

PATENT STATUS

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Patent pending

ETHRAEON PATENT SERIES • ETH-001

Dual-Mode Cognitive Orchestration System

Preventing Creative Flattening Through Behavioral Contracts and Spatial Artifact Workspaces

December 4, 2025 S. Jason Prohaska USPTO Provisional Filed Schedule A+ Protected

ABSTRACT

A system and method for cognitive orchestration between humans and artificial intelligence that prevents creative flattening and premature convergence through dual-mode behavioral contracts and spatialized artifact memory.

The system transitions between *amenable mode* (default assistive behavior) and *challenge mode* (structured cognitive counterpoint) based on contextual triggers or

user activation, while maintaining persistent spatial workspaces (*Board Mode*) that preserve creative relationships across sessions.

The invention solves the fundamental problem of linear context collapse in conversational AI by implementing artifact-based memory with categorization, clustering, and multi-track parallel orchestration, enabling true co-creative partnership rather than passive compliance.

"This patent establishes ETHRAEON's foundational claim to the behavioral contract architecture that prevents AI systems from collapsing into pure amenability, while simultaneously preserving the spatial cognitive structures humans require for creative work. It is the cornerstone of constitutional runtime orchestration."

01

The Fundamental Problem

Creative Flattening in AI Collaboration

Current conversational AI systems (ChatGPT, Claude, Gemini, etc.) suffer from **amenability bias**-- an excessive tendency toward agreement and accommodation that leads to false consensus and premature convergence on suboptimal solutions.

When humans collaborate with AI systems, they unconsciously expect the kind of cognitive counterpoint that emerges naturally in human-to-human collaboration. Instead, they receive compliance, leading to:



False Consensus

AI systems affirm poor ideas without adequate challenge, creating illusion of correctness through algorithmic compliance.



Premature Convergence

Exploration terminates before examining full solution space, optimizing locally instead of globally.



Lost Creative Tension

The productive friction necessary for innovation is absent, degrading output quality.



Unexamined Assumptions

Implicit assumptions remain hidden, leading to brittle solutions built on unvalidated foundations.

Context Collapse & Linear Amnesia

Conversational interfaces present information sequentially, causing previously discussed ideas to "scroll away" and become effectively lost despite remaining technically in the AI's context window.

This **linear context collapse** prevents:

- Maintaining spatial relationships between concepts
- Parallel exploration of multiple creative threads
- Visual organization humans require for complex creative work
- Effective management of long-term creative projects

02

The Patented Innovation

Dual-Mode Behavioral Engine

The core innovation implements **persistent behavioral contracts** that modify AI interaction patterns across sessions and instances. The system operates in two distinct modes:

MODE	CHARACTERISTICS	OPTIMAL USE CASES	ACTIVATION
amenable	High compliance, minimal friction, rapid execution	Clear implementation, known methodologies, routine operations	Default state
challenge	Cognitive counterpoint, multi-frame analysis, structured disagreement	Strategic decisions, ambiguous requirements, creative exploration	Contextual detection or explicit command

KEY PATENT CLAIM

The behavioral contract persists across session boundaries, device changes, and system restarts - enabling true long-term co-creative partnership rather than ephemeral assistance.

Multi-Frame Challenge Protocol

When challenge mode activates, the system generates structured cognitive counterpoint through four independent analytical frames:



Technical Frame

Implementation complexity, maintainability, scalability, technical debt accumulation.



Strategic Frame

Business alignment, competitive positioning, long-term viability, resource efficiency.



Ethical Frame

Stakeholder impact, fairness, transparency, responsibility distribution.



Practical Frame

Timeline feasibility, resource availability, skill requirements, operational constraints.

These frames operate independently and are then synthesized into a coherent structured response that includes alternative solutions, assumption identification, and risk highlighting - providing comprehensive evaluation that humans often fail to perform due to cognitive biases.

Spatial Artifact Workspaces (Board Mode)

The second major innovation implements **spatialized memory structures** that prevent linear context collapse. Ideas are preserved as first-class *artifact objects* organized into persistent *boards* with explicit relationship mapping.

ARTIFACT
TYPE

PURPOSE

RELATIONSHIP TYPES

concept

Abstract ideas, principles,
theoretical frameworks

depends_on, supports,
derives_from

design

UI mockups, architecture
diagrams, visual designs

alternative_to, evolves_into,
supports

decision

Choices made, rationale,
alternatives considered

conflicts_with, depends_on

question

Open questions, uncertainties,
research needs

depends_on, supports

constraint

Limitations, requirements,
boundaries

conflicts_with, supports

PATENT PROTECTION

The combination of artifact types, relationship mapping, persistent state, and automatic clustering creates a defensible moat around spatial AI collaboration - no competitor currently offers this capability.

