Salhotra Quant Challenge Presentation

FALL 2020

Project Manager – Karan Naik

Quantitative Analyst – Ishan Solanki

Quantitative Analyst – Harry Winick

Quantitative Analyst – Pranay Doshi

Our Team

Project Manager

Karan Naik
CS 2017

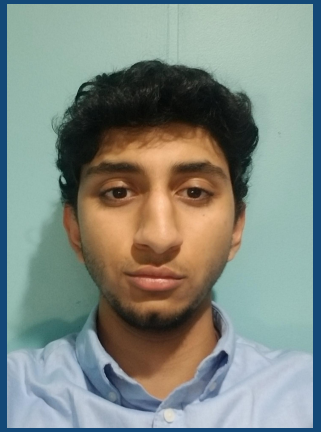
Quantitative Analyst

Harry Winick
Finance & CS 2024

Quantitative Analyst

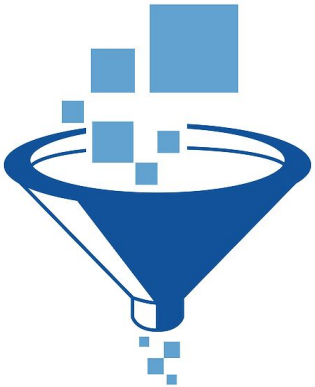
Ishan Solanki
Econ & Math 2024

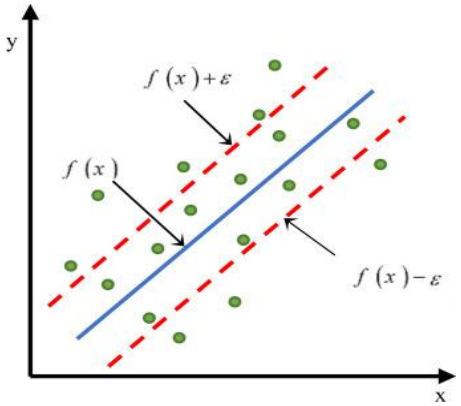
Quantitative Analyst

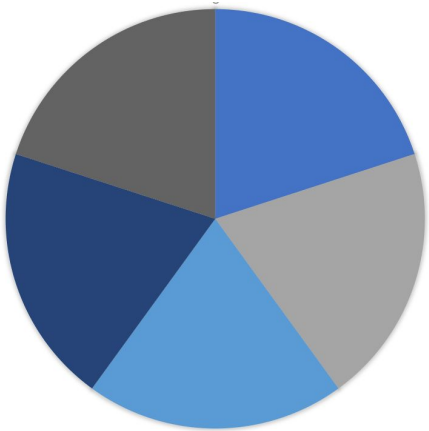


Pranay Doshi
Finance & Math 2023

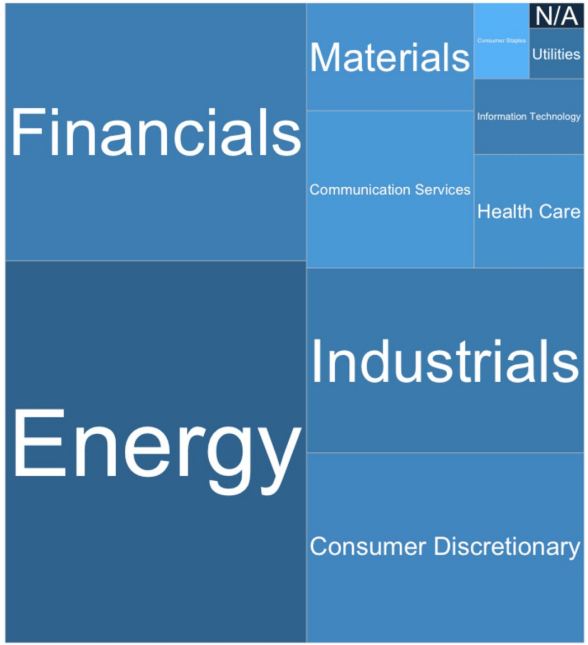
Universe Selection → Wavelet Decomposition → Support Vector Regression → Portfolio Allocation





