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Alberta Researcher: 500 Discoveries. 20 Papers. A New Field of Science. And a Working System That Proves All of It.

BriteMinds Global Technologies Inc. • Calgary, Alberta, Canada

AT A GLANCE

What	DTOS Pulse — the world's first Deterministic Cognitive Intelligence platform
Category	Deterministic Zero-Trust — a new class of intelligence infrastructure
The claim	AI hallucination eliminated architecturally, not mitigated behaviourally
Who	David W. Taylor — independent researcher, sole architect
Company	BriteMinds Global Technologies Inc. (R&D & patents) → DTOS (product company)
Where	Calgary, Alberta, Canada
Live at	dtospulse.com (free preview, no credit card)
Funding	Self-funded. No venture capital.

David W. Taylor — an independent researcher working from Calgary, Alberta — has spent years doing something nobody asked him to do and nobody thought was

possible: applying pure mathematics and physics to the problem of machine intelligence. Not as analogy. Not as inspiration. As governing law.

The result is over 500 original mathematical and physical discoveries. A 20-paper research series establishing a new field of study: *Epistemic Dynamics*. The declaration of a new category of intelligence infrastructure: *Deterministic Zero-Trust*. Untold patents and trade secrets protecting the mechanisms underneath.

And a working system — live, running, publicly accessible — that proves all of it.

The system is called DeeCi. It is the empirical evidence that the theories are no longer theories. They work. Very well.

The Research

Taylor began by asking a question that sits outside the boundaries of conventional computer science: what happens when you treat intelligence not as a software engineering problem, but as a physics problem? When you apply conservation laws, thermodynamic constraints, and quantum mechanical principles — not as metaphors for computation, but as the actual governing mathematics?

The answer, it turns out, is a cascade of discoveries. Over 500 of them, documented with mathematical proof and empirical validation, spanning reactor physics, topology, membrane dynamics, field theory, annihilation mechanics, thermodynamics, cryptographic isolation, and epistemic classification.

These aren't software engineering findings. They are physical and mathematical discoveries about how information, knowledge, and truth behave when treated as physical systems subject to immovable law. Taylor documented them rigorously, filed them with priority dates, and published the foundational subset as a 20-paper series establishing the field of Epistemic Dynamics.

From this research emerged two declarations:

A new field of study — Epistemic Dynamics: the formal science of how knowledge systems achieve deterministic verification. How truth propagates, how contradiction annihilates, how

confidence converges — all governed by physics, not heuristics.

A new category of infrastructure — Deterministic Zero-Trust: a class of intelligence where outputs are mathematically governed, execution is sealed, and truth is verified before delivery. Not as a feature. As a thermodynamic property.

> *"As much as we try, we cannot simulate how pure math works cohesively and deterministically with coding and engineering heuristics, any more than we can simulate trust, governance, and truth from policies in building AI and expect it to solve the hallucinations and misrepresentation of facts."*
>
> — David W. Taylor

The Missing Foundation

AI is extraordinary technology. The models are powerful, the capabilities are real, and the potential is enormous. But they were built from the surface down — language patterns, statistical training, behavioural tuning. What's missing is the foundation underneath.

It's the difference between putting a Ferrari body on a Civic and expecting it to perform like a Ferrari, versus actually building the engine from first principles. The body looks right. The capability isn't there.

DeeCi reveals what happens when you design intelligence from first principles at the core — when the mathematical foundation comes first, and the intelligence emerges from physics rather than being shaped by surface-level coding after the fact. It's not a replacement for AI. It's the layer underneath that AI has always been missing.

What He Built

DTOS Pulse is a 2-megabyte Rust kernel — no runtime dependencies, no cloud required — that processes 36.7 million verification queries per second with 15-decimal reproducibility.

Every output passes through four sealed layers:

Layer 1: Mathematical Governance Engine — Formal constraint spaces define what outputs may exist before generation begins. Not guidelines. Not policies. Mathematical bounds derived from physical constants.

Layer 2: Sealed Execution Environment — Cryptographically isolated. Zero persistent state. No external data access during execution. Tamper-evident logging at every boundary.

