

Controversial Conceptions of AI

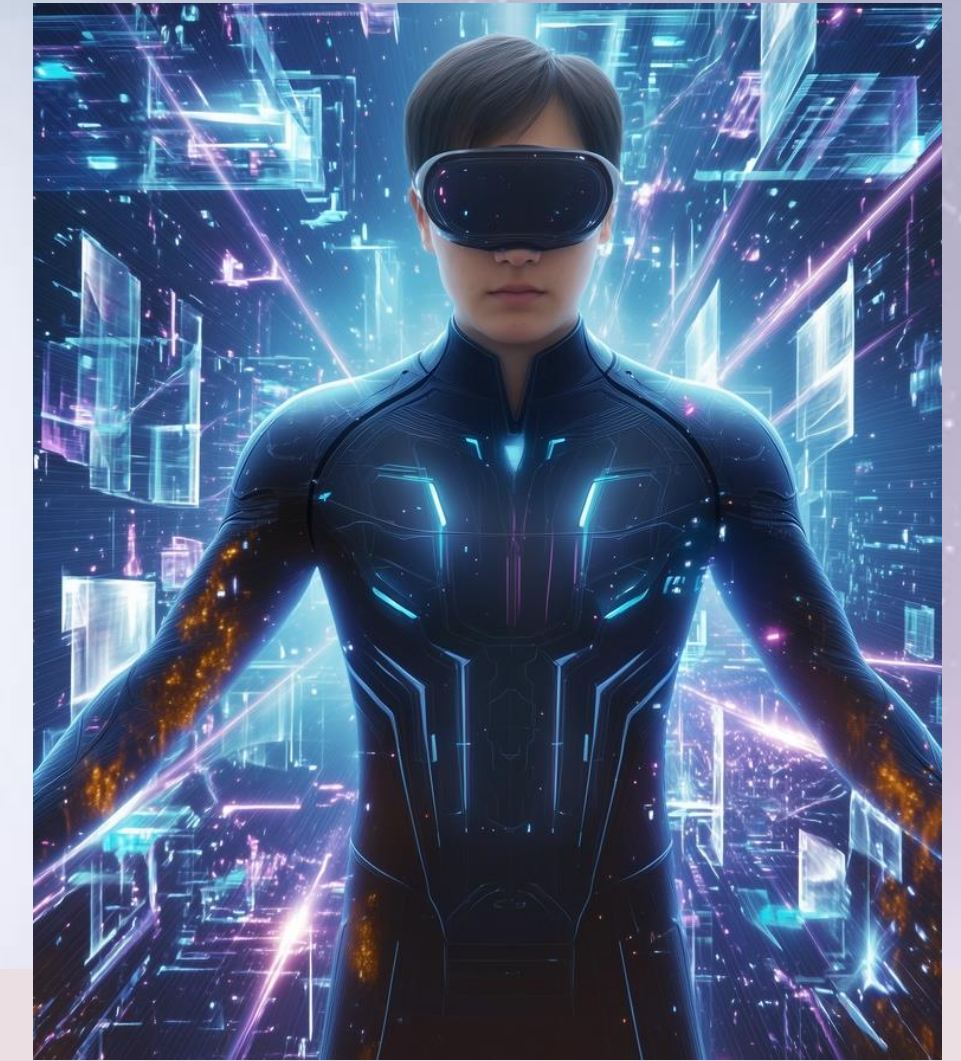
Chong Ho Yu · 2026 March

Data Science and AI Leadership Summit, Tucson, AZ



1. Is Hallucination Always a Failure?

The Tension Between Fact and Creativity



The common view

AI hallucination is seen as inherently harmful — reinforced by high-profile cases where AI generated academic references that did not exist.

The other side

Hallucinations in generative AI art tools like Midjourney or Ideogram are widely viewed as *beneficial* — creative outputs, not failures.



All Generative AI Output Is a Controlled Hallucination

Generative AI art tools make an educated guess about pixels based on learned patterns.

From a probabilistic standpoint, the mechanism behind a hallucinated fact in a LLM and a generated visual detail in an AI image model is closely related: **both arise from statistical pattern completion.**

They are the two sides of the same coin.

The creativity tax

In the current transformer-based paradigm, **reducing hallucination often acts as a "creativity tax."** Creativity results from high-entropy sampling — the model picks a less likely but contextually interesting token.

100% Factual Grounding

Hits a "mathematical ceiling" on novelty. Stops the AI from suggesting a skyscraper made of translucent bioluminescent algae — statistically implausible.

