

A decorative graphic on the left side of the slide, consisting of white lines and circles on a blue gradient background, resembling a circuit board or neural network structure.

DJIA STOCK PREDICTION

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THE PROBLEM

- Stocks are subject to supply, demand and patterns of human behavior
- Can we use technical analysis to determine future close prices?

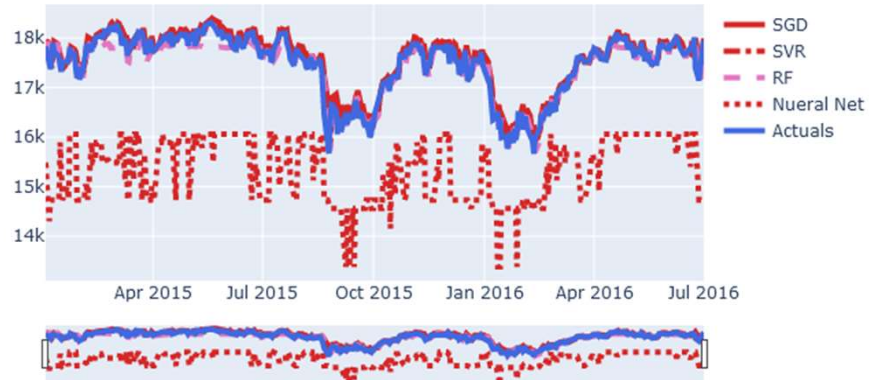
TECHNICAL ANALYSIS AND REGRESSION MODELS

- Feature Engineering includes:
 - Previous Day's Closing Price
 - Rolling Average of Closing Prices and Volume
 - Standard Deviation of Volume and Ratio of Volume Rolling Averages
 - Return ratios and previous day return ratios
- Regression Methods
 - Stochastic Gradient Descent
 - Random Forest
 - Support Vector
 - Neural Network

MODEL OUTPUT

- 4 regression models
- Entire forecast on the left slide and 5 day forecast on the right slide

DJIA Predicted Closing Price Time Series



DJIA Predicted Closing Price Time Series



MODEL EVALUATION BY ERROR SCORING

- Best model scores are highlighted in green
- The errors are significant enough to make the models challenging for investing
- Model trend prediction is however very good

	Entire Forecast		5 Day Forecast			
Model	MSE	MAE	MAE	MAPE	ME	RMSE
SGD	41382	153	238	0.014	88	266
RF	42363	163	203	0.012	60	245
SV	31225	132	212	0.012	6	240
NN	4742582	2103	2845	0.161	-2845	2863