

Welcome!



**Quant strategy building techniques for SGX- India equity & Currency derivatives:  
Hands-on Workshop**

Exchange  
Partner



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*Ishan Shah is AVP and leads the content & research team at Quantra by QuantInsti. Prior to that, he worked with Barclays in the Global Markets team & with Bank of America Merrill Lynch. He has a rich experience in financial markets spanning across various asset classes in different roles.*

## Team

We are a group of traders, coders, analysts who love to teach and share their experience. QuantInsti was started by iRage, one of the largest HFT firm in India.

## Mission

To bridge the gap between theory and practice in Algorithmic Trading.

## Vision

All retail investors use Quant & Algorithmic trading by upskilling themselves and by simplifying technology.

# Our products



Self-paced interactive courses on various topics, Python & Excel based modelling, courses offered by various experts in the domain.

[quantra@quantinsti.com](mailto:quantra@quantinsti.com)



Online classroom training for serious learners seeking to get a better role or start their own trading business. 6-months long, 300+ hours content, personal learning coach, hands-on project work, 17+ faculty members, verified certification

[contact@quantinsti.com](mailto:contact@quantinsti.com)



Free trading platform with daily and minute data from NSE, NYSE and FX

[blueshift-support@quantinsti.com](mailto:blueshift-support@quantinsti.com)

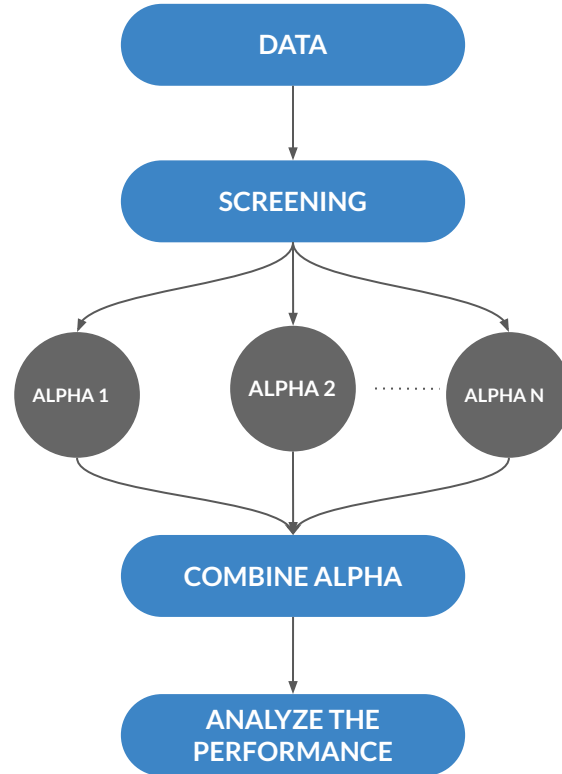
- How to come up with an idea for a trading strategy?
- How to validate the idea using data analysis?
- How to create a trading system for backtesting?
- How to analyze the results?
- How to do this for your own trading?



# How to create a trading system for backtesting?







## Which dataset contains the information I need to predict future returns?

### Example

**Price series:** *Open, High, Low, Close, and Volume*

Source: Blueshift, Quandl, your broker etc.

**Fundamental:** *Valuations, Income Statement, Cash Flow Statements, Earnings Calendar, Broker ratings, Analyst estimates, etc.*

Source: Morningstar etc.

**Sentiments:** *Trader mood*

Source: stocktwits and PsychSignal

**Legal, Regulatory, and Economic:** *Inflation rate, GDP, Fed meeting dates, etc.*

Source: EventVestor

- **Define the hypothesis which can predict future returns**

Sell in May and go away

January effect

If the market rises for two days then it will continue to rise

Buy and hold quality stocks

Mean-reversion

Trend following

Buy when there is a mild gap-down opening

- **Create an expression for your hypothesis**

Uptrend and downtrend strategy on Equity Derivatives and Currency Derivatives

- **Combine the Alphas (as single alpha factor won't be sufficient)**

# Visual Strategy Builder



**Step 1: Define universe**

Set universe to **Select assets**  
HDFCBANK-I

**Step 2: Define alpha**

set **percentage\_change** to **Price open** with **daily** frequency lagged **0** periods **÷** **Price close** with **daily** frequency lagged **2** periods

set **uptrend** to **percentage\_change** **>** **1.02**

set **downtrend** to **percentage\_change** **<** **0.97**

set **weights** to **1**

**Step 3: Define trading rules**

Schedule action at **Schedule date** **every\_day**  
Schedule time **market\_open** (hours=0, minutes=1)

do

- if **uptrend**  
do **Order by portfolio fraction**  
method **target**, size **weights**
- else if **downtrend**  
do **Order by portfolio fraction**  
method **target**, size **- weights**

# Analyze Performance

- Analyze the performance of the strategy

Example

Sharpe Ratio

Returns

Volatility

Sortino Ratio

Max Drawdown

RETURNS	ALPHA	BETA	SHARPE	DRAWDOWN
130.64%	0.24	0.16	1.07	-17.59%



# Bonus Content: Machine Learning Strategy



**Step 2: Define alpha**

- set trade\_freq to 5
- set train\_ml to 1
- Define model ML
- Add features
  - Technical features
    - select features ma\_xover, rsi...(9 more)
  - Statistical features
    - select features standard\_deviation
- Define target
  - Define target
  - # of levels 2, lookback 1
  - method pct\_change
- Add estimator
  - Define classification model
  - select estimator xgboost
  - estimation window 1000

**Step 3: Define trading rules**

- if train\_ml
  - do
    - estimate ML
    - set train\_ml to 0
- Schedule action at Frequency every trade\_freq min
- do
  - set prediction to predict ML
  - if prediction
    - do
      - Order by portfolio fraction
      - method target, size 1
    - else
      - Order by portfolio fraction
      - method target, size 0

- **Define strict stop loss and profit mechanism**
- **Multiple assets in your portfolio**
- **Allocate to multiple strategy types**

- How to come up with an idea for a trading strategy?
- How to validate the idea using data analysis?
- How to create a trading system for backtesting?
- How to analyze the results?
- **How to do this for your own trading?**



# How to do this in your own trading?

You could be anywhere in this spectrum

Quant	Momentum (time-series or cross-sectional)	Pair-trading, most types of statistical arbitrage	Advanced models (e.g. HMM, regime switching)	HF Market-making, Cash-futures arbitrage	News-based automated trading
Technical	MA cross-over, Continuation patterns	Swing, Retracement, Pivot trading	Opening range, dual thrusts, patterns	Range-based short gamma (vol selling)	Nothing much here
Fundamental	Factor-based investing	value investing	value/ RV (relative value) strategies	Cross-asset, cross country RV/ short gamma	Usually discretionary
	Trending	Mean-reverting	Break-out	Carry	Event-based

# How to do this in your own trading?



- Backtest
- Optimize
- Paper Trade
- Live Trade