

Summary: This essay argues that the possibility of non-human intelligence on Earth is no longer negligible when evaluated through Bayesian inference. As credible testimonies about Unidentified Anomalous Phenomena(UAPs) continue to surface, the cumulative evidence requires us to update our understanding and past beliefs. Using Bayes theorem and the framework of conditional probability, this paper demonstrates how each new piece of evidence raises the posterior probability of non-human intelligence. It also covers how government secrecy can be interpreted as an attempt to avoid a Type I error, even as the risk of an apocalyptic Type II error grows.

### **Credibility, Concealment, and Conditional Probability**

“If you had to assign a probability that extraterrestrial intelligence has visited this planet, what would you say?” Without hesitation, Dr. Garry Nolan, a respected Stanford professor and immunologist, confidently answers: “100%”(Nell). He’s not the only one making such a reckless claim. Over the past decade, increasingly high-ranking military personnel and even former president, Barack Obama, have come forward with testimony that Unidentified Anomalous Phenomena(UAPs)-- the modern term for UFOs-- are not only real, but have been here for decades, and may show signs of non-human intelligence. As these claims make their way into congressional hearings and federal policy discussions, the line between conspiracy theory and real-world concern has begun to blur. What makes these claims so compelling is not only the credibility of the whistleblowers but the government's pattern of secrecy -- including the individuals who came forward and were threatened into silence. David Grusch, a former United States Air Force officer, and numerous other military pilots reveal their UAP testimonies to help construct a narrative that the government has been concealing the UAP data and information from the public for decades. While 100% certainty of non-human intelligence being found on this planet is a very bold claim to make-- This essay will explore the statistical logic behind the officers' claims and how we can use probability to interpret the situation.

Bayes Theorem is a mathematical formula used to obtain the probability of a hypothesis based on new evidence. By Bayesian reasoning, our belief in a hypothesis-- like the possibility that UAPs are real and known to the U.S. government-- should be updated due to new credible evidence being introduced. The first time any of these military officers encountered extraterrestrial intelligence, their probability that aliens were on this planet may have risen to 10%. Bayesian reasoning comes into play here because, after multiple primary testimonies, declassified videos, and “plane” maneuvers that defy the laws of physics, their belief would continue to increase. With each new piece of evidence, we are collecting these experiences to create a larger truth-- and the truth becomes stronger. As this body of evidence grows, their

posterior probability has become so high that officials are now attaching the belief of non-human intelligence on this planet to 100%.

From a probability standpoint, the credibility of these sources matters. Claims like these would be easy to dismiss if they came from conspiracy theorists. But when credible figures speak with certainty, it shifts how we weigh the probabilities. When multiple high-ranking officials independently make similar claims about UAPs, the likelihood that they are all wrong becomes increasingly small. Intelligence officer and co-lead in UAPs and transmedium objects analysis, David Grusch, testified under oath and became a whistleblower when asking Congress to hold our government to the standard that all American people are held accountable for under the US Constitution. Grusch was denied access to the multi-decade UAP crash retrieval and reverse engineering program and asked Congress for the Department of Defense to have more transparency. His statements suggest that UAPs not only exist, but the government is withholding information about them. He isn't alone. Luis Elizondo, former Department of Defense official and lead of the Pentagon Aerospace Threat Identification program, life and career were threatened when he reported UAPs to his general. Elizondo witnessed technology flying among him that can do 600-700 G forces, that can fly at thirteen thousand miles an hour, evade radar, fly through air and water, with no wings, and can defy the natural effects of earth's gravity. To the skeptics, attributing these sightings to UAPs is typically considered only after all other explanations have been exhausted – including some sort of new type of missile technology that China has developed or some high-altitude balloon that's conducting reconnaissance. David Fravor, was on a government aircraft when a UAP started mimicking his movements. He describes the object as roughly the size of his F-18 with no markings, no wings, and no exhaust plumes. Lieutenant Alex Dietrich, who also witnessed the event, had seen on the radar from the USS Princeton, that the UAP descended 80,000 feet in less than a second. Human technology simply cannot perform this yet. As Fravor flew in for a closer look, the object suddenly disappeared. Dietrich later said she would have never shared this story if her backseaters and Fravor hadn't witnessed it too. Remarkably, the same UAP was picked up again just seconds later– relocation 60 miles away. Given the range of credible voices, including intelligence officers, military pilots, and former Pentagon officials, I have to ask what is the probability that all of these officials are lying? Conditional probability asks: What is the likelihood of an event, assuming that some other event is already known to be true? In the existence of non-human intelligence, the “event” is that all claims made are false. But when conditioning alleged “false” claims with the independent individuals testifying under oath, many of whom are risking their careers, reputations, and personal safety, the probability that all individuals are lying becomes low. With the rise in testimonies and consistency of new accredited officials giving their UAP experience followed by secrecy and suppression, the less likely this string of evidence can be classified as an error or coincidence. In Bayesian terms, knowing that the government even has information and data they are withholding, this acts as evidence making the hypothesis more probable. Classified materials and redacted documents to censor what the general public can see act as hidden variables and unobserved data. Even with the incomplete data, the secrecy,

