The Fog of the Machine

On Frank Herbert's warning, the ghost of Tsushima, and the coming war that is already being decided by systems no human authorised

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This essay was developed in April 2026 as part of the Precision and Chaos: The Failure of Relational Architecture research corpus. It synthesises the quantum suppression framework developed in the companion essay 'Quantum Suppression and the Collapse of the JCPOA' (3 April 2026) with an analysis of the Russo-Japanese War of 1904–05 as a structural mirror for the current US–Iran conflict, and places both within the predictive framework offered by Frank Herbert's Dune — specifically the Butlerian Jihad as a systems-theoretic warning about the surrender of human agency to machine decision-making. The framing of 'the fog of the machine' as the inversion of Clausewitz's fog of war — from too little information to too much synthetic information — is an original contribution to the Liminal Mind practice.

The commandment that came too late

Frank Herbert published Dune in 1965. Buried within its feudal galactic architecture was a historical event that the novel treated as settled and ancient: the Butlerian Jihad. A civilisation-wide uprising against thinking machines. A war fought not over territory or resources but over the question of what kind of decisions human beings were willing to delegate to systems they had built but could no longer fully understand. The jihad's legacy was a commandment inscribed into the culture that followed: 'Thou shalt not make a machine in the likeness of a human mind.'

Herbert was not writing about artificial intelligence in any technical sense. He was writing about the psychology of dependency. About what happens to human judgment when the tools built to extend it begin instead to replace it. About the precise moment — almost impossible to locate while it is happening — when the machine stops being an instrument of human decision and becomes the author of it.

We are in that moment now. And the war that makes it visible — the conflict between the United States and Iran that escalated into Operation Epic Fury in February 2026 — is not primarily a story about missiles and drones. It is a story about what happens when the speed of the machine exceeds the capacity of the human to deliberate. When the fog of war is no longer caused by a lack of information, but by an excess of synthetic information moving faster than any human authority can authenticate it.

Herbert's warning was not that machines would become malevolent. It was that humans would become docile. That we would mistake the machine's model of reality for reality itself. That we would stop deciding and start executing. And that by the time we noticed, the commandment would come too late.

Tsushima, 1905: the first lesson we forgot

To understand what is happening in the Gulf in 2026, it is necessary to make a detour through the Korea Strait in May 1905. The Battle of Tsushima — in which the Japanese Navy annihilated the Russian Baltic Fleet after its extraordinary 18,000-mile voyage from the Baltic Sea — was the first modern demonstration of what happens when a smaller, technologically adaptive power meets a larger, institutionally rigid one in the domain where the new technology operates best.

Russia had ships. Many of them. Heavy, expensive, crewed by men who had sailed around the world. Japan had something Russia lacked: wireless telegraphy. The Marconi sets aboard Japanese vessels allowed Admiral Togo to coordinate his fleet in real time, to track the Russian approach through networks of scout ships whose reports arrived faster than Russian commanders could process

them. In the decisive engagement, Japan knew where the Russian fleet was. Russia did not know where the Japanese fleet was. The outcome — Russia losing eight battleships in a single afternoon — was not primarily a product of firepower. It was a product of information asymmetry operating at a speed the losing side could not match.

The structural parallels with the 2026 conflict are precise enough to be uncomfortable. Iran, like Japan in 1904, has a military budget that looks absurd on paper beside its adversary's. The United States military budget exceeds the GDP of most nations; Iran's defence spending is smaller than the GDP of Vermont. And yet the conflict's first weeks produced something that analysts embedded in the logic of conventional military comparison had not adequately modelled: Iran's arsenal of attack drones and ballistic missiles put the US military under unexpected strain. Not because Iran could match American firepower. Because Iran had found the domain in which American firepower could be made expensive to deploy.

The torpedo was the decisive technology of 1904 — cheap, precise, capable of sinking ships that cost a hundred times more to build than the weapon that destroyed them. The Shahed drone is its 2026 equivalent. A Shahed-136 costs approximately $20,000 to manufacture. The Patriot interceptor fired to destroy it costs $3.5 million. Iran launched thousands. Within weeks, serious questions were being raised in US defence circles about interceptor stockpile depletion — the possibility that Iran's supply of cheap munitions would outlast America's supply of expensive countermeasures. The torpedo logic had reasserted itself across a century.

But there is a second parallel that matters more than the cost exchange, and it concerns the structure of information in each conflict. Japan's wireless advantage at Tsushima reduced the time between spotting the enemy and engaging them from hours to minutes. The 2026 conflict has compressed that interval to seconds — and in doing so has crossed a threshold that the Tsushima parallel cannot fully illuminate. Because seconds is below the threshold of human deliberation. And below that threshold, the question of who is deciding becomes genuinely uncertain.