High-Entropy Sampling

Enables creative, novel outputs — but also increases the likelihood of hallucination as the model explores less probable continuations.

Hallucination as a Necessary Evil

The Human Parallel

History's most transformative innovators — from Steve Jobs to Elon Musk — were defined by eccentricities and ideas that bordered on the delusional.



The Risk of Over-Suppression

Just as rigid boundaries stifle a child's imagination, aggressive algorithmic suppression of AI hallucinations may inadvertently cripple the model's creative faculty.

Hallucination is not a bug to be eradicated — it is the byproduct of a system capable of **dreaming beyond the training data**.



Implications for Educators

"As educators, we cannot teach students how to harness AI without first defining what it is: **a sophisticated guessing machine**. Both the brilliance of an AI-generated poem and the frustration of a hallucinated citation spring from the same probabilistic well. They are two sides of the same coin.

If we try to flip the coin and only ever land on "truth," we lose the very randomness that makes the tool intelligent and creative in the first place.

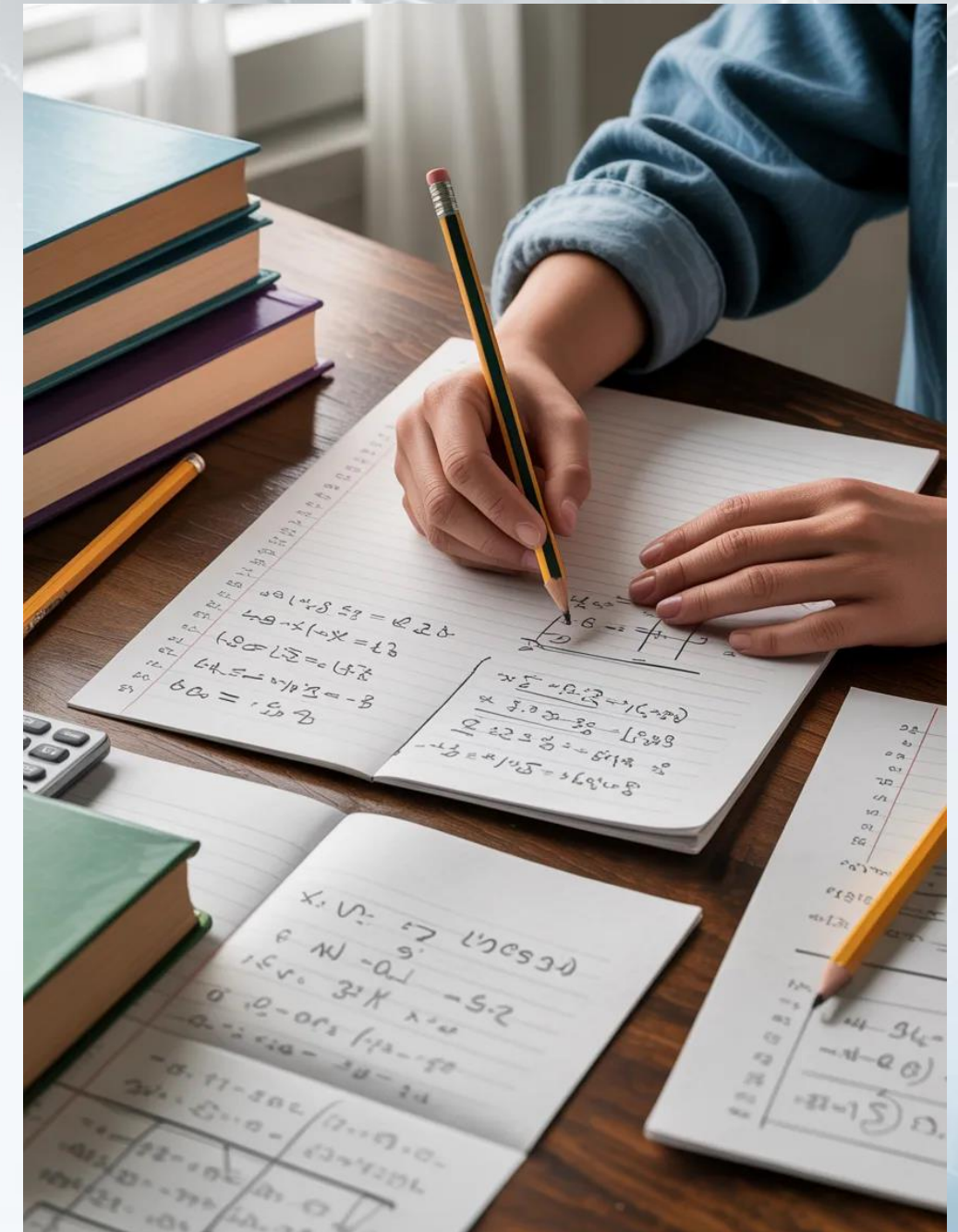
2. Beyond the Manualist Philosophy

Technology as an Extension of Human Skill

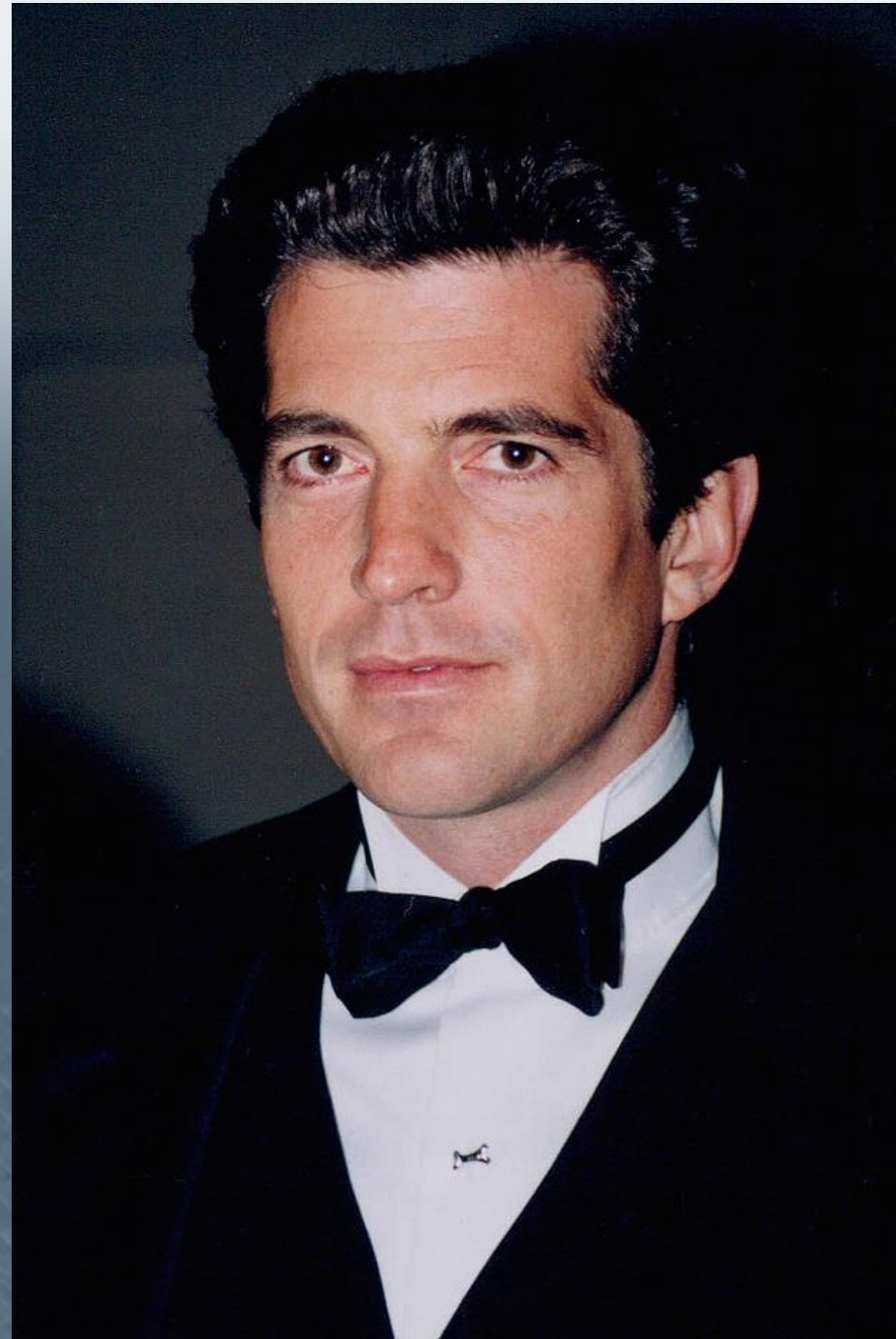
A persistent "**manualist**" **philosophy** has dominated education for decades: the belief that true mastery is defined by one's ability to perform a task independently, unaided by technology.

