

Introduction to Pattern Detection using AI for Algo Trading

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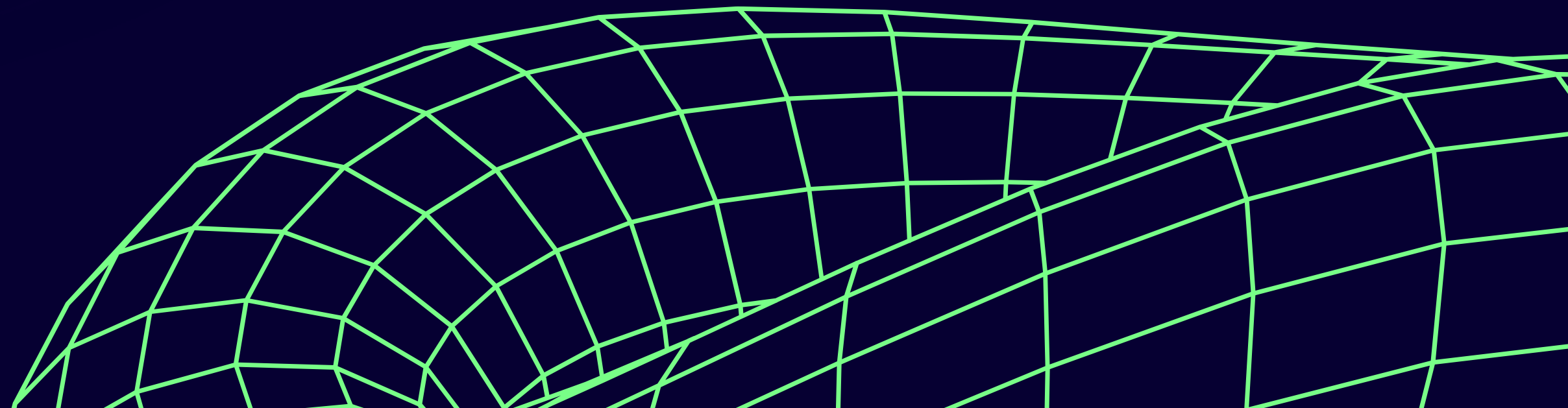
