

ITAI 2373 Natural Language Processing

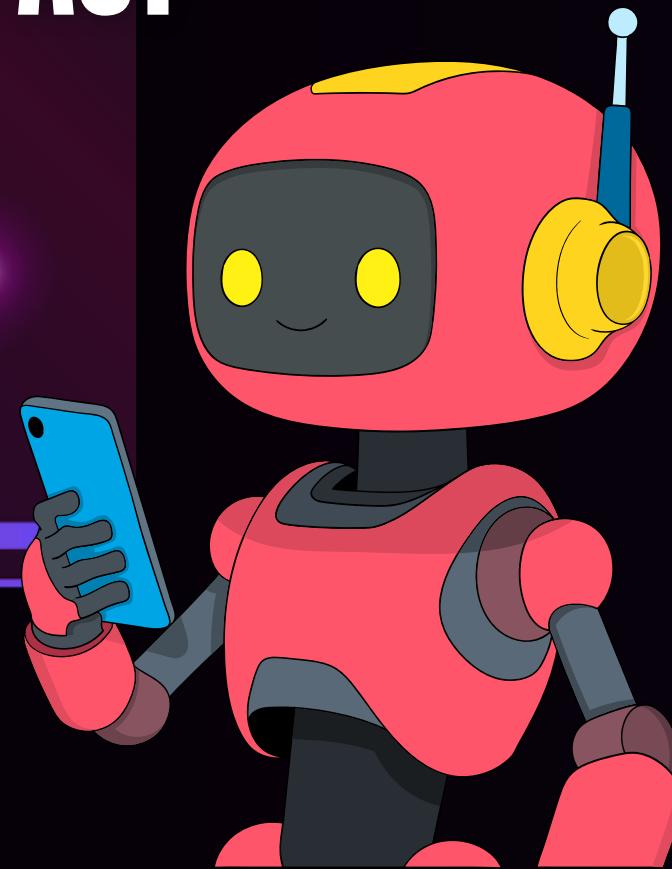
L08 - FACT OR FICTION PRESENTATION

THE HUMAN DISCRIMINATOR: HOW WE TELL FACT
FROM FICTION

Chloe Tu



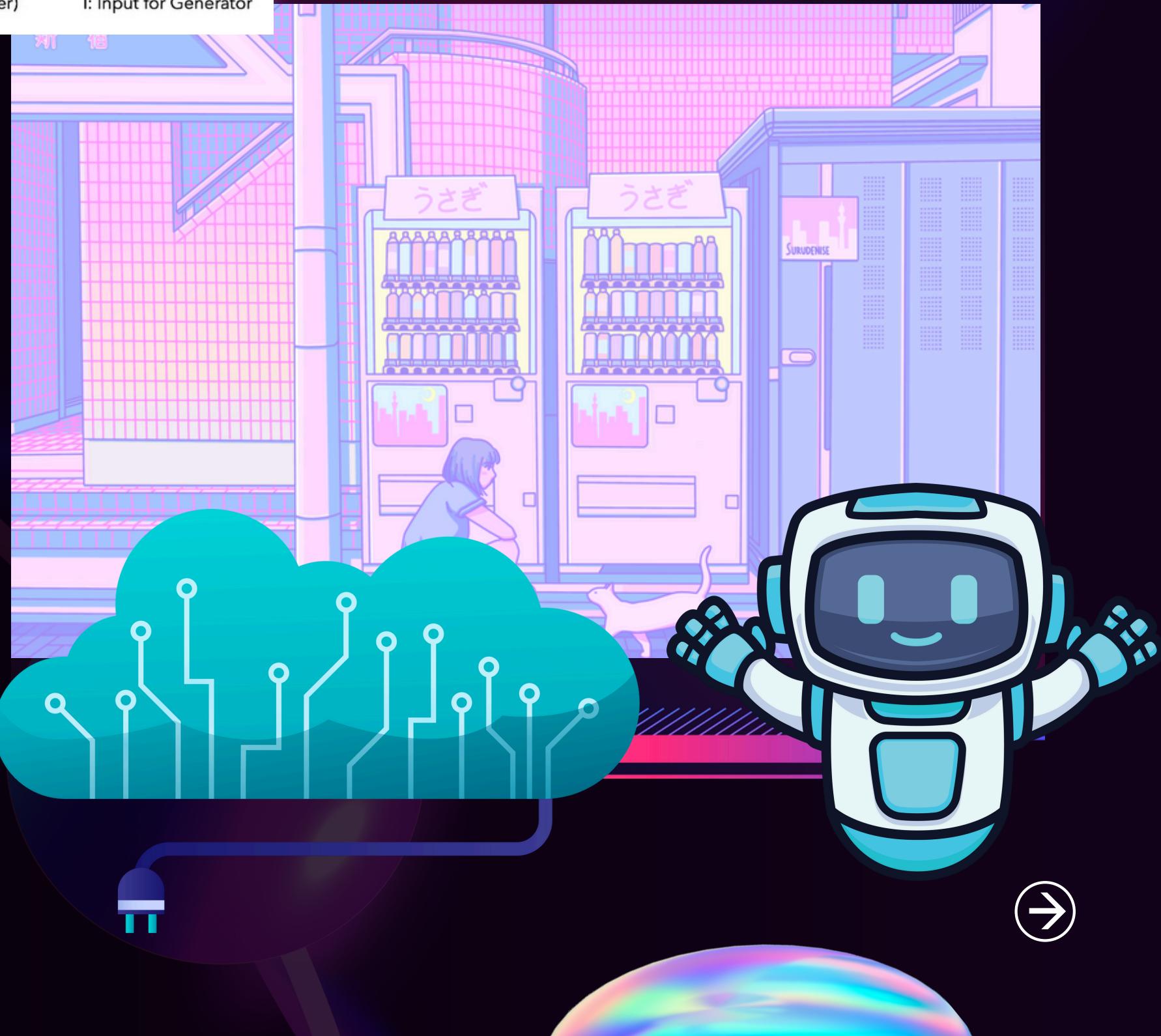
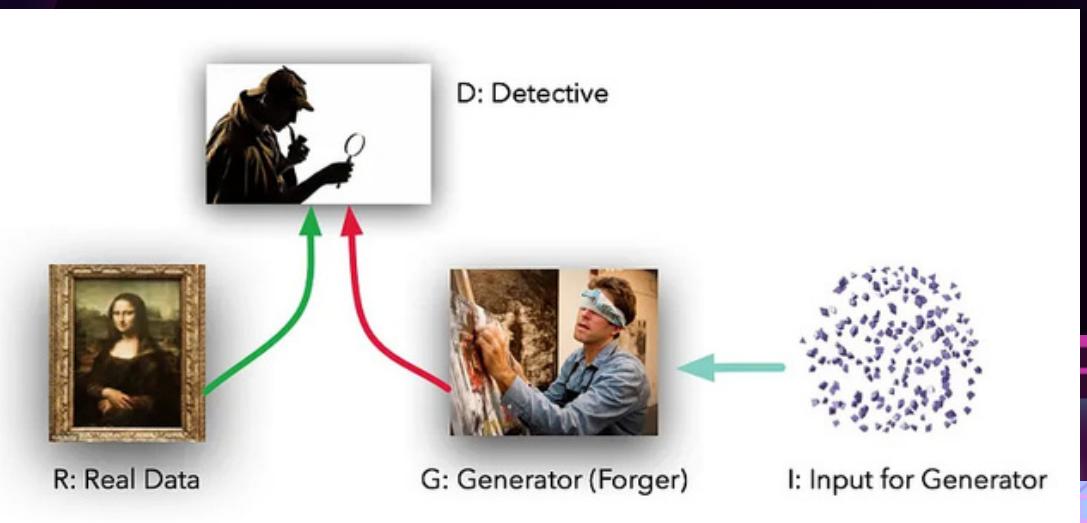
PAGE
01 / 10



INTRODUCTION

Hello, my name is Chloe Tu. I'm going to explore into the fascinating intersection of human storytelling and artificial intelligence. This presentation explores a simple exercise: trying to tell the difference between a true story and a well-crafted piece of fiction. My objective is to show how this very human skill of critical analysis provides a powerful and intuitive analogy for understanding **Generative Adversarial Networks**, or **GANs**.

GANs are a sophisticated class of AI algorithms used in unsupervised machine learning. They function through a competitive dynamic between two distinct neural networks: a **Generator**, which creates new data, and a **Discriminator**, which evaluates that data for authenticity. In my project, I took on the role of the Discriminator, and this presentation will draw direct parallels between my thought process and the complex operations of this groundbreaking technology.



