Onfido Detects Document Fraud, Not Identity Drift

by Nick Clark | Published March 28, 2026 | PDF

Onfido applies AI to identity document verification, analyzing documents for signs of tampering, forgery, and manipulation while matching biometric selfies against document photos. The fraud detection is effective at catching manipulated credentials at the moment of verification. But the system is optimized to detect document fraud, not to track whether the biological identity of the person presenting credentials remains consistent across interactions. The structural gap is between catching a fraudulent document and validating a person's biological trajectory.

What Onfido built

Onfido's verification pipeline analyzes identity documents through computer vision models trained to detect hundreds of fraud signals: inconsistent fonts, altered text, manipulated photos, missing security features, and document template anomalies. The biometric component matches a live selfie or video

against the document photograph. Liveness detection distinguishes a live person from a photograph, mask, or screen replay. The combined analysis produces a verification decision.

The system excels at the moment of verification. Its models are trained on millions of document fraud examples and its accuracy in catching manipulated documents is high. But each verification is a standalone event. The system asks whether this document appears genuine and whether the person presenting it matches the document photograph. It does not ask whether this person's biological identity trajectory is consistent with someone verified previously.

The gap between fraud detection and biological continuity

Document fraud detection and biological continuity operate on different axes. Fraud detection evaluates the artifact: is this document genuine? Biological continuity evaluates the person: is this individual's biological trajectory consistent with the verified individual across accumulated interactions? A person can present a genuine, unmanipulated document and still not be the person the document belongs to. The document is real. The identity claim is false.

This gap widens as document fraud becomes less relevant than identity fraud. Sophisticated attackers increasingly use genuine documents obtained through social engineering, data breaches, or institutional compromise. The document passes every authenticity check because it is authentic. The fraud is in who presents it, not in the document itself. Onfido's models detect document manipulation. They do not detect identity substitution when the document is genuine.

Biological trajectory validation addresses identity substitution directly. The legitimate holder of a document accumulates a biological trajectory across verification events. An attacker presenting the same document for the first time has no accumulated trajectory. The system detects the absence of continuity rather than the presence of manipulation. This is a fundamentally different detection mechanism that is immune to the genuine-document attack surface.

What biological identity enables for document-based verification

Trust-slope trajectory validation transforms document verification from an artifact inspection problem into a person validation problem. Each verification event contributes biological signals to the individual's accumulated trajectory. Over time, the trajectory becomes the primary verification mechanism, with document checks serving as supporting evidence rather than the sole basis for verification.

Stable sketching allows biological trajectory validation without storing biometric templates. The compact representations that support trajectory comparison cannot be reversed to reconstruct original biometric data. This resolves the tension between accumulating biological identity data and the privacy requirements that constrain biometric storage.

The identity drift problem is also addressed. A person's appearance changes over years. Document photos become increasingly stale. Template-matching systems must periodically re-enroll to maintain accuracy. Trajectory-based biological identity naturally incorporates drift because the trajectory tracks evolution rather than comparing against a fixed reference. The system expects change and validates that the change follows a consistent pattern.

The structural requirement

Onfido's document fraud detection is sophisticated. The structural gap is between detecting manipulated documents and validating the biological person presenting them. Biological identity provides verification that catches identity substitution with genuine documents, strengthens with accumulated interactions, and naturally accommodates identity drift over time. The system that validates biological trajectory provides a detection capability that document analysis alone cannot achieve.

Biological Identity All 21 steps →

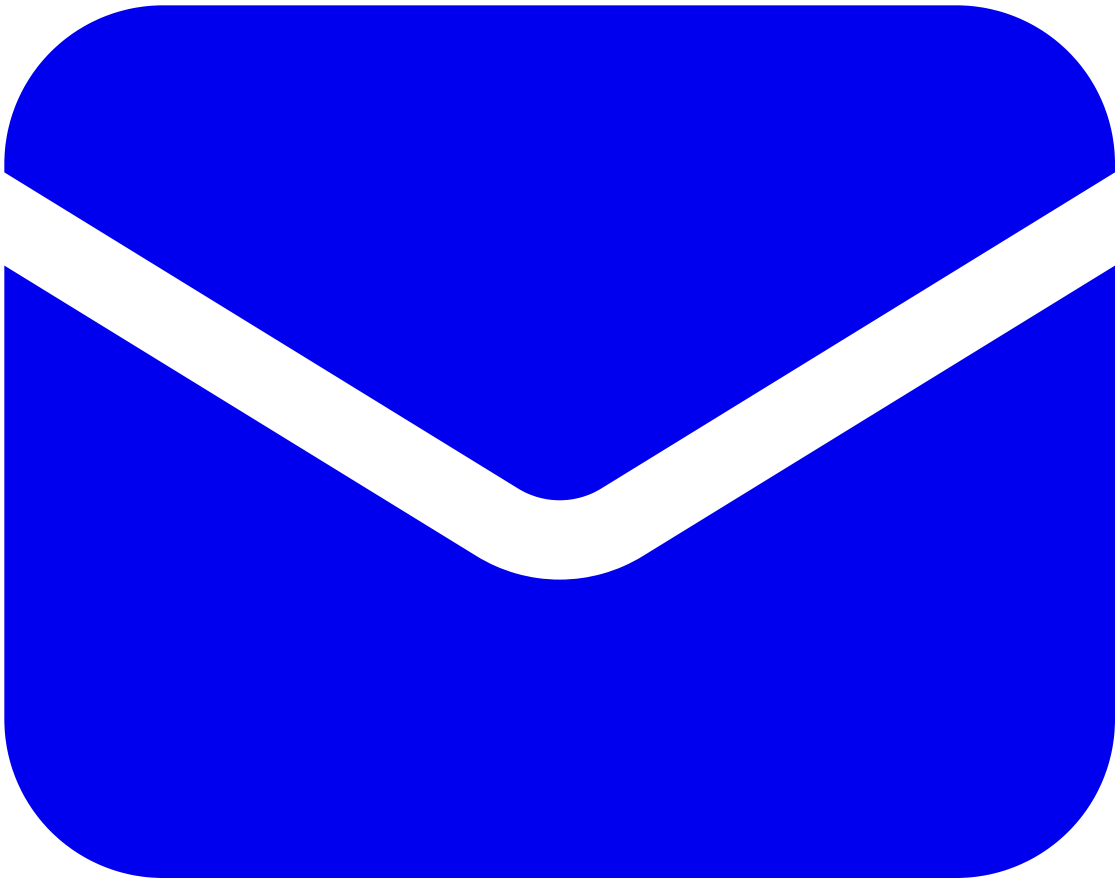
Identity from behavioral continuity. No stored templates. No keys.

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○ Socure 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

Legal

Subject to one or more pending U.S. and international patent applications, see Patents for the current list and status. No license, express or implied, is granted. Any use requires a separate written agreement—see Licensing. Patent applications referenced on this site are pending. Claim scope, if any, is subject to examination and may issue in altered form or not at all. See Legal for terms and conditions.

Last updated: 2026-03-03



-
- nick@qu3ry.net
- 72 28 14 36 01

Invented by Nick Clark | Founding Investors: Devin Wilkie