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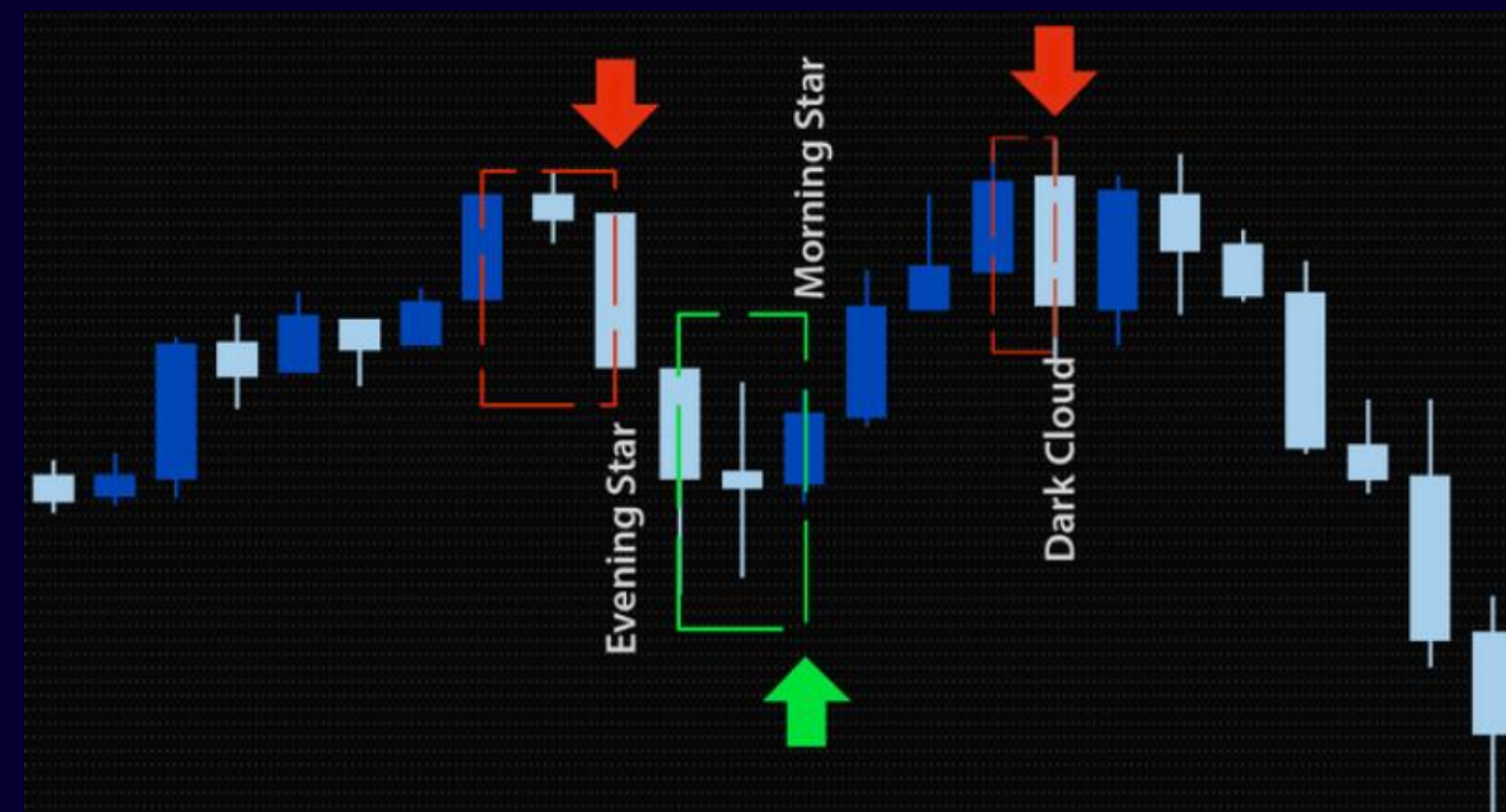
WHAT IS PATTERN DETECTION AND HOW CAN IT BE USED FOR TRADING?