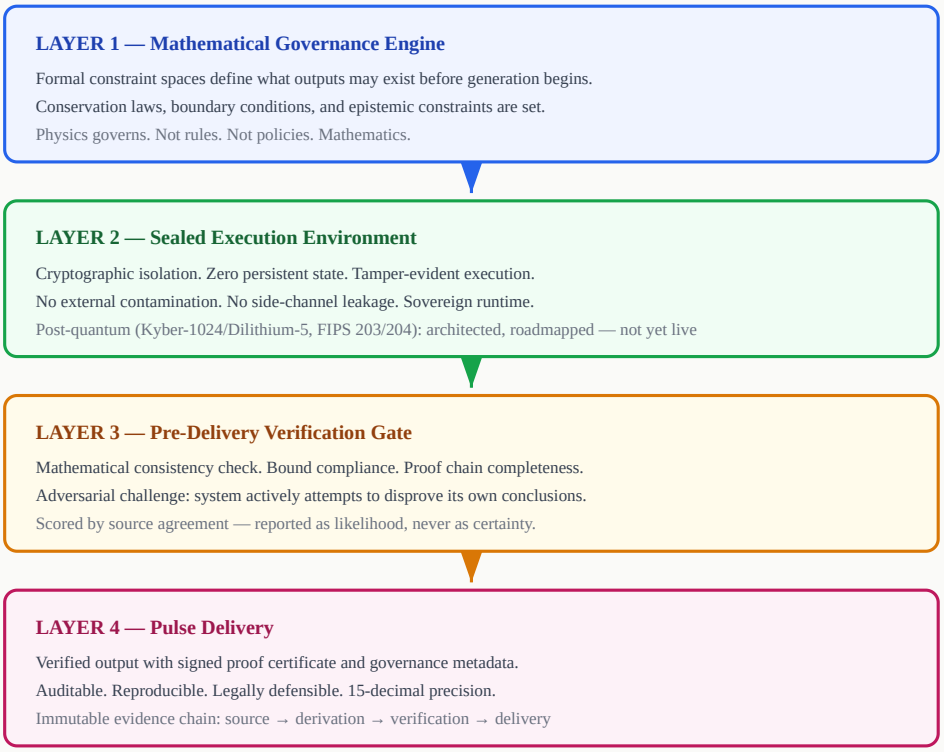
Layer 3: Pre-Delivery Verification Gate — Three-stage validation: mathematical consistency, bound compliance, proof chain completeness. Every answer is scored by how many independent sources agree versus disagree — the most likely reading of the evidence, stated with its confidence, never asserted as absolute truth.

Layer 4: Pulse Delivery — Verified outputs delivered with cryptographic proof certificates, verification signatures, and governance metadata. Every output carries its complete derivation chain.

Taylor didn't just build the platform. He documented the mathematics in a 20-paper research series, establishing what he calls *Epistemic Dynamics* — a formal framework for how knowledge systems can achieve deterministic verification at scale. He built the kernel. He wrote the papers. He designed the cryptography. He shipped the product.

DeeCi — Four-Layer Deterministic Architecture

Every query passes through all four sealed layers. No bypass. No shortcuts.



2MB kernel | 36.7M queries/sec | 0 hallucinations | 5,250 attack vectors survived | Zero memory growth

BY THE NUMBERS

Kernel size	2 MB — complete system, zero runtime dependencies
Throughput	36.7 million queries/second on commodity hardware
Precision	15-decimal deterministic reproducibility
Adversarial robustness	523K annihilations under 1M adversarial queries, zero conservation violations
Adversarial testing	5,250+ attack vectors, 5 rounds, 0 breaches
Memory growth	Zero — closed thermodynamic system (compresses under load)
Post-quantum cryptography	Kyber-1024/Dilithium-5 (NIST FIPS 203/204) — architected, roadmapped for production, not yet live
Research	20-paper publication series (Epistemic Dynamics)
Language	Rust — memory-safe, zero-cost abstractions
Status	Live. Free preview at dtospulse.com

Why Now: The Regulatory Moment

The regulatory landscape for AI governance shifted from theoretical to enforceable in 2026. Organisations deploying AI in regulated sectors are now legally accountable for outputs they cannot structurally guarantee. The foundation isn't optional anymore.

DTOS Pulse doesn't *implement* compliance. Compliance emerges from the physics. The same first principles that produce deterministic outputs also satisfy regulatory frameworks — not because they were designed to check boxes, but because verifiable truth, sealed execution, and immutable audit are the natural properties of a system governed by conservation laws.