METHODOLOGY

Story Creation and story Analysis

My process was divided into two distinct phases: Story Creation and Story Analysis. This structured approach allowed me to first generate the data (the stories) and then critically evaluate it.

Part 1: Story Creation (The "Generator" Phase)

To begin, I needed a dataset of narratives. I asked my family members to act as "generators". Their task was to write a collection of short stories. Half of these stories were to be completely true personal experiences, recalled with as much accuracy as possible. The other half were to be entirely fictional narratives, designed to be as plausible and convincing as the true stories. This created a balanced and challenging mix of real and synthetic narratives, which was essential for the analysis phase.

Step 2: Story Analysis (The "Discriminator" Phase)

In the second phase, I took on the role of the "Discriminator." I critically examined each story with the sole purpose of judging its authenticity. My process involved a deep reading of each text, paying close attention to the subtle cues that might betray a story as fact or fiction. I specifically looked for inconsistencies in the timeline, unrealistic character motivations, or events that seemed too convenient or dramatic to be real.



STORY HIGHLIGHT - THE RING OF TRUTH

Let's examine two of the personal stories that felt authentic.



Personal Story 1: "First Day in Middle School" This narrative described the universal anxiety of being new in a large, confusing school. It was filled with relatable details: the weight of a new backpack, the noise of slamming lockers, the struggle to find a homeroom, and the desperate search for a friendly face in the cafeteria.

Why it felt real: This story's strength was its **emotional resonance**. The feelings of anxiety and awkwardness were portrayed in a way that felt genuine and unexaggerated. The narrative didn't have a dramatic climax or a perfect resolution; it simply captured the mundane, uncomfortable reality of that experience, making it highly believable.

Personal Story 2: "Early Swimming Lessons" This story recalled the memory of learning to swim at age two. The author used rich, multi-sensory details to bring the memory to life: the "radiant blue universe" of the pool, the "quirky, bubbly feeling" of putting their face in the water, the "crisp and fresh" scent of chlorine, and the warmth of the sun.

Why it felt real: The power of this story was in its incredibly **detailed descriptions**. The author's ability to describe the experience using all five senses made the memory feel tangible and deeply personal. Details like the teacher's hands providing steady support and the brief, thrilling moments of floating alone added layers of authenticity that are difficult to invent.



STORY HIGHLIGHT - THE UNCANNY VALLEY OF FICTION

Now, let's look at two fictional stories and analyze what made them feel constructed.



Fictional Story 1:

Story 2: Why it felt fake:

Fictional Story 2:

Story 2: Why it felt fake:

"Winning the Powerball" This story was about a character named Sara who wins a \$250 million Powerball jackpot. It focuses on her emotional reaction and her immediate plans for the money, like paying off her parents' debts and starting a foundation.

While it attempted to portray strong emotions, the core event is a one-in-a-million occurrence. Its primary weakness is a lack of **believability**. The narrative focuses more on the fantasy of winning than on the smaller, grounding details that would make the character's experience feel real.

"The Dream Home Dash" This narrative described winning a car and a house on a wild game show. The contestant navigates a series of absurd challenges, including a trivia round, balancing champagne glasses while dodging robots, and digitally designing a room, before an abrupt victory.

This story felt highly artificial because events occurred **too perfectly and without sufficient detail**. The plot progressed like a checklist of zany events without the connective tissue of a real experience. The challenges were bizarre, and the victory felt unearned and sudden. This lack of detail and reliance on a highly improbable fantasy scenario made it easy to identify as fiction.



ANALYSIS AND KEY FINDINGS

35% - Detailed Descriptions

The most significant factor was the presence of rich, specific, and often multi-sensory details. The swimming story, with its vivid descriptions of smells and feelings, was a prime example of this.

30% - Emotional Resonance

Stories that tapped into universal, relatable human emotions, like the anxiety in the middle school story, felt deeply authentic. The emotion felt earned and proportional to the events.

5% - Other Factors:

This includes subtle elements like consistent tone and a non-perfect narrative structure.

