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Biological State Inference From Continuity Baseline

by [Nick Clark](#) | Published March 27, 2026 | [PDF](#)

Once a biological trust slope establishes a continuity baseline, deviations from that baseline carry information about the individual's current physiological state. Stress, fatigue, impairment, and other conditions manifest as measurable departures from established behavioral patterns. This inference operates without storing raw biometric data and without comparing against population norms.

What It Is

Biological state inference detects physiological conditions by measuring deviation from an individual's own established continuity baseline rather than comparing against population averages or clinical thresholds. The system does not diagnose conditions. It detects that current observations differ from the accumulated behavioral pattern in ways that correlate with specific physiological states.

The inference is inherently personalized. What constitutes a deviation for one individual may be normal for another. The continuity baseline captures individual variation automatically through the trust slope accumulation process.

Why It Matters

Traditional physiological monitoring requires dedicated sensors, explicit enrollment, and often clinical calibration. It produces absolute measurements that must be interpreted against population norms. This approach misses individual variation and requires the subject to actively participate in monitoring.

Baseline deviation inference operates on the same biological signals already being observed for identity continuity. It requires no additional sensors, no clinical calibration, and no population reference data. The monitoring is a byproduct of identity maintenance rather than a separate system.

How It Works

The system maintains a running statistical model of the individual's biological signal characteristics as part of the trust slope. When current observations deviate from this model beyond noise-tolerant thresholds, the deviation vector is classified against known deviation patterns for stress, fatigue, impairment, and other physiological states.

The classification operates on deviation patterns, not raw signals. No raw biometric data is stored or compared. The deviation itself is the signal, computed relative to the individual's own baseline.

What It Enables

State inference enables identity-aware systems to adapt to the operator's current condition. An autonomous vehicle can detect driver fatigue through behavioral deviation. A secure facility can increase verification requirements when an operator shows stress indicators. A therapeutic agent can modulate interaction parameters based on detected physiological state. All without dedicated health monitoring infrastructure.

[Biological Identity All 21 steps →](#)

Identity from behavioral continuity. No stored templates. No keys.

Primary Technical Disclosure

[◦ Continuity-Based Biological Identity Using Trust-Slope Validation](#)

Secondary Technical

[◦ Biological Trust Slope Construction: Identity Through Behavioral Continuity](#)[◦ Contact, Non-Contact, and Passive Resolution Modes for Biological Identity](#)[◦ Biological Hash Generation With Domain Separation](#)[◦ Biological State Inference From Continuity Baseline](#)[◦ Cross-Modal Biological Hash Fusion](#)[◦ Biological Continuity as Handoff Verification](#)[◦ Relational Trust Trajectories: Trust as Temporal Relationship](#)[◦ Identity as Behavioral Continuity: Beyond Single-Point Capture](#)[◦ Biological-Device-Agent Identity Layering](#)[◦ Biological Signal Acquisition Tiers](#)[◦ Noise-Tolerant Feature Normalization for Biological Signals](#)[◦ Stable Sketching and Helper Data for Biological Features](#)[◦ Predictive Identity Trajectory: Forecasting Biological Identity Evolution](#)[◦ Population-Scale Collision Resistance for Biological Hashes](#)[◦ Adaptive Indexing of Biological Trust Slopes](#)[◦ Delayed and Sparse Validation for Disconnected Environments](#)[◦ Policy-Governed Capability Binding for Biological Identity](#)[◦ Multi-Identity Delegation Without Biological Data Disclosure](#)[◦ External Credential Integration With Trust-Slope Integrity](#)[◦ Anti-Spoofing Through Continuity Validation](#)[◦ Identity Lifecycle Management and Phase-Based Reseeding](#)[◦ Quorum-Based Biological Identity Recovery](#)[◦ Privacy Governance and Revocation for Biological Identity](#)[◦ Human-Agent Primitive Integration for Biological Identity.](#)

Applications (General)

[◦ Airport Security Without Biometric Databases](#)[◦ Estate Verification Through Behavioral Continuity](#)[◦ Biological Identity for Elder Care Continuity](#)[◦ Biological Identity for Child Development Tracking](#)[◦ Biological Identity for Addiction Recovery Monitoring](#)[◦ Biological Identity for Workplace Safety Monitoring](#)[◦ Biological Identity for Athletic Performance](#)[◦ Biological Identity for Immigration Processing](#)

Applications (Specific)

[◦ TSA PreCheck Matches Templates, Not Continuity](#)[◦ Global Entry Verifies Documents, Not Biological Continuity](#)[◦ Face ID Matches a Stored Model, Not a Living Trajectory](#)[◦ Samsung Knox Guards the Container, Not the Identity](#)[◦ ID.me Verifies Documents, Not Biological Continuity](#)[◦ Secure Scores Risk at a Single Point in Time](#)[◦ Plaid Identity Verifies Financial Accounts, Not Biological Persons](#)[◦ Onfido Detects Document Fraud, Not Identity Drift](#)[◦ Veriff Captures Sessions, Not Trajectories](#)[◦ Trulioo Queries Databases, Not Biological Trajectories](#)

[Biological Identity overview →](#)

AQ

deterministic

autonomy

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