

Building a 360° Customer Behavioral Signature for Fraud Detection

Comprehensive analysis to
identify fraudulent activities



Understanding Behavioral Signature



Behavioral Footprint Analysis

Examining entire customer activity patterns helps identify anomalies beyond single transactions.

Unpredictability via Entropy

Entropy measures diversity in customer channel usage, highlighting predictable versus varied behavior.

Transaction Intensity and Velocity

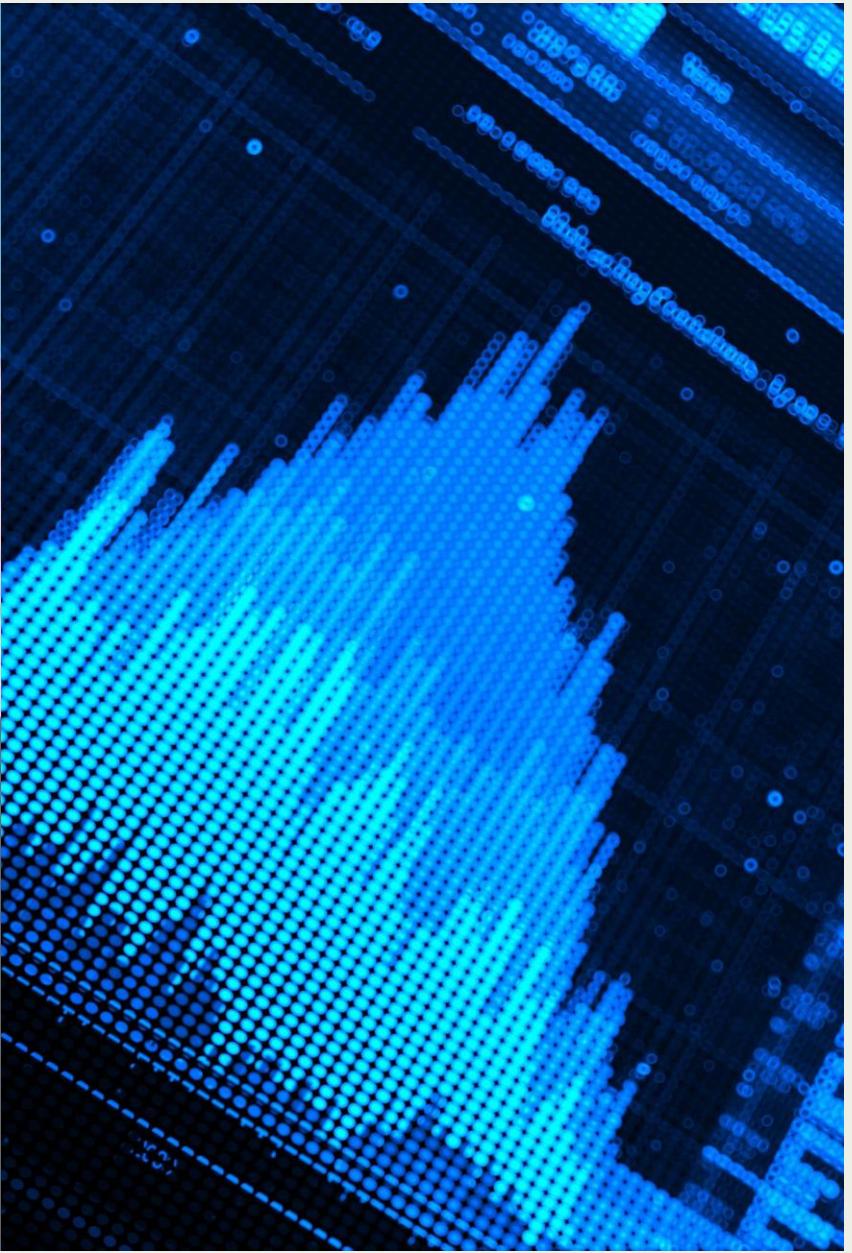
Monitoring transaction speed and frequency detects sudden surges that may signal fraud.

Stability and Habitual Patterns

Shifts in routine behaviors like withdrawal patterns can indicate suspicious activity.

Applying RFM and Diversity Metrics

CATEGORY	TECHNICAL FEATURE	SIMPLE EXPLANATION
Recency	Recency_Days	Days since last transaction
Frequency	Transactions_Per_Day	How often the customer transacts
Monetary	Avg_Daily_Spend	Average daily spending amount
Diversity	Branch_Diversity_Score	Extent of branch usage across locations



Behavioral Breaks and Volatility Indicators

Amount Volatility Indicator

Amount volatility, measured by Coefficient of Variation, highlights unusual transaction amount spikes.

Debit Ratio Monitoring

Debit ratio tracks the proportion of debit transactions to detect sudden shifts indicating fraud.

Lifetime Behavioral Context

Comparing current behavior with historical account activity reveals suspicious transaction frequency spikes.

Real-time Anomaly Detection

Monitoring behavioral indicators in real time helps flag fraud early and adapt to evolving tactics.