PATTERN DETECTION INVOLVES THE USE OF ALGORITHMS TO PROGRAMMATICALLY IDENTIFY RECURRING PATTERNS IN MARKET DATA THAT CAN INDICATE POTENTIAL BUY/SELL TRADING OPPORTUNITIES

PRICE SERIES AND VOLUME DATA (OHLC)



PATTERN INDICATORS USING CANDLESTICKS



MARKET RESEARCH AND TECHNICAL ANALYSIS

PATTERNS SERVE TO PREDICT BULLISH OR BEARISH TRENDS IN THE MARKET AND OPPORTUNITIES TO BUY AND SELL THAT CAN BE USED TO DEVELOP SWING STYLE STRATEGIES. PATTERNS CAN BE GROUPED TOGETHER AND TESTED.

METRICS

ACCURACY: PERCENTAGE OF THE TIME THERE WAS A SUSTAINED POSITIVE MARKET MOVEMENT

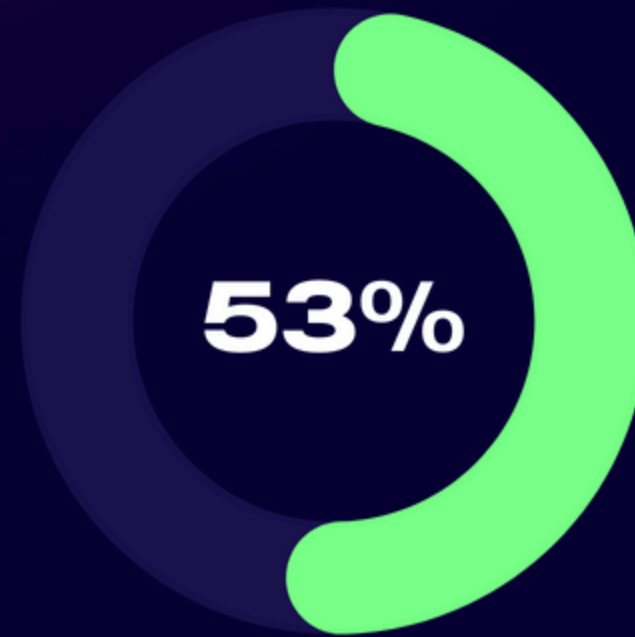
STRENGTH: LENGTH OF DURATION OF TREND

CUP AND HANDLE



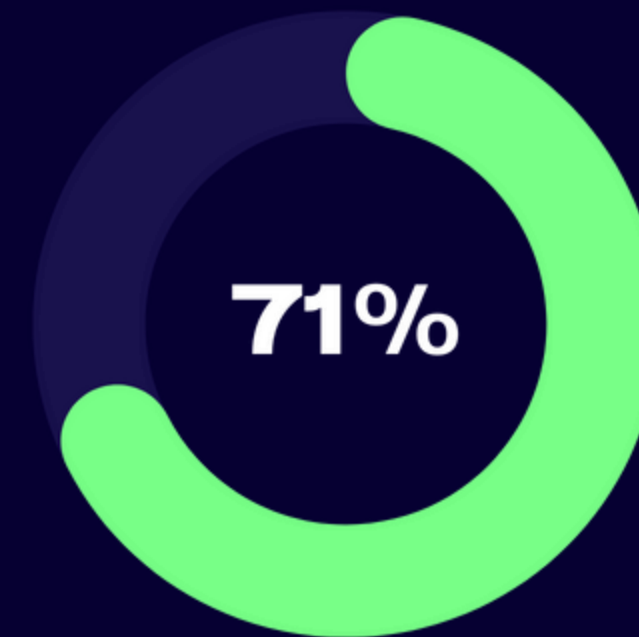
AVG DURATION OF TREND: 1.5 DAYS

BULLISH ENGULFING PATTERN



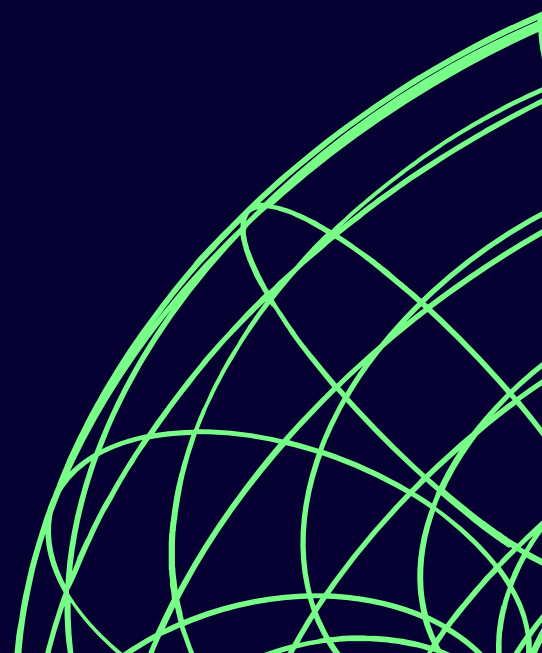
AVG DURATION OF TREND: .5 DAYS

ASCENDING TRIANGLE



AVG DURATION OF TREND: 3 DAYS

** CHARTS ARE FOR ILLUSTRATION PURPOSES AND NOT INDICATIVE OF ACTUAL RESULTS



ALGO DEVELOPMENT: MOVING FROM TECHNICAL ANALYSIS TO A STRATEGY WITH BACKTESTS



UPGRADING MACHINERY : THE BACKTEST

SIMPLES GUIDE ON HOW TO PERFORM A HISTORICAL BACK-TEST WITH A PATTERN INDICATOR TO EVALUATE OVERALL PERFORMANCE OVER LONG TIME PERIODS.

IDENTIFY THE PATTERN

Indicate and define the pattern you would like to trade, including candlestick formations, price relationships, and any relevant time frame considerations

TRANSLATE THE PATTERN INTO CODE

Write code that can recognize the pattern within the historical data by checking for price conditions across several candlesticks.

