■ QUANTUM LEAP ML TRAINING
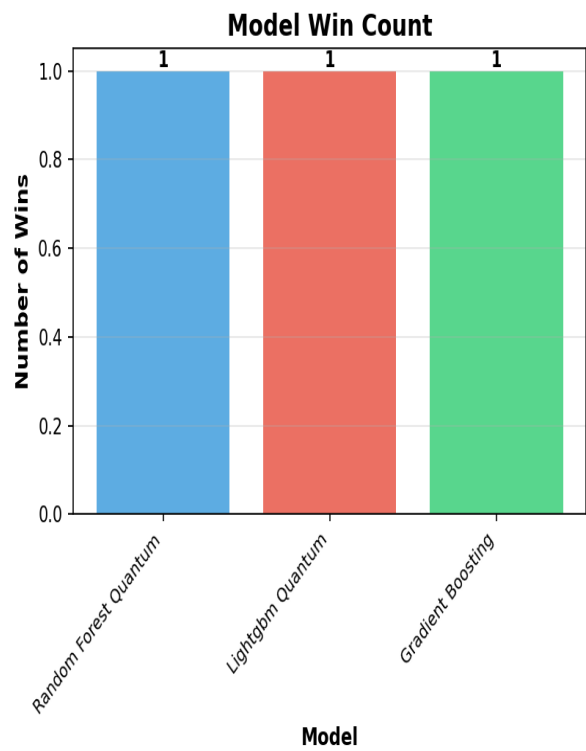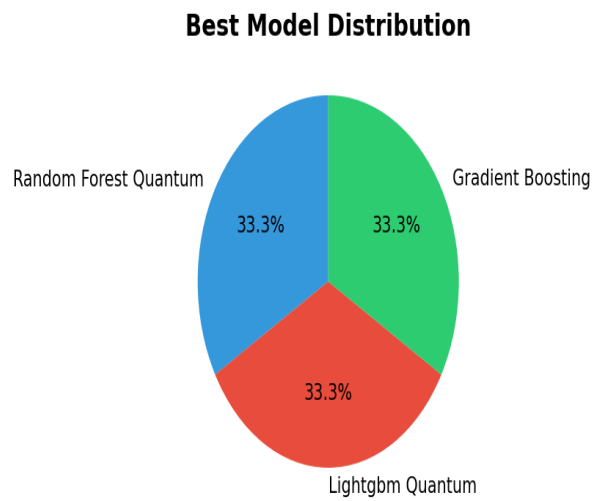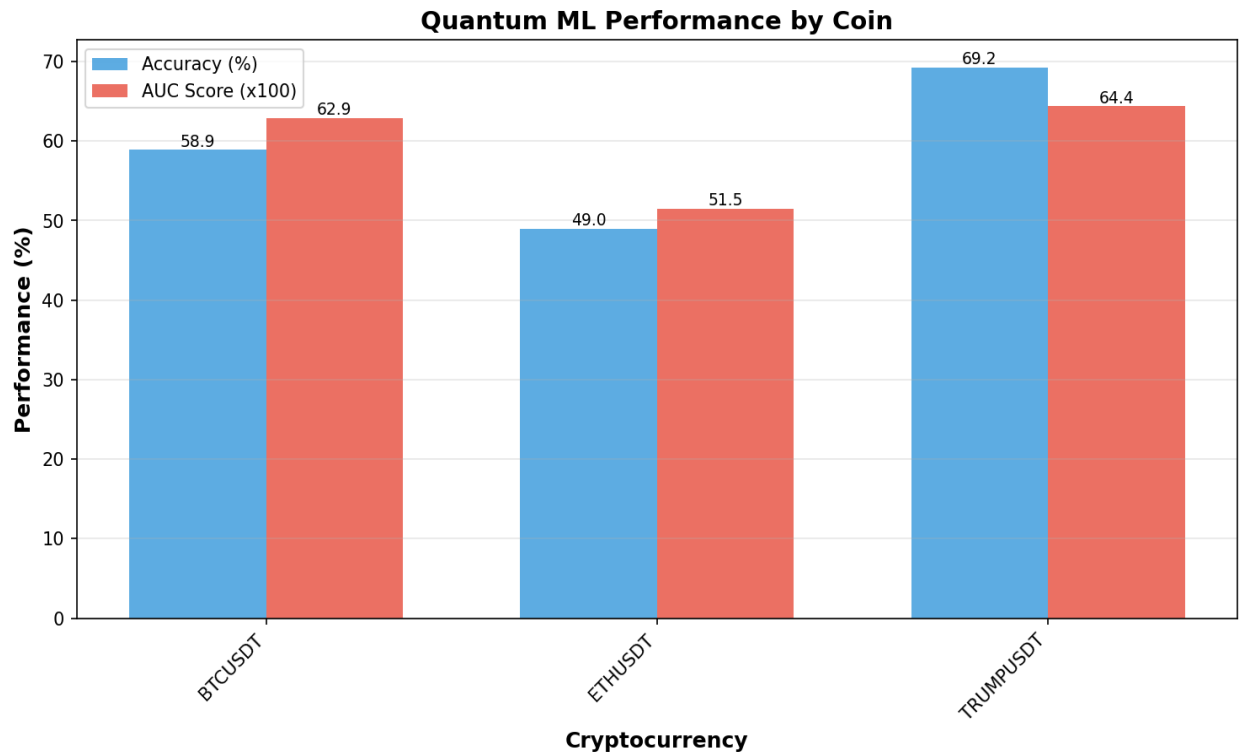
Advanced Multi-Model Analysis Report