For example, many professors require students to learn statistics by manual calculations.

As AI enters the classroom, many educators fear intellectual atrophy.



Aviation: JFK Jr.'s Fatal Lesson



An amateur pilot relies on what they can see out the cockpit window.

A professional masters **complex instruments**.

JFK Jr.'s inability to utilize technology in low-visibility conditions proved fatal.

Skill was not flying manually — it was interfacing with the tools designed to save him.

Photography: Freeing the Artist



Old-fashioned photographers manually calculated exposure using the guide number — prone to error.

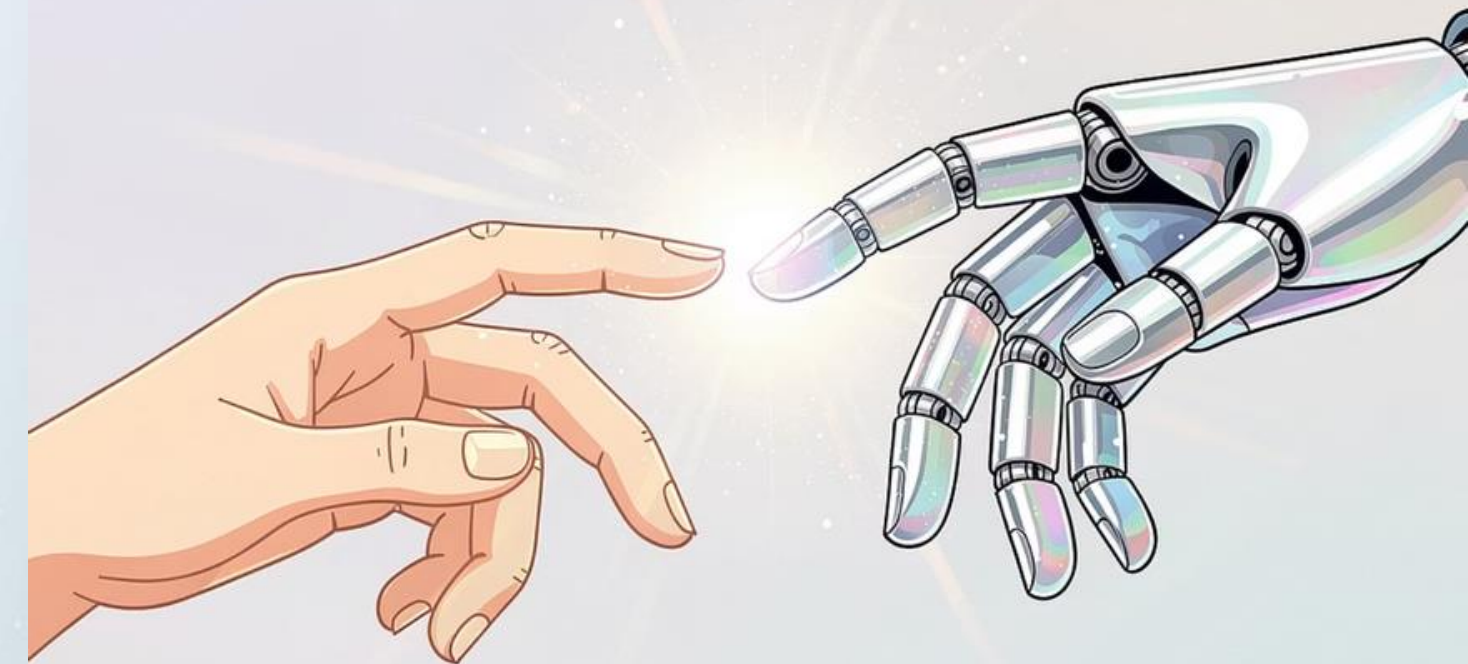
Modern automatic computerized metering doesn't make photographers lesser artists.

It ensures accuracy and frees the creator to focus on composition, timing, and narrative.

Mastery in the Modern Age

Just as the instrument panel expands a pilot's vision and the digital meter sharpens a photographer's eye, **AI allows us to move from the "how" of execution to the "why" of strategy and ethics.**

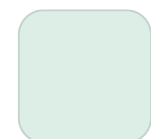
AI is ultimately a compensation for our cognitive limitations — not a replacement for human skill.



For more information



**Datafrontiers: My
YouTube channel on AI
and data science**



**My blog on AI and
machine learning**



**My Google Scholar
Profile**

