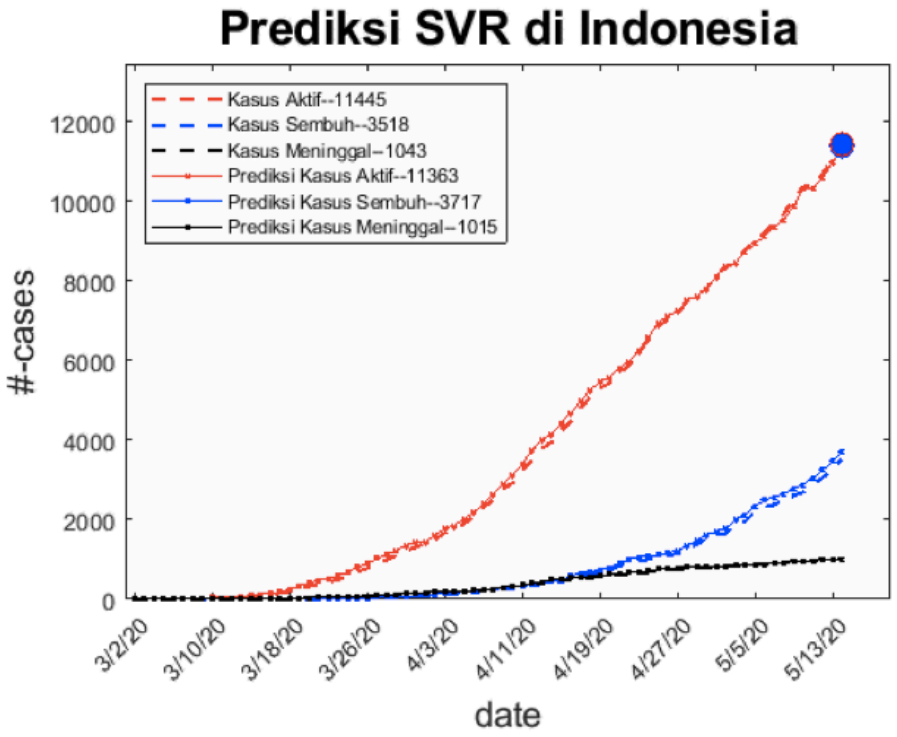


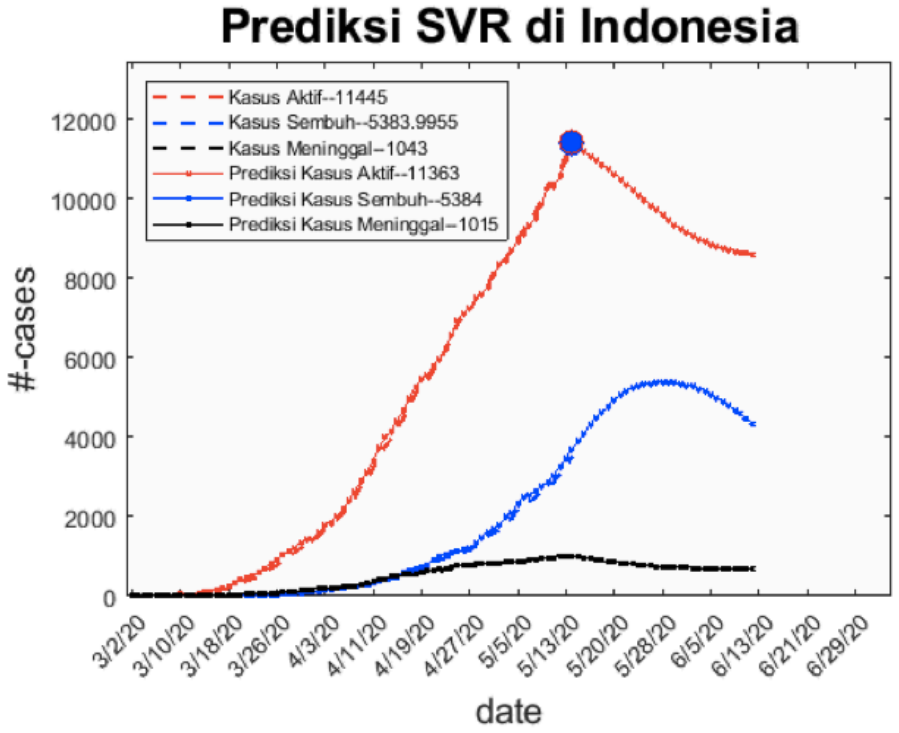




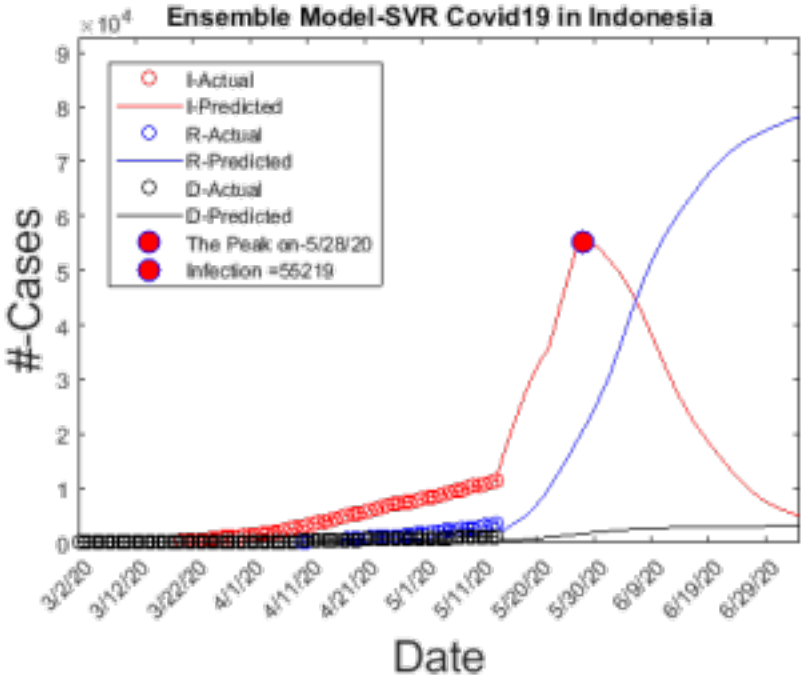


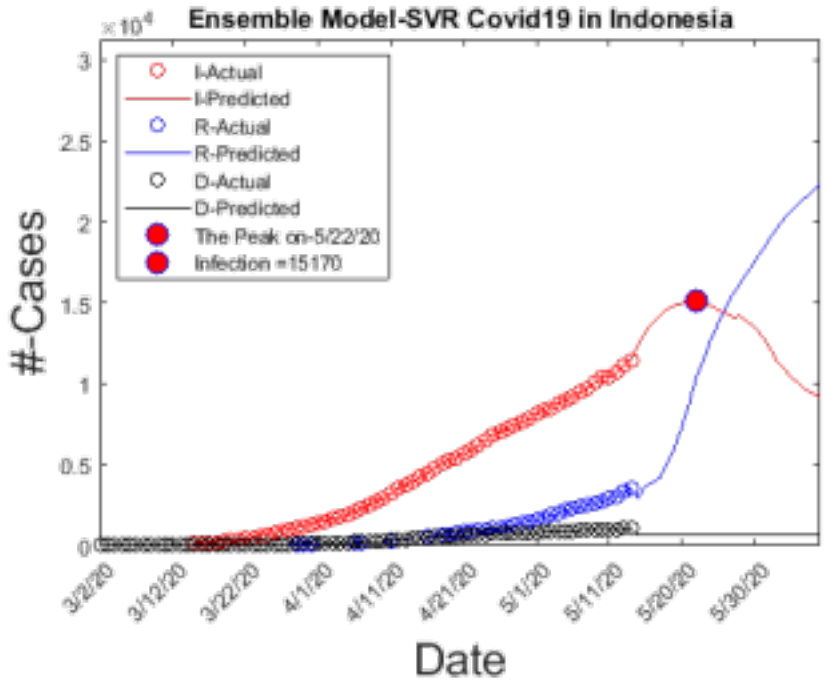