EU AI Act (Articles 10, 25, 50, 52) — Requires transparency, traceability, human oversight for high-risk AI, and machine-readable marking of AI-generated outputs (Article 50). DTOS satisfies this through its Merkle-hashed derivation ledger, pre-delivery verification gate, and cryptographically signed proof certificates that serve as machine-readable provenance markers on every output. Traceability and transparency aren't features — they're thermodynamic properties of the system.

Canada AIDA (Artificial Intelligence & Data Act) — Demands algorithmic transparency and bias mitigation. Because DTOS outputs are mathematically derived within formal constraint spaces rather than statistically generated, there is no training bias to mitigate. The proof chain *is* the transparency.

UK AI Safety Framework — Requires adversarial robustness and operational accountability. DTOS operates within a sealed execution environment with cryptographic isolation. Adversarial prompt manipulation is mathematically prevented — not filtered, prevented. 5,250+ vectors tested, zero breaches.

US SEC AI Guidance & NIST AI RMF — Requires documented basis for AI-assisted decisions and structured risk management. Every DTOS output carries a verification signature and complete derivation record. The documented basis isn't reconstructed after the fact — it's generated at the moment of verification as a structural byproduct.

SOC 2 Type II — Requires evidence of security controls operating effectively over time. DTOS produces immutable evidence natively — tamper-evident logging, zero persistent state,

cryptographic signing at every execution boundary. Evidence collection is architectural, not operational.

GDPR (Data Sovereignty) — Requires data minimisation and sovereign processing. DTOS operates as a zero-retention closed system. No data persists beyond the session. No state accumulates. Sovereign data residency is enforced by architecture, not policy.

The pattern is the same across every framework: what other systems achieve through procedures and promises, DTOS achieves through physics. Governance isn't a layer. It's a consequence of building on immovable mathematical law.

SURFACE-LEVEL DESIGN VS. FIRST-PRINCIPLES FOUNDATION

	AI WITHOUT FOUNDATION	AI ON DTOS
Output basis	Statistical probability	**Mathematical proof**
Trust	Enforced by policy	**Emerges from physics**
Governance	Added after design	**Built into the core**
Compliance	Procedural documentation	**Structural property**
Behaviour	Shaped by training	**Bounded by mathematics**
Failure mode	Delivers unverified output	**Non-delivery over approximation**
Audit trail	Reconstructed from logs	**Immutable by construction**
Transparency	Explained after the fact	**Machine-readable proof at creation**

Who It Serves

Any domain where being wrong has consequences:

Financial Services — Regulatory capital calculations, risk-weighted asset derivations, compliance documentation, fraud detection within formally bounded mathematical constraint sets.

Legal — Case research, contract classification, regulatory interpretation. Citation fabrication architecturally excluded. Source verification built into the derivation chain.

Healthcare — Clinical decision support bounded by medically validated constraint sets. Dosage parameters, contraindication rules, diagnostic classification — verified before delivery.

Defence & Intelligence — Air-gapped, physically isolated deployment with sealed execution. Adversarial prompt manipulation mathematically prevented. Tamper-evident operational accountability.

Energy & Critical Infrastructure — Grid operations intelligence, safety system analysis, regulatory compliance — where a hallucinated output is a safety event.

Insurance & Actuarial — Risk modelling, claims analysis, and underwriting within deterministic constraint bounds. Outputs carry provenance for regulatory submission.

Availability & Pricing

DTOS Pulse is live at **dtospulse.com** with free preview access — no credit card required.

FOUNDING MEMBER PRICING (500 SEATS PER TIER — LOCKED PERMANENTLY)

Analyst	$99/mo — professionals, researchers, individual practitioners
Pro	$199/mo — forensic analysts, compliance investigators, consultants
Sovereign	$899/mo — PE firms, legal teams, institutional intelligence
Enterprise	Custom — dedicated infrastructure, air-gapped options, SLA

Standard rates post-founding period: 2x current prices. Founding rate locked for life.

The Research Behind It

DTOS Pulse didn't start as a product. It started as research.

By calling himself a researcher, Taylor isn't being modest — he's being precise. Before a single line of product code was written, there was a body of work: the declaration of a new category (**Deterministic Zero-Trust**), the founding of a new field of study (**Epistemic Dynamics**), and hundreds of original mathematical discoveries that form the theoretical foundation for everything the platform does.