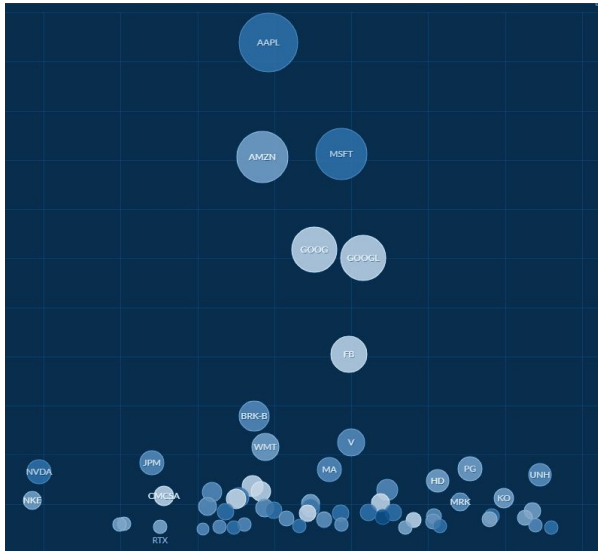


Universe Selection



COARSE FILTER

Volume >2M Daily



FINE FILTER

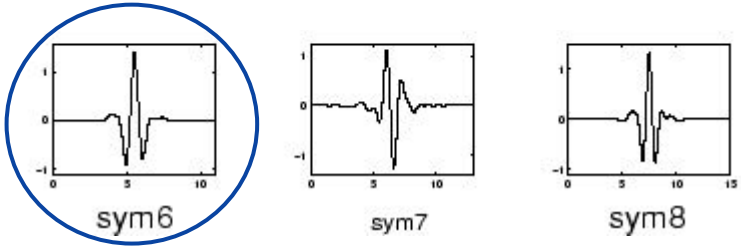
Market Cap >$100B

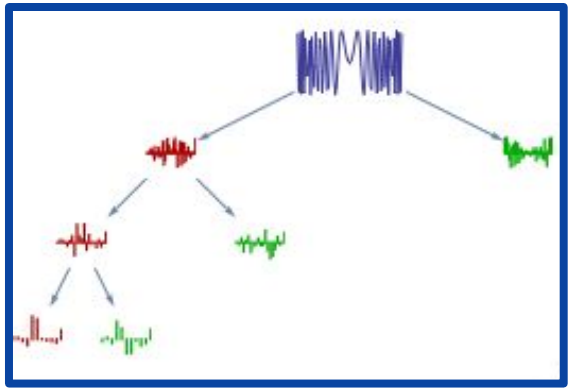
AMD
citi
Morgan Stanley

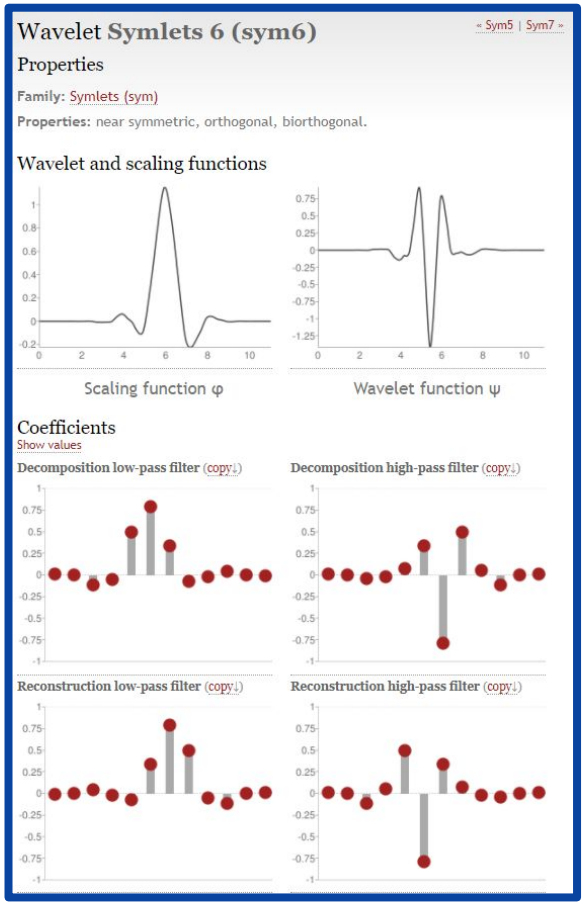
Wavelet Decomposition

01	Symlet 6	**Discrete** **Symmetric** **Short**
02	Threshold: 0.1	
03	Decomposition: Level 3	

