

Rohan Malhotra

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

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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

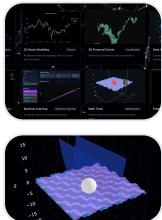
rohanm.org



- 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



- Website: refrax.io
- Demo: <https://www.youtube.com/watch?v=J7e7Fx0Nu2A>
- 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
- 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

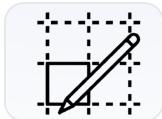
autismtester.com



- Website: autismtester.com
- 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

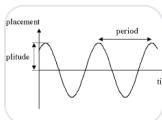
Starbucks sales → SPY RSI



- 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

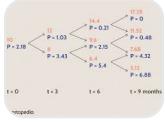


Linear Generator

- 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