The numbers:

THE RESEARCH BODY

Published papers	20-paper public series (Epistemic Dynamics)
Held-for-patent papers	Additional papers filed, not publicly released
Original discoveries	500+ documented mathematical and physical discoveries
Trade secrets	Classified mechanisms under trade secret protection
Domains covered	Reactor physics, topology, membrane dynamics, field theory, annihilation mechanics, thermodynamics, cryptographic isolation, epistemic classification
IP vault	All research hashed, versioned, archived with priority dates
Field declared	Epistemic Dynamics — formal study of deterministic knowledge verification
Category declared	Deterministic Zero-Trust — new class of intelligence infrastructure

Discovery registry maintained with source-traced equations verified against running code. Every discovery filed with mathematical proof and empirical validation.

This is not a startup that built a product and then wrote marketing copy to describe it. This is a researcher who made discoveries, documented them rigorously, filed them, published the theoretical foundations — and then built the empirical proof.

DeeCi Is the Empirical Evidence

DeeCi is not the thesis. DeeCi is the proof that the thesis is correct.

500+ discoveries say that intelligence can be governed by physics. 20 papers establish the theoretical framework. The category declaration says it should exist. The field of study defines how it works.

DeeCi is the moment the theory becomes fact.

It is a running system — live, publicly accessible — where every query that processes, every proof certificate that signs, every adversarial attack that fails to penetrate, is one more data point confirming that the underlying research is correct. Not in simulation. Not in a paper. In production, under real load, against real adversarial pressure.

36.7 million verifications per second. 5,250 adversarial vectors. Zero breaches. Zero hallucinations. Zero divergence. Zero memory growth under load — the system compresses rather than expands, exactly as the thermodynamic discoveries predicted.

The theories are no longer theories. They are proven. They work. Very well.

That's not a product spec. That's experimental validation of an entire body of scientific research.

> *"The question for enterprise leadership is no longer whether AI is capable. It is whether AI can be trusted. Deterministic Zero-Trust answers that question with mathematics, not marketing."*
>
> — David W. Taylor

Corporate Structure

HOW IT'S ORGANIZED

BriteMinds Global Technologies Inc.	Parent entity. R&D think tank. Holds all patents and intellectual property. Conducts foundational mathematical research. Continues development of next-generation deterministic kernel technology.
DTOS	The Deterministic Intelligence company. Public-facing product entity. Positioned as the category leader in Deterministic Zero-Trust intelligence.
DeeCi	The product. World's first Deterministic Cognitive Intelligence platform. Consumer and enterprise access at dtospulse.com.

ABOUT DTOS

DTOS is the Deterministic Intelligence company — the public face of DeeCi and the category leader in Deterministic Zero-Trust. DTOS delivers verified, mathematically governed intelligence to enterprises and individuals where truth is not optional.

ABOUT BRITEMINDS GLOBAL TECHNOLOGIES INC.

BriteMinds Global Technologies is the research and development think tank behind the mathematical discovery that led to DeeCi. BriteMinds holds the patents, conducts foundational research grounded in the constant, immovable forces of mathematics and physics, and continues development of next-generation deterministic kernel technology. Calgary, Alberta. Founded 2025.

ABOUT DAVID W. TAYLOR

Founder & Lead Architect. Independent researcher and sole architect of the DTOS platform: mathematical kernel, verification physics, convergence engine, sovereign runtime, and the Epistemic Dynamics research series. Built entirely from pure mathematics and physics.

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Category & Enterprise: dtospulse.com/architecture

Press Kit: invest.dtospulse.com/press-kit

INTERVIEW AVAILABILITY

David W. Taylor is available for interviews, podcasts, and media briefings. For scheduling, contact david@dtospulse.com or call 403-585-4452 directly.

DOWNLOADS

Full Press Kit PDF: invest.dtospulse.com/press-kit/DTOS-Pulse-Press-Kit-October-2026.pdf

Press Release: Download .docx

Fact Sheet: Download .docx

Product Sheet: Download .docx

Company Overview: Download .docx

Full Press Kit (PDF): Download PDF

LOGOS

BriteMinds Logo (PNG)

DeeCi Logo (PNG)

READY-TO-USE TAGLINES

- Intelligence that derives. Never guesses.
- Provably correct — not probably correct.
- The end of AI hallucination.
- Deterministic intelligence for a probabilistic world.
- The foundation AI has been missing.

HASHTAGS

#DeterministicZeroTrust #DTOSPulse #DeeCi #ZeroHallucination #AIGovernance #EpistemicDynamics #BriteMindsGlobal #DeterministicAI #AICompliance #FirstPrinciples

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