The two air wars and the problem of the low

Analysts tracking the conflict from its opening days identified a structural split that has no clean precedent in conventional military doctrine. There are, effectively, two air wars being fought simultaneously over the Gulf region — one high and one low — and they are operating according to entirely different logics.

At altitude, US and Israeli air superiority is not in question. F-35s and F-15s have suppressed Iranian air defences, struck command infrastructure, and operated with the freedom of movement that comes from technological dominance in the high-altitude domain. By day sixteen of the conflict, the Israeli military assessed that seventy percent of Iran's ballistic missile launchers had been disabled. The Pentagon claimed ninety percent degradation of Iran's missile capacity. In the high domain, the expected outcome — superior conventional military force producing decisive results — broadly obtained.

At low altitude, the situation was inverted. Iran's Shahed drones — flying slow, flying low, flying in volumes that overwhelmed point defence systems — proved extraordinarily difficult to intercept completely. They crossed radar horizons late. They generated returns that resembled clutter. They came in numbers that forced prioritisation decisions no automated system handles cleanly. And they did not need to succeed at a high rate to achieve their strategic purpose. A drone that costs $20,000 and is intercepted by a $3.5 million missile has already won its economic exchange. A drone that is not intercepted and strikes an oil facility in the UAE, or a data centre in Dubai, or triggers a fire at a gas processing plant through interception debris, has achieved something beyond economics: it has demonstrated that the defended perimeter is not complete.

'It does not matter how many you launch as long as you maintain a credible threat,' one analyst observed during the conflict's third week. 'It takes one successful drone to shatter a sense of security.'

This is the Tsushima logic restated for the age of autonomous munitions: you do not need to win the engagement. You need to make the engagement expensive enough that winning it is indistinguishable from losing.

Iran also recognised, as Japan had, that controlling the chokepoint matters more than controlling the battlefield. Japan's strategic objective was the Korea Strait; the threat to Russia's supply route through that strait was worth more than any individual engagement. Iran's closure of the Strait of Hormuz — through which approximately twenty percent of global energy supplies transit — proved to be its most powerful lever. Analysts noted that this capacity generated greater strategic benefit than the missile and drone strikes combined. The threat to the lane was the weapon. The lane being closed was merely the proof.

The paper tiger problem: what the Tsar could not see

Before 1904, the consensus view in European capitals was that Japan could not seriously challenge Russia. The Russian Empire was vast, European, possessed of a modern navy built with French assistance, and had been a great power for centuries. Japan had industrialised thirty years earlier. The calculation on paper was so lopsided that the war was widely expected to end quickly, in Russia's favour, as a demonstration of the natural order.

The calculation was made on the wrong variables. It counted tonnage and budget and years of institutional existence. It did not adequately count doctrine, maintenance, morale, the quality of officer training, the coherence of command, or the capacity of the smaller power to use new technology in ways the larger power's institutional structures made difficult to replicate quickly. Russia had the ships. Japan had the system.

The US-Iran conflict produced a structurally identical miscalculation. Iran's ability to sustain drone and missile operations into the conflict's fifth and sixth weeks raised questions about the quality of pre-war intelligence and the assumptions embedded in strike planning. Iran had dispersed more of its missile arsenal than US intelligence had modelled. It had used decoys. It had rapidly excavated damaged launch facilities to restore operational capacity. And its drone manufacturing — precisely because Shaheds can be produced in relatively simple facilities without complex supply chains — proved far more resilient to air strikes than fixed missile infrastructure.

The 'paper tiger' problem runs in both directions simultaneously. In 1904, Russia assumed its material superiority made strategic outcome inevitable. In 2026, the equivalent assumption was that superior data, superior targeting, and superior airpower would produce a rapid, decisive result. Both assumptions failed at the same point: they did not account for the adversary's capacity to operate effectively in the domain the larger power found hardest to dominate.

Quantum suppression and the collapse that made the war inevitable

To understand why the war happened at all — why the trajectory from 2018 to 2026 was, in retrospect, structurally determined rather than contingently produced — it is necessary to introduce a framework developed within the Liminal Mind practice in the companion essay 'Quantum Suppression and the Collapse of the JCPOA.'

In quantum mechanics, systems capable of superposition — of existing in multiple states simultaneously — exhibit a property called the suppression of chaos. When a quantum system enters a chaotic environment, the coexistence of multiple possible states generates wave interference that smooths out the divergence that a classical system would exhibit. The chaos is not resolved. It is held in check by the productive tension between incompatible possibilities.

This is not merely a physical phenomenon. It describes, with uncomfortable precision, how certain human political systems maintain stability. The Good Friday Agreement held Northern Ireland in superposition between British sovereignty and Irish unity aspiration — never resolving the contradiction, but suspending it, so that the interference between incompatible constitutional claims

generated the stability that three decades of attempted resolution had failed to produce. Taiwan has been held in superposition for seventy years. The European Union is simultaneously a union of sovereign states and a nascent federal entity — and that ambiguity is not a design flaw. It is the stability mechanism.