Time series forecasting

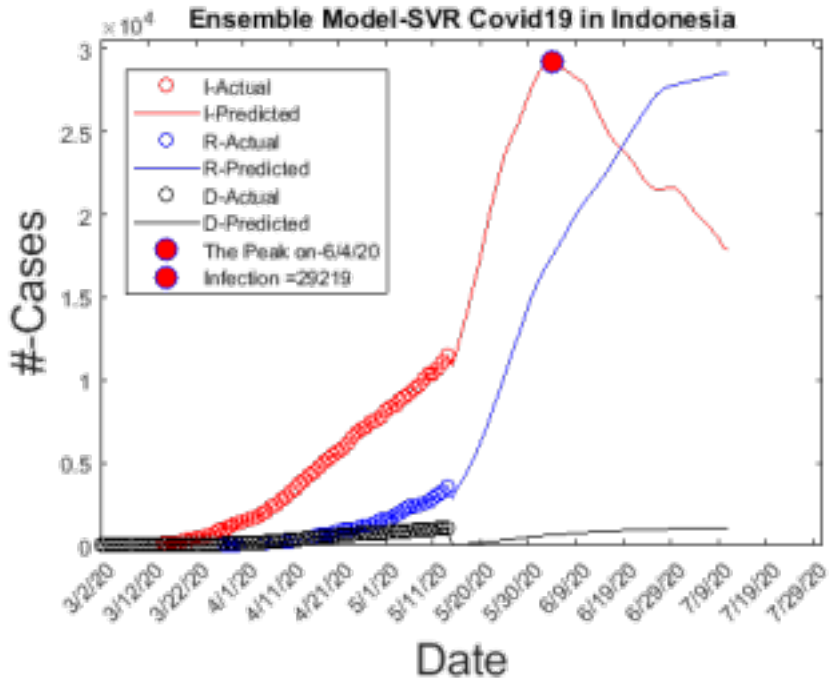




First Wave Covid-19 cases using ensemble SVR







Terima Kasih