Time series prediction by fusing multiple models using a Kalman filter
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ABSTRACT
The paper discusses the implementation of a Kalman filter to fuse multiple models that are selected using a forward regression technique. Through this project the author has learnt concepts about system identification, neural networks, data exploration techniques, normalisation methods and about the widely used Kalman filter. The paper focuses more on the implementation of the Kalman filter used for the purpose of this project. The method discussed, fuses multiple predictions whilst reducing the error due to noise and is therefore ideal for applications like conditioned based maintenance of systems, which is more effective and cheaper than the traditional time based maintenance.

Figure 1. The time series prediction on the right shows the Kalman filter prediction that clearly shows a much more filtered outcome. The predictions here are achieved by combining multiple neural network predictions.