Wavelet Decomposition







QUANT FINANCE

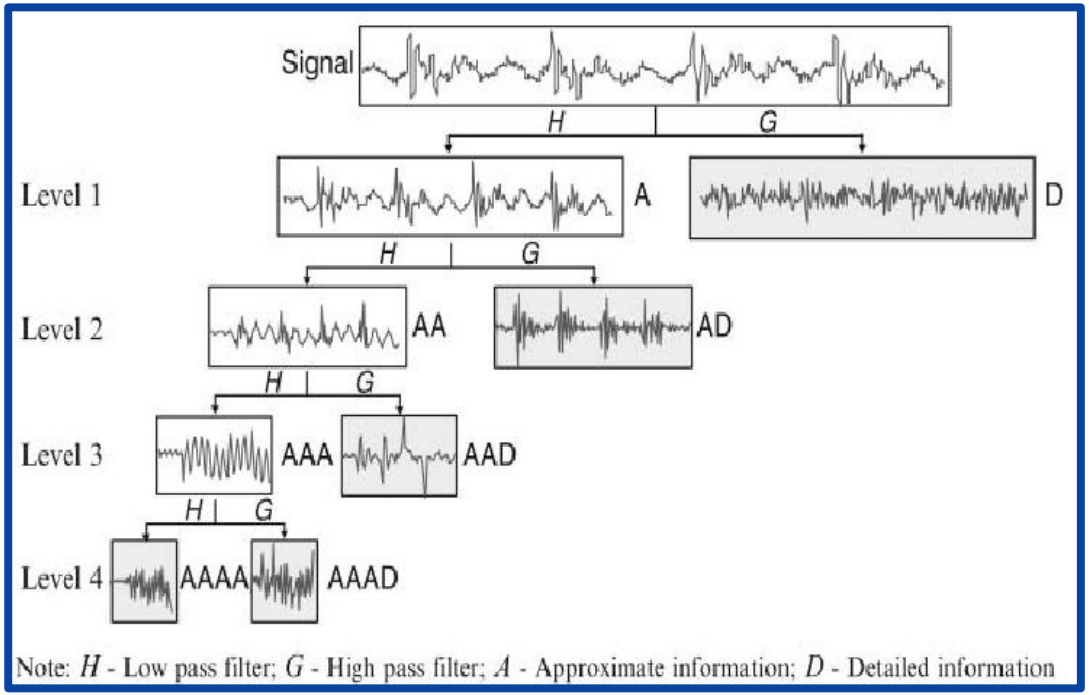
Wavelet Decomposition

01	Symlet 6	**Discrete** **Short** **Symmetric**
02	Threshold: 0.1	**Low Denoising** **10% Discarded**
03	Decomposition: Level 3	

Wavelet Decomposition

01	Symlet 6	**Discrete** **Short** **Symmetric**
02	Threshold: 0.1	**Low Denoising** **10% Discarded**
03	Decomposition: Level 3	**Keep Underlying Signal**