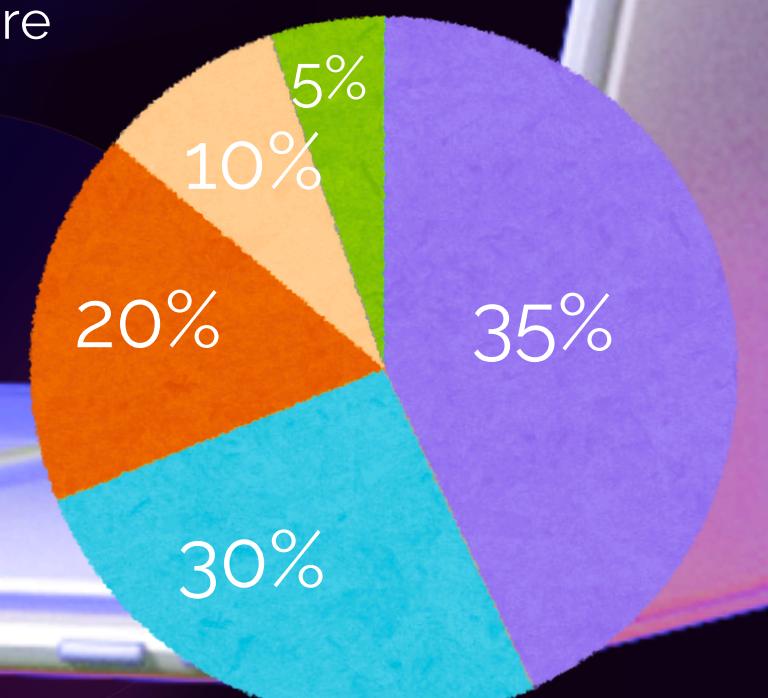
20% - Believability:

The core plot had to be plausible. The game show and lottery stories failed this test because their central premises were wildly improbable and lacked the mundane details that ground a story in reality.

10% - Personal Connection

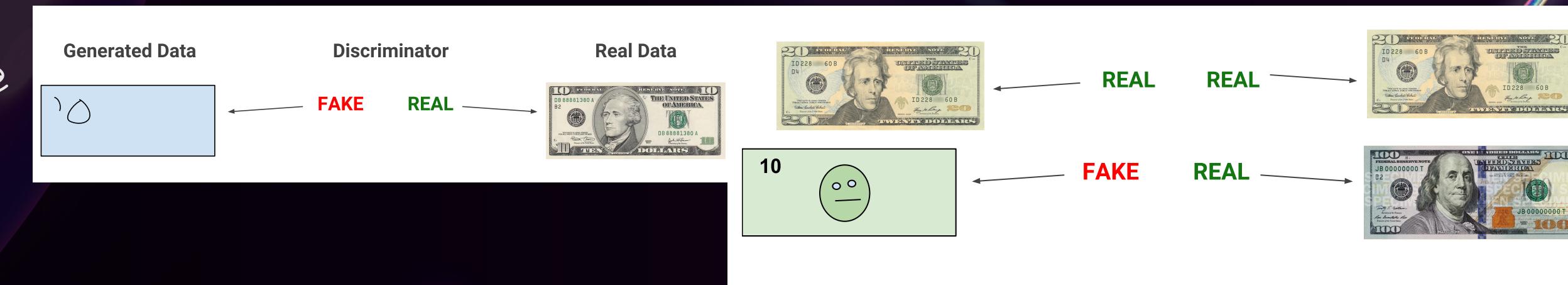
Narratives that felt like a unique, personal memory, rather than a generic trope, were more convincing.

My analysis revealed that a story's perceived authenticity depends on several key factors. I visualized the importance of these factors based on my findings.



PARALLELS TO GENERATIVE ADVERSARIAL NETWORKS (GANs)