EVALUATION

Evaluation of P&L, Drawdowns, and Strategy Sharpe Ratio

SET ENTRY AND EXIT CONDITIONS

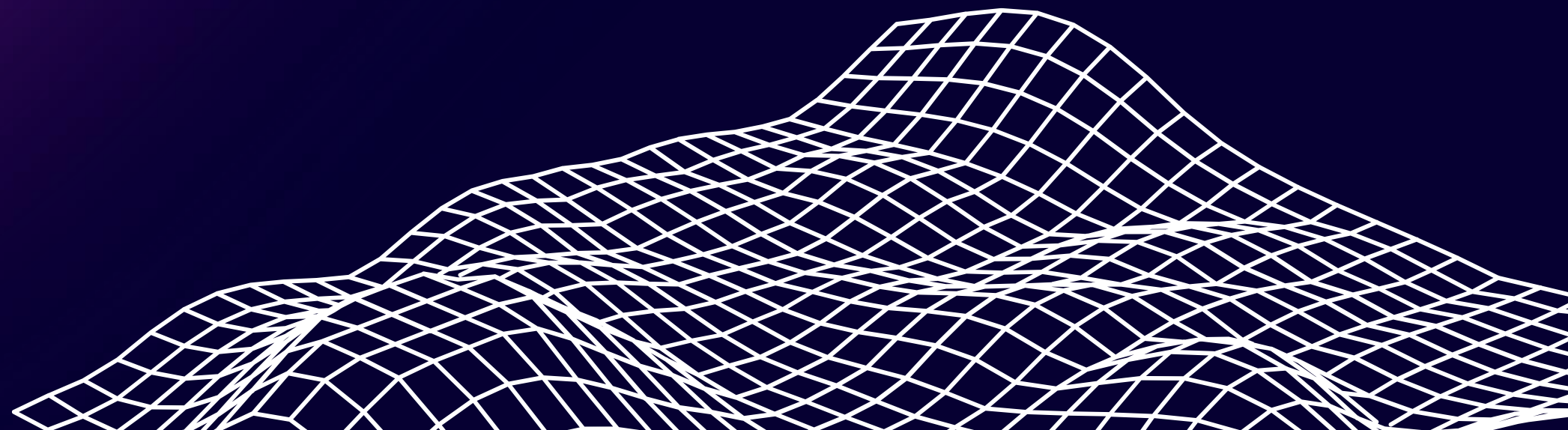
Determine how you will enter the trade when the pattern is identified and when you will exit based on price actions or other indicators

OTHER CONSIDERATIONS

Backtesting platforms often assume you will get execution after a pattern signal, but that is not often the case in production, and dependent on matching engines and queue allocation rules like FIFO



RECOGNIZING COMPLEX PATTERNS WITH NEURAL NETS

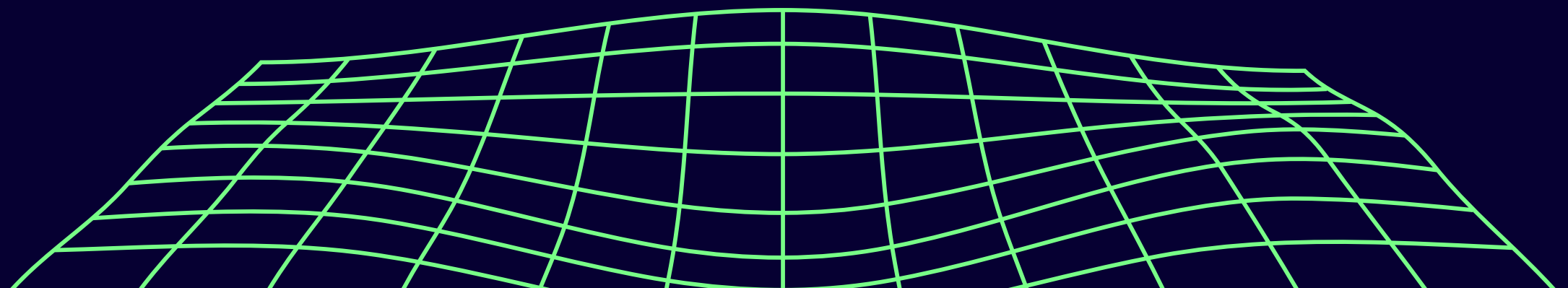


USING AN LSTM FOR COMPLEX PATTERN STORAGE AND PREDICTING MARKET MOVEMENTS

NEW RESEARCH: A "lagged LSTM price prediction" refers to using a Long Short-Term Memory (LSTM) neural network to predict future prices of a financial asset by incorporating past price data at specific lagged time intervals as input into the model, allowing it to capture complex relationships and trends within the time series data.

WHY LSTM?

- **NEURAL NETS THAT CAN HANDLE SEQUENTIAL DATA** and solve the vanishing gradient problem known in other neural nets and retain information that it saw previously. In this way, LSTMs have the potential to learn long term dependencies within sequential data making them capable of capturing the intricate relationships and patterns between lagged price points.
- **CAPTURING COMPLEX PATTERNS** LSTMs can identify non-linear relationships and complex patterns that are stored in an elaborate neural net leading to detecting new complex patterns over what humans can detect. These are similar to the neural nets that can do facial recognition and can process many features of your face all at once.



PLATFORMS WHICH FEATURE TOOLS FOR ALGO STRATEGY CREATIONS WITH AI

TickerOn

AI powered stock
forecast tools.
<https://tickeron.com>

TrendSpider

Train predictive AI
models.
<https://trendspider.com>

Composer

Build trading with AI,
backtest them, then
execute – all in one
platform.
<https://composer.trader>

HAPPY TESTING!

