VAANI-RAVEN X - Updated System Blueprint

Layer 1: Advanced Pattern Recognition (Core Engine)

- Uses Transformer models to learn EUR/USD price-action sequences.

- Processes OHLCV data, trading sessions, micro-trends using CNN+LSTM.

- Generates signals with confidence scores for short-term breakouts/reversals.

Layer 2: Quantitative Signal Validation (No Overfit Layer)

- Validates signals using RSI, Z-score, Bollinger Bands, MACD.

- Bayesian ensemble of GARCH + LSTM classifies volatility regimes.

- ATR used to measure market turbulence and optimize SL/TP.

Layer 3: Sentiment Validator

- FinBERT or GPT-4o scans economic headlines and event API.

- Filters for high-impact news events relevant only to EUR/USD.

- Avoids news-based overreaction; suspends trading if uncertainty is high.

Layer 4: Risk Management Agent

- Implements Kelly Criterion for sizing, equity-based cutoffs.

- Dynamically adjusts risk per trade and market regime.

- Drawdown halts and loss-limiting grid/martingale if enabled by Meta-Agent.

Layer 5: Execution Agent (RL PPO)

- Learns optimal entry/exit via PPO in synthetic environments.

- Includes real-time slippage awareness and execution latency logger.

- Supports order types: market, limit, stop.

Layer 6: Meta-Learning Agent

- Evaluates all agents using Sharpe, Sortino, and Calmar ratios.

- Retrains underperformers monthly using new market data.

- Decides when to deploy fallback strategies (e.g., grid) dynamically.

Monitoring & Learning

- Dashboard built in Streamlit/FastAPI.

- Logs trade outcomes, confidence, market regime, agent agreement.

- Self-trainer triggered on schedule or poor KPI.