Temporal Fusion Transformer Architecture
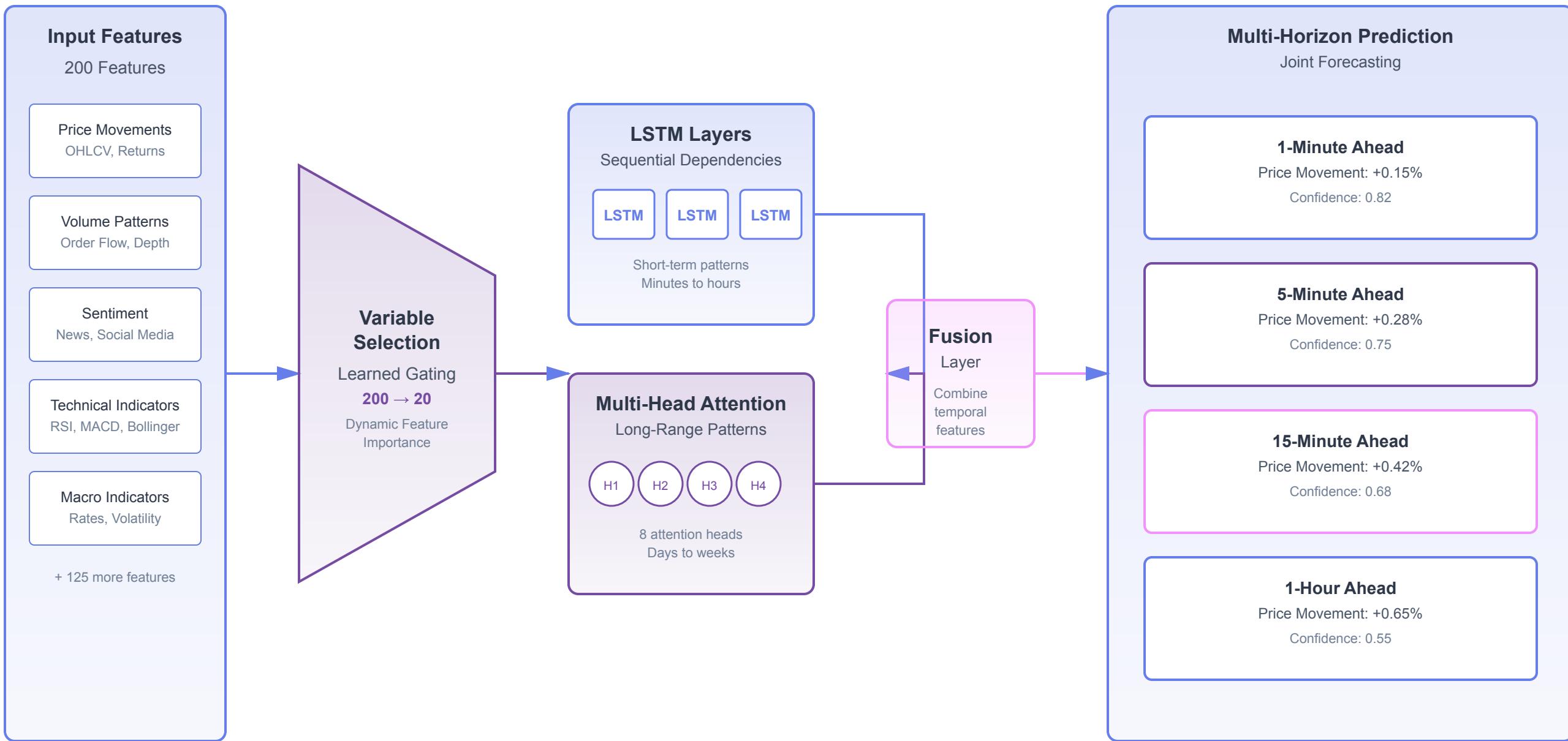
50M Parameters • 10ms Inference • Multi-Horizon Time Series Prediction

Input Features
200 Features

Price Movements
OHLCV, Returns

Volume Patterns
Order Flow, Depth

Sentiment
News, Social Media

Technical Indicators
RSI, MACD, Bollinger

Macro Indicators
Rates, Volatility

+ 125 more features

Variable Selection
Learned Gating
200 → 20
Dynamic Feature Importance

LSTM Layers
Sequential Dependencies

LSTM **LSTM** **LSTM**

Short-term patterns
Minutes to hours

Multi-Head Attention
Long-Range Patterns

H1 H2 H3 H4

8 attention heads
Days to weeks

Fusion Layer

Combine temporal features

Multi-Horizon Prediction
Joint Forecasting

1-Minute Ahead
Price Movement: +0.15%
Confidence: 0.82

5-Minute Ahead
Price Movement: +0.28%
Confidence: 0.75

15-Minute Ahead
Price Movement: +0.42%
Confidence: 0.68

1-Hour Ahead
Price Movement: +0.65%
Confidence: 0.55

Performance Metrics

Sharpe Ratio: 1.8   Win Rate: 52%   Annual Return: 15%   Latency: 10ms (GPU)

FPGA deployment: 0.2ms latency for high-frequency trading