



PRI – Portfolio Reasoning Interface

By Sujal Charak



Introducing: PRI

Blending AI, Market Simulation, and Strategy for Financial Insight

- PRI stands for Portfolio Reasoning Interface .
- A voice-activated AI that analyzes, forecasts, and advises on stock investments
- Combines financial simulation, sentiment analysis, and strategic reasoning
- Built for investors who want more than just data — they want explanations



Core Architecture

 **Live Price Fetching**

 **Monte Carlo Simulations using historical volatility**

 **Sentiment Analysis of financial news**

 **Strategic Output: Buy, Sell, or Hold based on logic**

 **Voice-Based Interaction for hands-free access**

app.py	Brain 	Thinks, plans, analyzes: sends queries to OpenAI, generates smart responses, decides how to react
continuous.py	Ear, Mouth, Eyes   	Listens (speech recognition), sees (trigger detection), talks (text-to-speech), handles real-world interaction



PORTFOLIO MODE

01

Simulates Stock Forecasts : Uses Monte Carlo simulation on real stock data to predict future price movements based on historical volatility and trends.

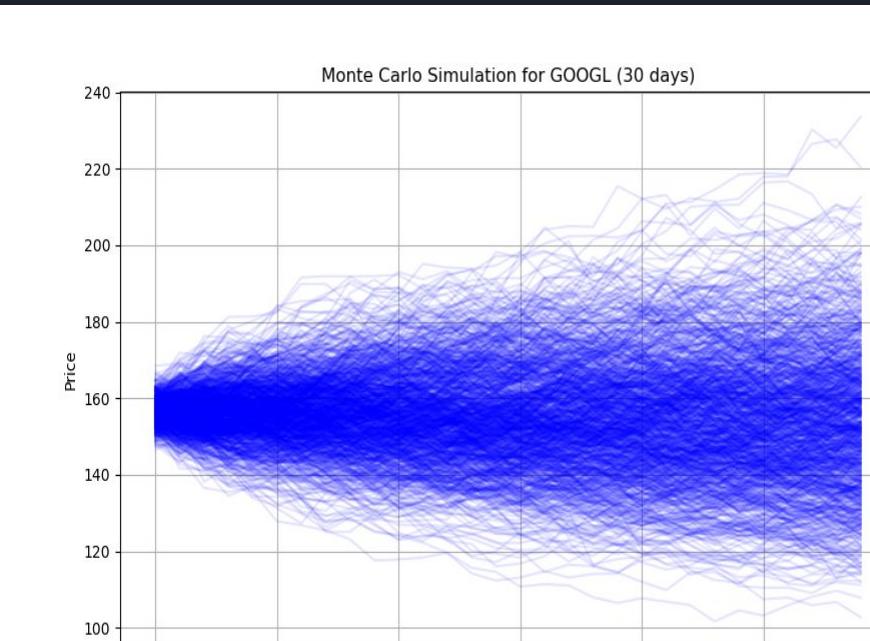
02

Analyzes News Sentiment: Evaluates the latest financial headlines using sentiment analysis to understand market mood and combine it with the forecast.

03

Gives Strategic Advice: Blends data and sentiment to recommend a strategy – Buy , Sell , or Hold – and explains the reasoning in natural voice.

Simulation In Action



Example Output (GOOGL):

Current Price: \$134.26

30-day forecast using 1000 simulations

Expected Return: +4.27%

Price Range: \$123.80 - \$147.52

Sentiment: Mostly Positive

💡 Advice: ✅ Entry Signal – Consider investing

Results(Voice Based)

Response sounds like:

Simulation Output (for GOOGL) GOOGL is trading at \$134.26.

I ran a 30-day forecast using 1000 scenarios.

 Expected return over this period: +4.27%

 Price range: Between \$123.80 and \$147.52, based on recent market trends.  I balanced speed and accuracy using a medium number of simulations.