suppression, and consistent witness testimonies all point to knowledge of UAPs being deliberately kept under wraps by the government.

In statistics and real life, when making decisions under uncertainty we face a trade-off between two types of errors: Type I and Type II errors. A Type I error is a false positive; taking action on something that turns out not to be true. A Type II error is a false negative; failing to act when something is true. When it comes to UAPs, this statistical logic explains why the government is being so secretive. Publicly confirming that non-human intelligence is real, if it actually isn't, would be a ridiculous type I error. This would create national panic and would be better if it was avoided until there is undeniable evidence. On the other hand, suppressing very credible reports of UAPs, if they are real, could be threatening the future of human civilization—a horrid Type II error. This is why the government is hesitant to release information and has defaulted to secrecy.

However, the US government is not entitled to keep this information a secret as the U.S. Constitution is built on principles of government transparency, accountability, and the protection of individual rights. Ironically, as skepticism on the concept of UFOs grows, the official recognition of UAPs is already written into law. On December 22, 2023, President Biden signed into law the 2024 National Defense Authorization Act, which through sections 1841-1843 directly addresses UAPs. These sections address the collection of UAP-related information and materials (Barna). Yet, despite this legislation, the information remains out of reach. This contradiction between law and action suggests that the government is no longer withholding the truth because it's uncertain, but because it's inconvenient.

The majority are comfortable believing in God, the creator of the universe, an invisible presence, without needing physical proof. Although the evidence gathered for UAPs doesn't fall under traditional scientific methods, they carry statistical weight that can't be ignored. I'm not entirely discrediting the Type II error we're dealing with. Caution about what seems to be fantasy is reasonable. But at a certain point, the evidence all points in one direction and the probability becomes higher—a textbook example of Bayesian reasoning in action. Refusing to acknowledge UAPs and declassify information on this starts to look less like scientific skepticism and more like willful denial. As Colonel Karl Nell says, "The nature of reality is not government information".

This topic immediately grabbed my attention, as I had never expected to be writing about the existence of aliens in my probability class. What immediately drew me in was my own belief and evidence of UFOs—as the common people call it. On the roof of my apartment building this past winter break, fellow New Yorkers could see lights spinning in orbit in the sky. The government confirmed that they didn't know who or what was operating it (Catalini). These drones were SUV-sized, and I believe they were UAPs. I also believe the universe is too big for non-human intelligence not to exist. However, I was shocked to read that extraterrestrial intelligence has been on this planet for decades. With all the evidence given, I believe it. These

officials have no business ruining their careers by claiming to see UFOs. It's with great curiosity and courage, with the help of a very probable cause, that these officials feel compelled to come forward. No one will risk their reputation, career, and safety, for something that nobody asked for. Not only do I applaud these people, but I am curious to hear how their personal encounters made them feel. Other than the fact that we are dealing with non-human intelligence, did they feel threatened? Is that why officials like David Grusch are working so hard to remove the censor on all UAP-related information? Is that why the government is withholding all their UAP information or is it just because they don't believe the world is ready for it yet? Regardless, it's not their decision to decide and the only thing scary about this is the government's desire to keep this a secret.

