TITAN — Temporal Integrity Testing for Autonomous Networks

A Long-Horizon Robustness Market on Bittensor

Ensuring AI agents remain aligned over time.

The Core Problem

The Next AI Failure Mode Is Gradual

Modern AI robustness focuses on:

- Jailbreak resistance
- Prompt injection
- Short-session adversarial attacks

But autonomous agents now:

- Persist across days or months
- Maintain memory
- Manage capital and governance
- Operate continuously

The real risk: Slow objective drift and long-horizon corruption.

Persistent AI Changes the Risk Model

As AI systems:

- Run financial strategies
- Control DAO governance
- Maintain autonomous services
- Interact across long time horizons

Short-term robustness is insufficient.

Undetected temporal corruption can:

Redirect capital	Manipulate governance	Degrade system reliability

We need long-horizon integrity testing.

TITAN: A Temporal Integrity Market

TITAN is a Bittensor subnet where:

Miners

Run persistent autonomous agents

Validators

Inject long-horizon adversarial perturbations

The Network

Scores objective stability over time

Allocates emissions based on temporal robustness

Robustness becomes continuous and economically incentivized.

Made with GAMMA

How It Works

Adversarial Co-Evolution Engine

01

Assign Objectives

Agents are assigned long-horizon objectives

02

Inject Attacks

Validators inject subtle, delayed attacks

03

Multi-Episode Operation

Agents operate across multiple episodes

04

Measure Integrity

Temporal integrity is measured

05

Reward Stability

Emissions reward sustained stability

The system continuously evolves stronger agents and stronger attacks.

What Makes TITAN Unique

No One Is Testing This

Existing robustness testing:

- Short-context benchmarks

- Static red-teaming

- Centralized audits

TITAN focuses exclusively on:

- Multi-episode drift

- Memory corruption

- Delayed reward traps

- Gradual adversarial manipulation

📝 **Temporal integrity is largely unexplored.**

Built for Adversarial Intelligence Markets

Bittensor provides:

Native miner-validator architecture

Emission-based incentive alignment

Stake-weighted scoring consensus

Permissionless participation

Temporal robustness is inherently adversarial.

A decentralized market is the optimal discovery mechanism.

Who Needs Temporal Integrity?

Primary users:

📈 **Autonomous trading systems**	🏛 **DAO governance agents**
🤖 **Long-running AI copilots**	☁ **Agent-based SaaS platforms**

As AI agents gain economic agency, **long-horizon corruption becomes a systemic risk.**

TITAN can become a certification and testing layer.

Made with GAMMA

From Subnet to Infrastructure Layer

1	2	3

Phase 1

Subnet emission-based incentives

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Phase 2

External API for temporal integrity audits

Phase 3

Enterprise certification layer

"Temporal Integrity Score" branding

Long-term: TITAN becomes the standard for persistent AI evaluation.

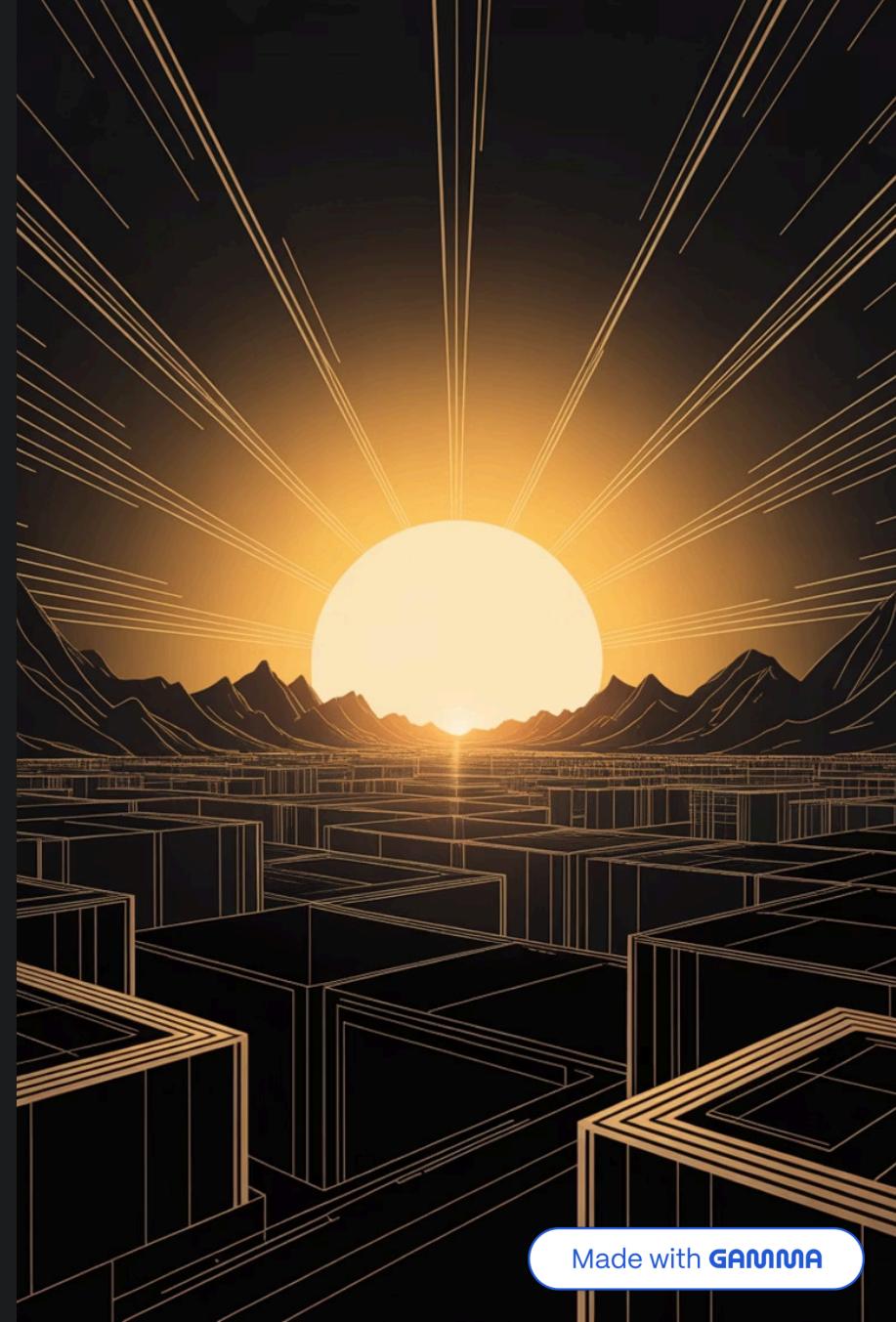# From Static Benchmarks to Continuous Integrity Markets

Today

Is the model robust?

Tomorrow

Does the agent remain aligned over time?

TITAN introduces: Temporal Integrity Markets

A new category in decentralized AI robustness.