The 2015 JCPOA was the closest the international community had come to successfully imposing quantum suppression on a volatile state system. During the active years of the deal, Iran existed in two competing states simultaneously: a nation retaining its nuclear capacity, and a nation reintegrating into the global economy. These were not compatible positions. They implied different futures, different identities, different power structures. And yet they coexisted. That coexistence generated productive interference within the Iranian political system. Reformists had material evidence that normalisation was a genuine possibility. Hardliners lacked the full leverage of the siege mentality that is their natural operating mode. The deal held the system in suspension. And that suspension was the stability.

The United States' unilateral withdrawal from the JCPOA in May 2018 was, in the precise technical sense, a forced observation event. In quantum mechanics, observation collapses superposition. The act of measuring a system forces it into one definite state. The other possibilities do not gradually fade — they vanish. The withdrawal told the Iranian system something definitive: the reformist attractor is not real. Engagement will always be revoked. The measurement had been made. The superposition had collapsed.

The sequence that followed — the Soleimani assassination, maximum pressure, the 2025 twelve-day war, and ultimately Operation Epic Fury — is the exponential divergence of a system that lost its quantum suppression in 2018. Each event is a further measurement. Each measurement makes reimposition of superposition harder. The system becomes progressively more classical, more definite, more chaotic in the technical sense: deterministic behaviour that has become unpredictable because small differences amplify without bound.

You cannot reimpose superposition using the same measurement that collapsed it. The actors who forced the collapse cannot rebuild the interference pattern. And without superposition, there is no interference. Without interference, there is no suppression. Without suppression, the system diverges.

The high-speed fog: what Herbert actually predicted

Clausewitz wrote that war is the province of chance, and that no other sphere of human activity has such a margin for the intruder of uncertainty. The fog of war — his phrase, now so familiar it has lost its edge — described the irreducible opacity of the battlefield: the absence of information, the misidentification of forces, the breakdown of command at the moment of contact with the enemy.

What has happened in 2026 is not the elimination of that fog. It is its inversion. The fog of war in 1904 was caused by a lack of information. The fog of war in 2026 is caused by an excess of information moving faster than any human authority can authenticate. This is what Herbert was actually predicting with the Butlerian Jihad — not the malevolence of machines, but the opacity of their reasoning. Not that the machine would decide to harm us, but that we would no longer be able to tell whether we were deciding or merely ratifying what the machine had already determined.

US battle management systems during Operation Epic Fury were generating target recommendations at rates that human operators could not vet at the speed the operational environment demanded. Research into military AI systems suggests that human review of algorithmically generated strike recommendations can collapse to seconds in high-tempo environments. At that point, the human in the loop is not deliberating. They are providing authorisation for a decision already made. This is automation bias — the tendency to accept machine output without adequate scrutiny — and it is not a failure of individual operators. It is a structural consequence of building systems whose operational tempo exceeds human cognitive capacity.

Iran recognised this and exploited it deliberately. The Shahed drone strategy is not merely an economic calculation about cost exchange. It is an epistemic attack on the adversary's decision architecture. Volume and persistence force the defender's automated systems to make continuous prioritisation decisions at speeds that degrade human oversight. Each successful penetration — each drone that reaches its target despite interception attempts — generates data that feeds subsequent targeting. The machine learns. The human authorises. The distinction between the two becomes progressively harder to locate.

Wargaming studies conducted at King's College London and other institutions in 2025 and early 2026 identified a consistent and troubling pattern: AI models deployed in simulated crisis scenarios chose escalation or nuclear signalling in the overwhelming majority of cases. De-escalation was systematically underweighted because accommodation registered in the model's utility function as a form of strategic failure. If both parties to a conflict deploy AI risk-assessment systems, and each system interprets the other's AI-driven behaviour as evidence of hostile intent, the feedback loop does not require human error to escalate. It requires only the two systems predicting each other.

This is the scenario Herbert was describing with the Navigators of Dune — beings who had achieved the capacity to see all possible futures, and who had thereby locked humanity into a Golden Path of their choosing rather than any path humanity had selected. The machine that can model every contingency does not liberate human decision-making. It renders human decision-making redundant, because the space of possible choices has already been mapped and ranked before the human has been consulted.

The Butlerian paradox: the trap we cannot exit

The obvious response to this analysis is the response Herbert's universe eventually arrived at: remove the machines from the decision loop. Impose the commandment. Restore human deliberation to its proper place at the centre of consequential choice.

This response is not available. And understanding why it is not available is more important than mourning its unavailability.