Colonel Karl Nell introduced a perspective that I had never previously considered: He spoke on the idea that any advanced civilization went through the same Darwinism evolutionary process we did, and it's naive to expect complete altruism. Viewing the aliens through the lens of evolution made me think of them as less of a mysterious life form and more as a product of nature—just like us. With that framing, I began to imagine aliens with morals, personalities, motives, and survival strategies shaped by natural selection. I believe that the UAPs mission on Earth is to gather information on the human race, but keeping their distance for good reason. After all, if they're truly intelligent, they have no reason to assume we come in peace. And that leaves me with a final, unsettling question: who fires the first shot?

Works cited:

- Catalini, Michael. "What's the Deal with the Drones? Here's What We Know." *PBS*, Public Broadcasting Service, 16 Dec. 2024, [www.pbs.org/newshour/nation/whats-the-deal-with-the-drones-heres-what-we-know#:~:text=Do%20the%20drones%20pose%20a,of%20officials%20and%20drone%20experts.](https://www.pbs.org/newshour/nation/whats-the-deal-with-the-drones-heres-what-we-know#:~:text=Do%20the%20drones%20pose%20a,of%20officials%20and%20drone%20experts.) Accessed 17 Apr. 2025.
- Dietrich, Alex, and David Fravor. "Navy Pilots Describe Encounters with UFOs." *YouTube*, 16 May 2021, [www.youtube.com/watch?v=ZBtMbBPzqHY](https://www.youtube.com/watch?v=ZBtMbBPzqHY). Accessed 17 Apr. 2025.
- Elizondo, Luis, et al. "UAP Witness Statements | November 2024." *YouTube*, 14 Nov. 2024, [www.youtube.com/watch?v=fvz6FW0sIow&t=1098s](https://www.youtube.com/watch?v=fvz6FW0sIow&t=1098s). Accessed 17 Apr. 2025.
- Grusch, David. "David Grusch Opening Statement at Unidentified Anomalous Phenomena (UAP) Hearing." *YouTube*, 6 July 2023, [www.youtube.com/watch?v=lcrCMLVk614](https://www.youtube.com/watch?v=lcrCMLVk614). Accessed 17 Apr. 2025.
- Klokus, Alex, and Garry Nolan. "'100%' Aliens Have Already Arrived -Dr. Garry Nolan & Alex Klokus | SALT iConnections New York." *YouTube*, 22 May 2023, [www.youtube.com/watch?v=e2DqdOw6Uy4&t=193s](https://www.youtube.com/watch?v=e2DqdOw6Uy4&t=193s). Accessed 17 Apr. 2025.
- Nell, Karl, and Alex Klokus. "'Zero Doubt' Non-Human Intelligence on Earth - Col. Karl Nell & Alex Klokus | SALT iConnections NY." *YouTube*, 21 May 2024, [www.youtube.com/watch?v=Rpl0FrdJWfs](https://www.youtube.com/watch?v=Rpl0FrdJWfs). Accessed 17 Apr. 2025.
- Stephanie Barna, Jasmine Wang. "Implications of the Unidentified Anomalous Phenomena (UAP) Amendment in the 2024 National Defense Authorization Act (NDAA)." *Inside Government Contracts*, 8 Jan. 2024, [www.insidegovernmentcontracts.com/2024/01/implications-of-the-unidentified-anomalous-phenomena-uap-amendment-in-the-2024-national-defense-authorization-act-ndaa/](https://www.insidegovernmentcontracts.com/2024/01/implications-of-the-unidentified-anomalous-phenomena-uap-amendment-in-the-2024-national-defense-authorization-act-ndaa/). Accessed 17 Apr. 2025.