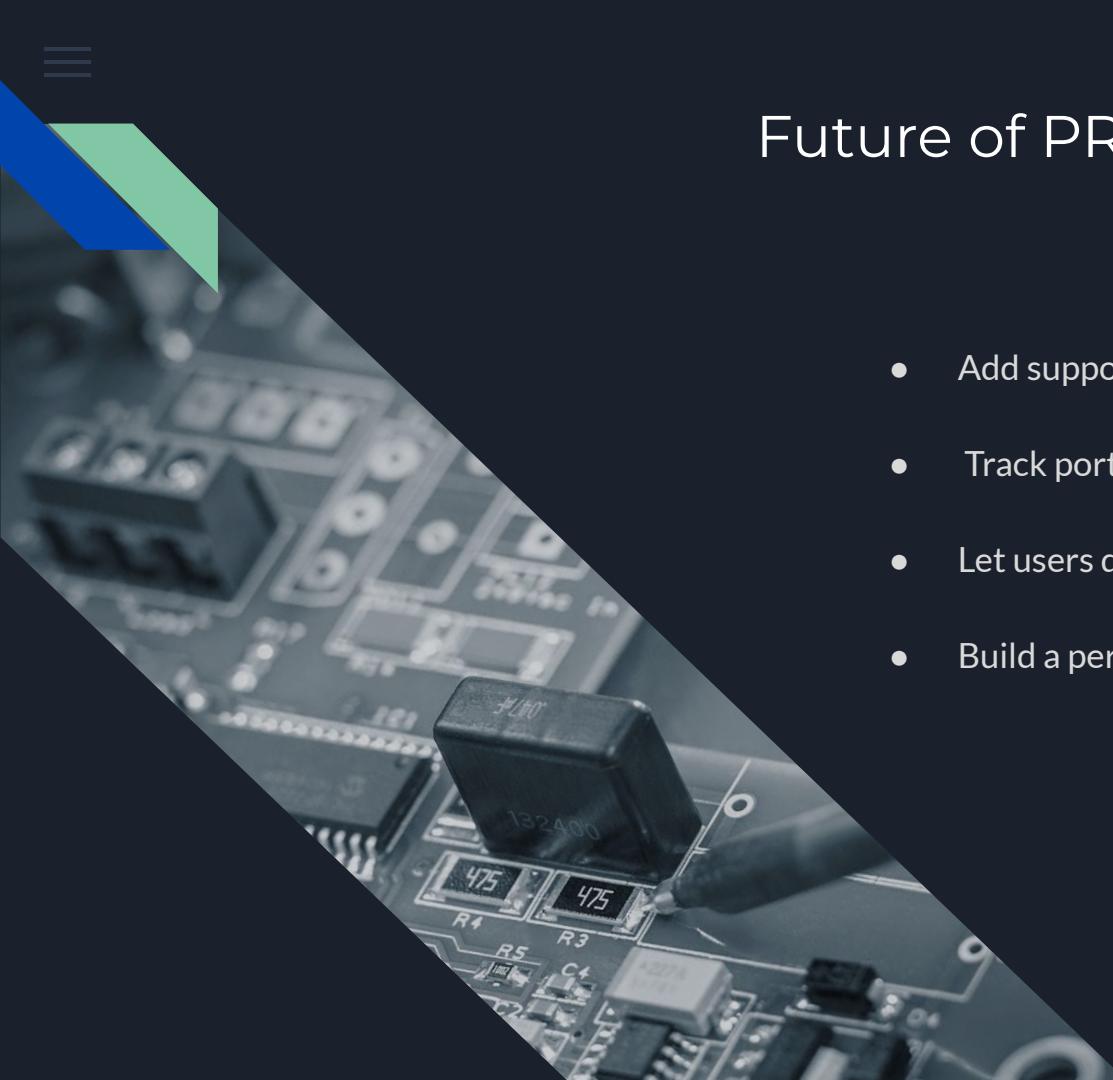
 Sentiment on GOOGL is mostly positive

.  News headlines: • Google Cloud announces new AI security features

 Entry Signal: Simulation shows favorable returns, and sentiment is positive. Consider investing.

 Video Compilation

- Uses ffmpeg to stitch frames into a video.



Future of PRI in Finance

- Add support for ETF/crypto simulations
- Track portfolio memory over time
- Let users define risk levels, time horizons
- Build a personal financial advisor experience



PRI: Phases

Interaction

Voice input, and speech output
all live

Memory & EI

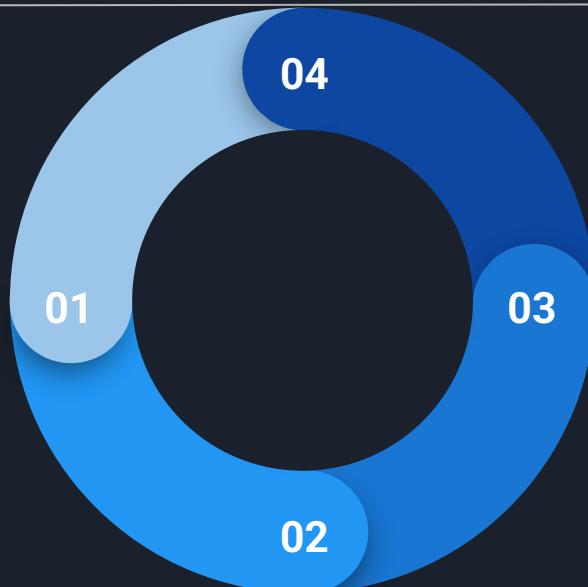
Vector-based memory, tone
detection, future proactive
behavior

Core Intelligence

Reasoning, logic, Gpt
Integration, dynamic response
generation

Portfolio Mode & Simulation

Live stock price, Monte Carlo
forecasting, sentiment + spoken
strategy





Thank-you

Questions? PRI is always listening.