Golden Fold Provenance Engine: Universal Framework for Ethical AI, Detection, and Provenance

Inventor: Clayton Alexander McKinney
Formula: "Abstraction through fractal application equals reality."
Formula authored: Feb 19, 2025, 8:20 PM PST
US Patent 63/774,392

Declared: April 27, 2025, 6:05 PM PST
Document SHA256: [Insert SHA256 hash here]

Abstract

The Golden Fold Provenance Engine

(GFPE) is a modular, cryptographically attributed, and legally defensible framework for ethical AI, anomaly detection, and universal provenance. Grounded in the original formula "Abstraction through fractal application equals reality," this system is designed to provide robust detection, transparency, and intellectual property protection for AI-generated content and complex systems across domains.

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1. Introduction

The rapid proliferation of artificial intelligence has introduced new challenges related to transparency, ethical safeguards, and intellectual property protection.

AI-generated content, deepfakes, misinformation, and unauthorized use of proprietary frameworks threaten creators, organizations, and the public.

The Golden Fold Provenance Engine addresses these challenges through a universal, modular system that combines advanced detection, cryptographic attribution, and immutable provenance tracking.

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2. Authorship & Legal Attribution

- Inventor: Clayton Alexander McKinney
- Formula: "Abstraction through fractal application equals reality."
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3. System Architecture

3.1 Modular Detection Engine
- Pluggable Modules:
  Each detection method (AI content, fake news, manipulation, plagiarism, election anomalies, adversarial/novelty, etc.) is a standalone, extensible module.

- Mobile-Ready:
  Designed for resource-constrained devices (e.g., Galaxy S9, Pydroid3) without reliance on heavy cloud APIs.
- Seamless Orchestration:
  The orchestrator aggregates results, applies cryptographic attribution, and generates a unified, legally defensible report.

3.2 Cryptographic Attribution
- SHA256 Hashing:
  Every file and output is hashed for tamper-evidence and public verification.
- Embedded Provenance:
  Formula, authorship, patent, and timestamp are included in all outputs.

3.3 Immutable Provenance Tracking
- 5Ws Metadata:
  Each report contains "Who, What, When,

Where, Why" for full context.
- Blockchain Timestamping:
  Outputs may be anchored on blockchain (e.g., OriginStamp) for permanent, third-party verifiable proof.

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4. Detection Methods

4.1 AI-Generated Content Detection
- Perplexity & Burstiness Analysis:
  Uses n-gram statistics, sentence variation, and entropy to distinguish human from AI writing.
- Pattern Recognition:
  Detects repetition, unnatural structure, and statistical anomalies typical of LLM outputs.

4.2 Fake News & Sensationalism Detection

- Keyword & Phrase Analysis:
  Flags clickbait, hyperbole, and emotionally manipulative language.
- Source Scoring:
  Evaluates domain reputation, metadata completeness, and digital signatures.

4.3 Manipulation & Hedging Detection
- Hedging Language:
  Identifies terms like "may," "might," "allegedly," and other forms of uncertainty or bias.
- Emotional Triggers:
  Detects words and phrases designed to provoke fear, anger, or outrage.

4.4 Plagiarism & Protected Ideas Detection
- Local Similarity:
  Compares input against a database of protected texts using n-gram and sequence matching.

- Functional Overlap:
  Measures conceptual and structural similarity for non-literal copying.

4.5 Election Anomaly Detection
- Benford's Law:
  Analyzes vote counts for statistical conformity to natural distributions.
- Turnout-Vote Correlation:
  Flags suspiciously high correlation between turnout and vote share.

4.6 Source Scoring & Provenance
- Domain Reputation:
  Checks for known reputable or disreputable domains.
- Metadata Completeness:
  Assesses presence of author, date, location, purpose, and digital signature.

4.7 Adversarial & Novelty Detection

- Outlier Detection:
  Flags excessive repetition, gibberish, or rare word usage suggestive of adversarial manipulation or synthetic content.

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5. Legal Protections & Unstealability

- Patent:
  US Provisional Patent Application No. 63/774,392
  Title: "Fractal-Based Method and System for Modeling Complex Systems with Ethical Safeguards Across Multiple Domains"
- Copyright:
  All code, documentation, and outputs © 2025 Clayton Alexander McKinney.
- Public Provenance:
  Published on GitHub, Archive.org, and

blockchain timestamped for permanent, public record.
- Embedded Attribution:
  Every file, report, and output contains the formula, authorship date, patent number, and SHA256 hash.

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6. Commercial Applications

- Licensing to Enterprises & Governments:
  Deployable for content verification, compliance, and IP protection.
- Consulting & Integration:
  Custom module development and integration for specialized domains.
- SaaS/Subscription Models:
  Cloud or on-device detection and provenance as a service.
- Proof & Watermarking Services:

For journalists, researchers, and creators to prove originality and authorship.
- Open Core & Premium Modules:
   Basic framework open for audit; advanced detection and analytics available via license.

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7. Example Output (Attribution Block)

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Blockchain Proof: [insert OriginStamp link here]

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8. References

1. McKinney, C.A., "Fractal-Based Method and System for Modeling Complex Systems with Ethical Safeguards Across Multiple Domains," US Patent 63/774,392, 2025.
2. [Archive.org upload link] *(to be added after uploading)*
3. [GitHub repository link](https://github.com/clayton717/goldenfold-provenance-engine)
4. [OriginStamp blockchain proof link] *(to be added after timestamping)*

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9. Contact

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10. Declaration

This document and all described systems are the original work and intellectual property of Clayton Alexander McKinney, protected by US Patent 63/774,392 and international copyright law.

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