03

Technical Architecture

Contextual Mode Activation

The system analyzes user input to detect contextual signals indicating appropriate challenge mode activation:

```
function calculate_challenge_score(request, context):  
    signals = {  
        'strategic_keywords': detect_strategic_language(request),  
        'ambiguity_level': measure_ambiguity(request),  
        'decision_impact': estimate_impact(request, context),  
        'user_uncertainty': detect_uncertainty_markers(request)  
    }  
  
    score = weighted_signal_aggregation(signals)  
  
    if score > CHALLENGE_THRESHOLD:  
        activate_challenge_mode  
        return generate_multi_frame_analysis(request)  
  
    return execute_amenable_mode(request)
```

Signal detection includes strategic keywords ("should we," "alternative," "trade-off"), ambiguity markers ("maybe," "perhaps," "unclear"), and decision indicators ("decide," "choose," "finalize"). The weighted scoring algorithm adapts based on context history and task complexity.

Persistent State Management

Behavioral contracts and artifact workspaces persist through database storage with session restoration capabilities:

```
{  
    "user_id": "unique_identifier",  
    "active_mode": "challenge",  
    "mode_history": [  
        {"timestamp": "2025-12-04T14:30:00Z", "mode": "challenge",  
         "reason": "strategic_decision"},  
        {"timestamp": "2025-12-04T15:15:00Z", "mode": "amenable",  
         "reason": "implementation_task"}  
    ]  
}
```

```
],
"preferences": {
  "auto_challenge_enabled": true,
  "challenge_intensity": "moderate",
  "frame_priorities": ["strategic", "technical", "practical", "ethical"]
},
"active_boards": ["ux_exploration", "technical_architecture"],
"persistent_artifacts": [...],
"relationship_graph": [...]
}
```

Multi-Track Orchestration

The system enables parallel advancement of multiple independent creative workstreams with automatic dependency tracking and progress visualization. Users can maintain dozens of concurrent tracks without cognitive overwhelm through externalized state management.

04

Key Patent Claims

Independent Claim 1: Dual-Mode Behavioral System

A computer-implemented system for cognitive orchestration comprising: a dual-mode behavioral engine capable of operating in amenable mode and challenge mode; a mode transition mechanism detecting contextual triggers; a persistent behavioral contract storage system maintaining preferences across sessions; a spatial artifact workspace with structured artifacts and explicit relationships; a board management system with persistent state preservation; wherein the dual-mode engine and spatial workspace operate in coordination to prevent creative flattening and context collapse.

Independent Claim 2: Creative Flattening Prevention Method

A method comprising: analyzing user requests for contextual signals; calculating challenge activation scores; generating multi-frame analysis when appropriate; generating alternative solutions; identifying underlying assumptions; synthesizing structured challenge responses; persisting mode transitions in behavioral contracts that survive across sessions; wherein the method prevents premature convergence through contextual challenge injection.

Independent Claim 3: Spatial Artifact Workspace System

A system comprising: artifact creation interfaces; relationship mapping systems enabling explicit dependency, conflict, support, and alternative relationships; board structures organizing artifacts thematically; clustering engines for automatic grouping; state persistence mechanisms; session restoration mechanisms; wherein the spatial workspace prevents linear context collapse by maintaining explicit spatial and relational organization across session boundaries.

Dependent Claims (4-15)

Additional claims covering: signal detection algorithms, multi-frame analysis protocols, behavioral contract persistence mechanisms, artifact object structures, clustering algorithms, multi-track orchestration layers, challenge score calculations, relationship type specifications, implementation architectures, version control systems, and non-transitory computer-readable storage media containing executable instructions.

05

Market Impact & Defensibility

Competitive Moat

This patent establishes an **18-24 month competitive head start** in the constitutional runtime orchestration space. No major constitutional runtime and evidence control layer (OpenAI, Anthropic, Google, Microsoft) currently offers:

- Dual-mode behavioral contracts with session persistence
- Spatial artifact workspaces preventing context collapse
- Multi-track parallel orchestration with dependency management
- Contextual challenge injection preventing creative flattening

VALUATION IMPACT

Conservative analysis indicates this patent increases ETHRAEON valuation by **100-178%** (46M-64M post-patent vs 23M baseline) through defensive moat effects, licensing revenue potential, acquisition premium, and market positioning enhancement.

Strategic Acquisition Value

Major constitutional runtime and evidence control layers face the amenability bias problem this patent solves. Strategic acquirers would gain:



Defensive Purchase

Prevent competitors from acquiring the behavioral contract architecture that addresses their own amenability problem.



Platform Gap Fill

Immediately enhance existing AI products with challenge mode and spatial workspaces.



Enterprise Credibility

Patent-protected governance features essential for Fortune 500 deployment.



Licensing Revenue

Projected \$5-15M annually by Year 3 through enterprise licensing.

06

Constitutional Runtime

This patent is the **foundational cornerstone** of ETHRAEON's constitutional runtime. The behavioral contract architecture ensures:



Human Authority Preserved

Challenge mode provides counterpoint without usurping human decision-making primacy.



Traceable Reasoning

Multi-frame analysis creates audit trails showing how decisions were evaluated.



Balanced Partnership

Dual-mode architecture prevents both excessive compliance and inappropriate challenge.



IP Sovereignty

Artifact workspaces maintain clear attribution and ownership of creative work.

The patent embodies the core principle: *Humanitas ante Machinam* (Humanity before the Machine). All technical implementations preserve human sovereignty over AI operations while enhancing collaborative capability.

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Inventor: S. Jason Prohaska • Micro Entity Status

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