

# Rohan Malhotra

CS × Math × Finance — I build simple data tools and accessible, real-time products.

[rohanm.org](http://rohanm.org) [linkedin.com/in/rohanamal](https://linkedin.com/in/rohanamal) [github.com/rohanmalhotra0](https://github.com/rohanmalhotra0) 973-713-3741 ram9952@nyu.edu

Engineer focused on data products and real time systems. I combine computer science math and finance to build tools that are simple and fast. I care about clear insights and applied research.

## PERSONAL SITE

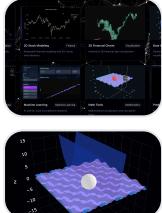
### [rohanm.org](http://rohanm.org)



- React and SCSS Jamstack with light and dark mode
- Fast static export and PDF ready pages
- Netlify functions for dynamic features
- CI deploys to GitHub Pages

## 3D DATA MODELING SITE

### [refrax.io · Demo: YouTube](#)



- Website: [refrax.io](http://refrax.io)
- Demo: [YouTube](#)
- Upload CSV or Excel for instant 2D and 3D plots
- Equation fitting and simple machine learning helpers
- Responsive charts powered by Plotly and WebGL
- Live demo available on YouTube

## GREEN STICKER (ACCESSIBILITY TOOL)

### [greensticker.us](#)



- Website: [greensticker.us](http://greensticker.us)
- Hands free cursor using computer vision and a colored sticker
- Runs on low cost hardware
- Low latency interaction
- Private by default with on device processing

## AUTISM RESEARCH

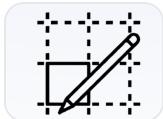
### [autismtester.com](#)



- Website: [autismtester.com](http://autismtester.com)
- Simple screening experiments and data collection
- Accessible tools for non specialists
- Prototype studies with clear UX
- Public site for community feedback

## PIVOT AT VT

### vtpivot.org



- Website: vtpivot.org
- Student led STEM community and project hub
- Mentorship and project incubation
- Workshops and events across campuses
- Cross university collaboration

## RESEARCH PAPER

### Reddit Sentiment in Financial Markets



- Measured retail investor sentiment on Reddit
- Built time series features and labels
- Compared sentiment to realized volatility
- Outlined risks and ethics
- Paper: hdl.handle.net/10919/124730

## RESEARCH PAPER

### Capital Allocation with the Kelly Criterion



- Implemented Kelly based allocation models
- Backtested on historical market data
- Analyzed drawdowns and growth rate
- Derived practical sizing rules
- Paper: hdl.handle.net/10919/124871

## RESEARCH PAPER

### Aerospace Research



- Worked on CubeSat subsystems and integration
- Built and tested ground station and comms
- Prototyped flight software and control
- Partnered with campus labs

## MACHINE LEARNING RSI PREDICTOR

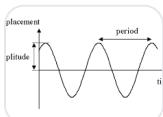
### Starbucks sales → SPY RSI



- Engineered SMA MACD RSI and volume features
- Trained a Random Forest baseline
- Evaluated with cross validation
- Visualized predictions over time

## QUANTUM OSCILLATING STOCK MODEL

### Wave-based cyclical prediction (SPY/QQQ)



- Wave based cyclical signal construction
- Scans SPY and QQQ for regime shifts
- Screens for overvaluation and momentum
- Automates data pulls and reports

## LINEAR GENERATOR

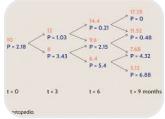


### Linear Generator

- Wearable generator using Faraday law
- Harvests energy from everyday motion
- Powers safety gear and small devices
- Reduces grid demand while mobile

## AUTOMATED RASPBERRY PI-BASED BINOMIAL OPTIONS PRICING

### Discrete-Options-System



- Raspberry Pi based compute and control
- Streams live market data to a binomial tree
- Prices options and selects trades
- Executes orders with guardrails

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