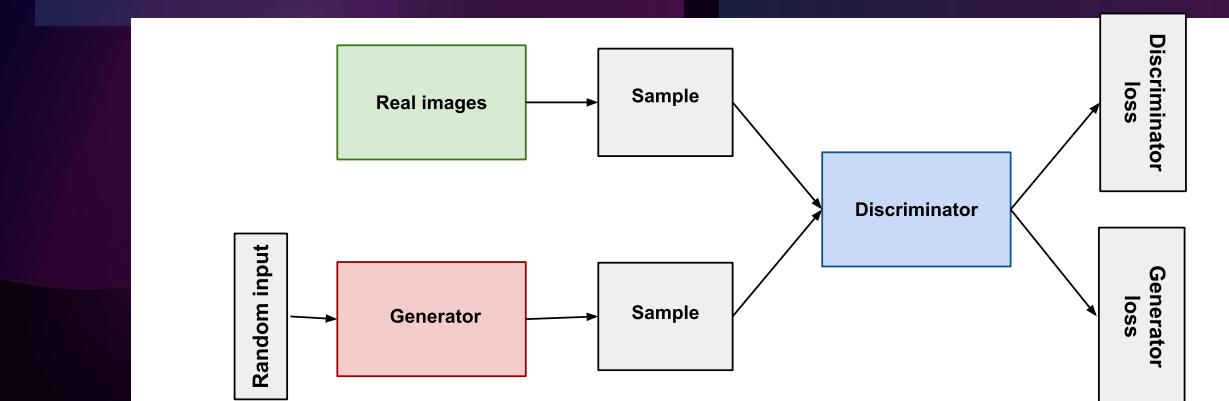
This entire process of judging stories serves as a direct analogy for how a GAN's Discriminator works



The Writer as the Generator:
The storytellers who tried to write convincing fiction were acting as the **Generator**. Their goal was to produce "fake" data (stories) that could pass as real.

The Analyst as the Discriminator:
My role was to be the **Discriminator**. I examined both real and generated data, looking for the statistical patterns and tell-tale signs of an artificial creation. Just as I flagged the game show story for being "too perfect," a Discriminator learns to spot generated images that are too clean or text that is too formulaic.

A Cycle of Improvement:
Both processes rely on feedback and learning. If I told a writer their fictional story was unconvincing, they could use that feedback to write a better one next time. Similarly, when a Discriminator spots a fake, the Generator uses that feedback to create a more realistic output in the next cycle. This competitive process is what makes GANs so powerful at creating incredibly realistic content.



CONCLUSION AND FINAL THOUGHTS

- This exploration has revealed several key insights into the relationship between human cognition and artificial intelligence.



Key Takeaways:

- Our brains use a complex blend of logic, emotional intuition, and attention to detail to verify authenticity, a process remarkably similar to a GAN's Discriminator.
- GANs are more than a technical tool; they are a reflection of our own cognitive search for truth, highlighting a shared goal between human and machine intelligence.
- The human ability to understand context and emotion remains a vital part of analysis, even in a world of advanced AI. As AI-generated content becomes more sophisticated, we must constantly adapt and refine our own critical thinking skills.

Questions to Consider:

- As GANs become more advanced, what impact will this have on our trust in digital information and media?
- How can we ensure that human values and ethical considerations remain a priority as we become more reliant on AI-generated content?

A Call to Action:

I encourage everyone to participate in discussions about AI ethics and media literacy. By continuing to explore the intersection of human thought and AI, we can foster a deeper and more responsible understanding of this rapidly evolving field.



REFERENCES

- AWS. (2022, July 31). What Is a GAN? - Generative Adversarial Networks Explained.
 - <https://aws.amazon.com/what-is/gan/>
- GeeksforGeeks. (2025, February 1). Generative Adversarial Network (GAN).
 - <https://www.geeksforgeeks.org/generative-adversarial-network-gan/>
- Google Developers. (2022, July 18). Overview of GAN Structure | Machine Learning.
 - https://developers.google.com/machine-learning/gan/gan_structure
- Hui, J. (2018, June 19). GAN — What is Generative Adversarial Networks GAN?
 - <https://jonathan-hui.medium.com/gan-whats-generative-adversarial-networks-and-its-application-f39ed278ef09>
- Radosta, J. A. (2019, November 8). The Magic of Generative Adversarial Network (GANs). Becoming Human: Artificial Intelligence Magazine.
 - becominghuman.ai/the-magic-of-generative-adversarial-network-gans-1c9d5da4a105
- Sledge, B. (2023, February 23). Stop Using AI to Write Your Sci-Fi Stories. TheGamer.
 - www.thegamer.com/stop-using-ai-to-write-your-sci-fi-stories/
- Story Empire. (2024, January 26). Can You Use AI in Fiction Writing?
 - storyempire.com/2024/01/26/can-you-use-ai-in-fiction-writing/
- Engle, J. (2023, July 7). 7 of the Best AI Story Generator Tools for Fiction Writers! JohnEEngle.com.
 - johneengle.com/blog/ai-story-generator/





THANK YOU!