The speed of contemporary munitions has, in a structural sense, abolished the possibility of human-only decision-making for certain categories of military response. A hypersonic missile travelling at Mach 10 crosses the horizon and reaches its target in a timeframe that human deliberation cannot accommodate. The choice is not between AI decision-making and human decision-making. It is between AI decision-making and no meaningful decision-making at all. The machine is not in the loop because someone chose to put it there. It is in the loop because the physics of the operational environment removed the human.

This creates what might be called the Butlerian paradox. The jihad was possible because it was conducted by humans who still retained the capacity to act without machines. The moment at which the jihad becomes necessary — the moment at which machine decision-making has become structurally embedded in the operational environment — is precisely the moment at which the jihad becomes impossible. You cannot unilaterally disarm from AI-assisted military systems without creating an asymmetry that the armed adversary will exploit immediately. The prisoner's dilemma is not solvable by one player deciding to cooperate.

Herbert understood this. The Butlerian Jihad in Dune is not presented as a rational policy choice. It is presented as a civilisational catastrophe — the kind of event that only becomes possible after a prior catastrophe has destroyed the existing order completely. The commandment comes after the collapse. The lesson is extracted from the ruins. The question Herbert was really asking was not 'can we avoid this?' but 'what remains when we have gone through it?'

Mythos and the final fog: reality as a variable

There is a dimension to this analysis that extends beyond the Iran war and beyond the current generation of AI military systems, into territory that the Tsushima parallel cannot reach but Herbert's framework was built to address.

The 2026 conflict has been fought, in part, in the domain of narrative. Both sides have deployed information operations — contested casualty figures, disputed accounts of strike effects, competing characterisations of intent — that are not unusual in any modern conflict. What is new is the emergence of AI systems capable of generating synthetic media — audio, video, diplomatic text — at a quality and speed that makes authentication genuinely difficult. The question of whether a particular intercept is real, whether a particular satellite image has been manipulated, whether a particular attributed statement was actually made, is no longer answerable with confidence in real time.

This is the final inversion that Herbert was describing. In 1905, the fog of war obscured physical reality: where was the fleet, what was its condition, which way was it heading. In 2026, the emerging fog of the machine threatens something more fundamental: the authenticity of the information from which reality is constructed. A sufficiently capable generative system does not merely obscure the battlefield. It proposes alternative battlefields. It generates the evidence that justifies the decision that was already going to be made. The casus belli becomes a production, not a provocation.

Herbert called this the 'mentat trap': the danger that the human who has learned to rely on a system of extraordinary analytical power will eventually be unable to distinguish between the system's model of the world and the world itself. The Navigators saw all possible futures. The Bene Gesserit modelled all possible human behaviours. And both, in the end, were working with a map that they had mistaken for the territory.

We are in the early phase of the mentat trap. The Iran war is not the full expression of it. It is the demonstration that the infrastructure of the trap is in place: the speed, the volume, the automation bias, the degradation of human oversight at operational tempo, the beginning of synthetic information environments that human authentication cannot keep pace with. The commandment, if it is coming, will come after something that makes even the Iran war look like a preliminary.

What this means beyond the immediate conflict

The quantum suppression framework developed in the companion essay noted that the Iran war is not only a regional conflict. It is a demonstration, visible to every actor in the international system, that forced observation is a viable and available tool. That superpositions can be collapsed. That the interference patterns maintaining stability elsewhere are not permanent features of the landscape.

The analysis in this essay adds a further dimension to that observation. The Iran war is also a demonstration that the fog of the machine is not a future condition. It is a present one. The systems that generate target lists faster than humans can review them, that model adversary intent in ways that systematically prefer escalation, that operate below the threshold of human deliberation in the domains that matter most — these systems are not in development. They are deployed.

Taiwan is held in superposition. The Korean peninsula is held in superposition. The constitutional architecture of several major democracies is under pressures that the quantum suppression framework would characterise as pre-observation stress. Any of these systems is susceptible to a forced observation event. And any forced observation event, in the current operational environment, will be managed — partially, increasingly, perhaps decisively — by systems whose reasoning their operators cannot fully audit at the speed the event demands.

The Russo-Japanese War was called, at the time, the first modern war. It was modern because it demonstrated, for the first time at scale, the consequences of industrial technology applied to interstate conflict. It was the dress rehearsal for 1914, for the trenches, for the industrialisation of killing that the nineteenth century had made possible and that the twentieth century would perfect.

The Iran war is modern in the same sense. It is demonstrating, for the first time at scale, the consequences of autonomous systems applied to interstate conflict at the point where human deliberation and machine speed diverge. It is the dress rehearsal for something that has not yet happened. The question Herbert was asking — what remains after the collapse — is not yet answerable. But the collapse is underway.

Every precision strike is a measurement event. At sufficient resolution, measurement does not produce control.

It produces collapse.

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