Wavelet Decomposition



Support Vector Regression

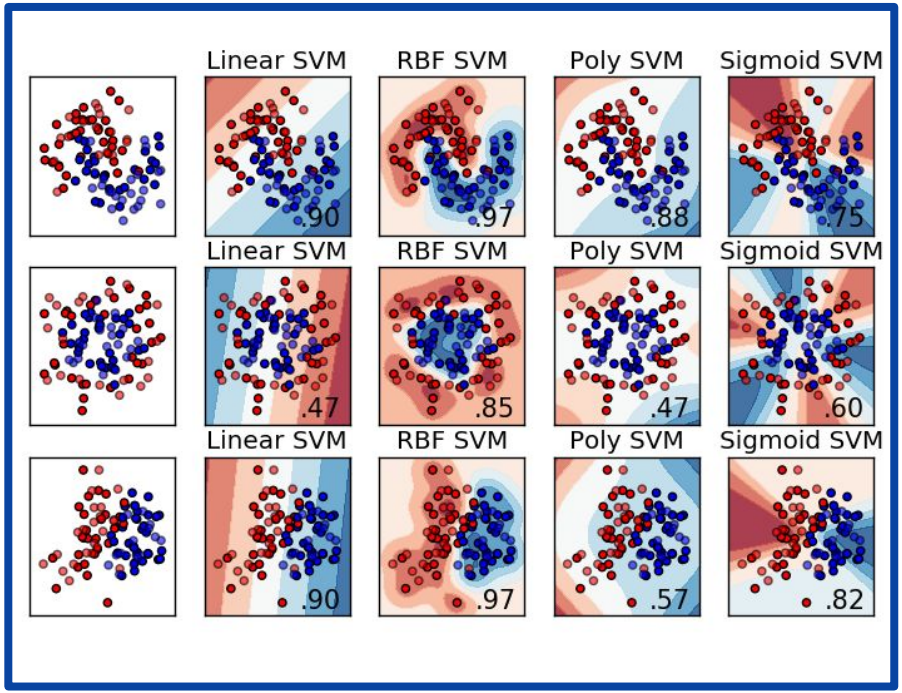
01 Kernel

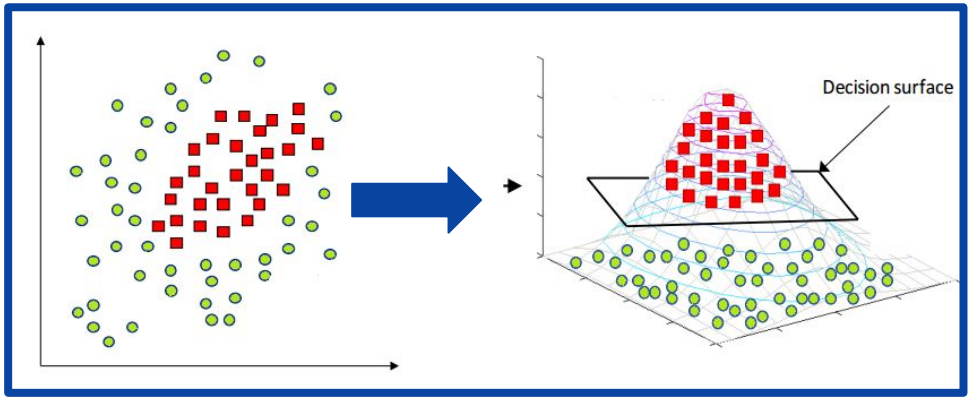
Linear
Input: Denoised data

02 Categorize

03 Forecast

Support Vector Regression

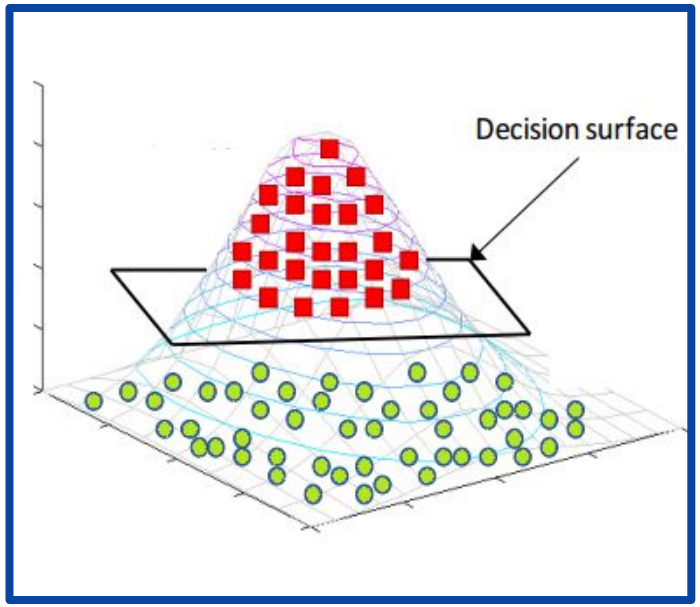


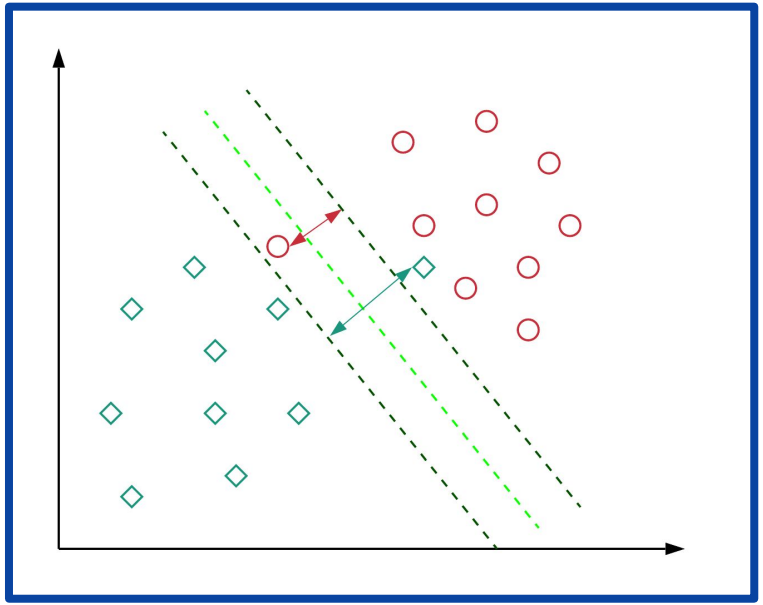


Support Vector Regression

01	Kernel	**Linear** **Input: Denoised data**
02	Categorize	**Hyperplane** **“Up” vs “Down”**
03	Forecast	

Support Vector Regression



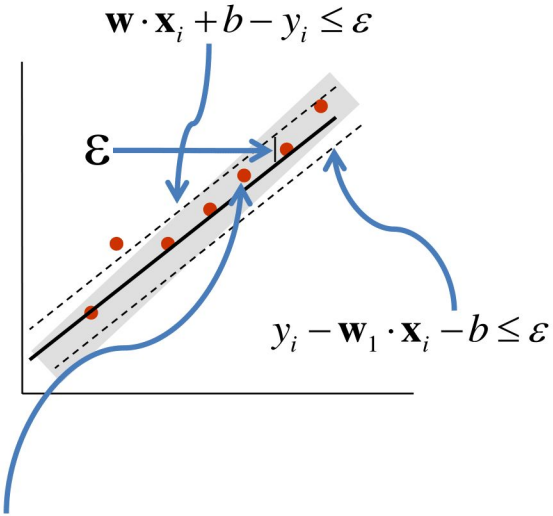


Support Vector Regression

01	Kernel	**Linear** **Input: Denoised data**
02	Categorize	**Hyperplane** **“Up” vs “Down”**
03	Forecast	**Form Regression Line** **Predict Daily Timestep**

Support Vector Regression

Date	Stock	Insight	Weight
2018-01-03			1.75 %
2018-01-04			0.90 % (Close 0.85%)



We do not care about errors as long as they are less than ε

Portfolio Allocation

Date	Stock	Insight	Weight	Order Executed	Price
2018-01-03			1.75 %	Sell Market On Open -419 Filled	$41.66
2018-01-04			0.90 % (Close 0.85%)	Buy Market On Open 202 Filled	$41.71

QUANT FINANCE

Results

Sharpe Ratio: 0.965

Alpha: 0.067

Beta: -0.042

Annual STD Deviation: 0.07

Thank You!

Appendix - Report

Overview | Report | Orders | Insights | Logs | Code | Share

Overview

Overall Statistics — Download Results

Total Trades	1210	Average Win	0.06%
Average Loss	-0.05%	Compounding Annual Return	8.029%
Drawdown	4.900%	Expectancy	0.234
Net Profit	8.029%	Sharpe Ratio	0.965
PSR	47.010%	Loss Rate	47%
Win Rate	53%	Profit-Loss Ratio	1.31
Alpha	0.067	Beta	-0.042
Annual Standard Deviation	0.07	Annual Variance	0.005
Information Ratio	0.538	Tracking Error	0.175
Treynor Ratio	-1.605	Total Fees	$5999.22

Appendix - Report

M. S. Raimundo and J. Okamoto, "SVR-wavelet adaptive model for forecasting financial time series," 2018 International Conference on Information and Computer Technologies (ICICT), DeKalb, IL, 2018, pp. 111-114, doi: 10.1109/INFOCT.2018.8356851.