Generated: 2025-11-04 00:42:03

■ Executive Summary

Metric	Value
Total Coins Analyzed	3
Average Accuracy	59.04%
Average AUC Score	0.596
Quantum Features	37
Training Method	Multi-Timeframe Ensemble
Confidence Filtering	High-Confidence Only (>1.0σ)

■ Performance Analysis

Quantum ML Performance by Coin

Best Model Distribution

Model Win Count

■ Detailed Results by Coin

Coin	TRUMPUSDT
Best Model	Gradient Boosting
Best Accuracy	69.23%
Best AUC	0.644
Train/Test Samples	414/104

Top 3 Models:

1. Gradient Boosting	Acc: 69.2% | AUC: 0.644
2. Meta Ensemble	Acc: 66.3% | AUC: 0.701
3. Xgboost Quantum	Acc: 63.5% | AUC: 0.696

Coin	BTCUSDT
Best Model	Random Forest Quantum
Best Accuracy	58.88%
Best AUC	0.629
Train/Test Samples	424/107

Top 3 Models:

1. Random Forest Quantum	Acc: 58.9% | AUC: 0.629
2. Xgboost Quantum	Acc: 57.9% | AUC: 0.684
3. Lightgbm Quantum	Acc: 57.9% | AUC: 0.696

Coin	ETHUSDT
Best Model	Lightgbm Quantum
Best Accuracy	49.00%
Best AUC	0.515
Train/Test Samples	400/100

Top 3 Models:

1. Lightgbm Quantum	Acc: 49.0% | AUC: 0.515
2. Random Forest Quantum	Acc: 45.0% | AUC: 0.538
3. Xgboost Quantum	Acc: 44.0% | AUC: 0.532

■ Model Algorithm Benchmark

Model	Avg Accuracy	Avg AUC	Wins
Meta Ensemble	55.8%	0.632	0/3
Gradient Boosting	55.5%	0.620	1/3
Xgboost Quantum	55.1%	0.637	0/3
Lightgbm Quantum	54.9%	0.642	1/3
Random Forest Quantum	54.5%	0.602	1/3

■ Quantum Feature Engineering

Advanced Features Implemented:

• **Market Regime Detection:** Trending, Ranging, Volatile classification
• **Volatility Regime:** Low, Normal, High percentile-based classification
• **Fibonacci Retracement:** 7 key levels (23.6%, 38.2%, 50%, 61.8%, etc.)
• **Harmonic Patterns:** Pivot detection and pattern strength scoring
• **Order Flow Metrics:** Delta volume, order imbalance analysis
• **Momentum Clusters:** Multi-period alignment detection

Smart Target Engineering:
• Multi-class targets: STRONG_BUY (+2), WEAK_BUY (+1), WEAK_SELL (-1), STRONG_SELL (-2)
• Confidence scoring: Based on normalized volatility (0-3σ)
• High-confidence filtering: Only train on samples with confidence > 1.0σ