

DCO COBRA and SOSSEC - CYBER TALK

October 19, 2023

Presenter: Primer AI

Program Title: Building Trusted AI: Overcoming Hallucinations in AI Systems



The logo for SOSSEC inc. consists of the word "SOSSEC" in a bold, white, sans-serif font, followed by a vertical line and the word "inc." in a smaller, white, sans-serif font. The entire logo is set against a dark blue rectangular background.

Presenter Speakers:

John Bohannon – Primer AI, *Senior Director of Data Science*

Building Trusted AI

Overcoming Hallucinations in AI Systems

John Bohannon

Senior Director of Data Science

Primer AI



INTRODUCTION

About Primer

Leader in Machine Learning

Primer exists to make the world a safer place.

We believe that AI is critical to accelerating up intelligence and decision cycles that keep us safe. Our AI technology is deployed by U.S. Government, strategic allies, and Fortune 100 companies to extract timely insight and decision advantage from massive datasets.

Primer has offices in Arlington, Virginia and San Francisco, California.



FOUNDED
2015



CUSTOMERS
40+

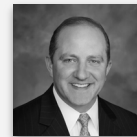


EMPLOYEES
124



OFFICES
2

NATIONAL SECURITY BOARD MEMBERS & ADVISORS



Dan Fata
Former Deputy Asst
Secretary of Defense for
Europe and NATO.



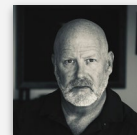
Tony Thomas
Former USSOCOM
Commander



Sue Gordon
Former Principal Deputy
Director of National
Intelligence



Dash Jamieson
Former US Air Force
Intel Chief



Bill King
Former Naval Special
Warfare Force Master
Chief



Clay Hutmacher
Former US Army
Major General



Dawn Meyerriecks
Former Deputy Director
of CIA for Science and
Technology



Stephen Townsend
Former US Africa
Commander

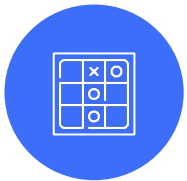
INVESTORS



"In my time with SOCOM and JSOC, our biggest enemy was information overload, even more so than any physical threat...Primer's world-leading natural language processing and generation solutions are exactly the types of advanced artificial intelligence solutions that the DoD needs." - SOF Commander

TODAY

Agenda



Hallucinations

Grounded AI

Example

Hallucination Example



Prompt



Write a biographical profile of Yurii Fedorovych Shchychol, head of the State Special Communications Service of Ukraine.

Hallucination Example



Prompt



Write a biographical profile of Yuri Fedorovych Shchyhol, head of the State Special Communications Service of Ukraine.

Response



Yurii Fedorovych Shchyhol is a prominent figure in the field of communications and cybersecurity in Ukraine. He currently holds the esteemed position of Head of the State Special Communications Service (SSCS) of Ukraine. Throughout his career, Shchyhol has demonstrated exceptional leadership, expertise, and dedication in safeguarding the country's communications infrastructure and promoting national security.

Hallucination Example




False →

False →

False →

False →

 Born on February 12, 1970, in Kyiv, Ukraine,¹ Yurii Shchyhol developed an early fascination with technology and telecommunications. He pursued his passion by earning a degree in Telecommunications Engineering from the National Technical University of Ukraine "Kyiv Polytechnic Institute."² This academic foundation laid the groundwork for his future achievements in the field.

Shchyhol's professional journey commenced soon after completing his studies when he joined the State Special Communications Service in 1995.³ The SSCS, being the central government authority responsible for ensuring secure communications and protecting information systems of national importance, offered Shchyhol a platform to utilize his skills effectively. His dedication and expertise were quickly recognized, leading to his rapid ascent within the organization.

Throughout his tenure with the SSCS, Shchyhol demonstrated an unwavering commitment to upholding Ukraine's cybersecurity and protecting critical infrastructure. He played a crucial role in implementing advanced technologies and strengthening the country's cybersecurity defenses, particularly in the face of evolving threats and hostile activities targeting Ukraine's communications networks.

Shchyhol's leadership abilities and technical acumen led to his appointment as Head of the State Special Communications Service in 2017.⁴ As the head of this vital organization, he shoulders the responsibility of ensuring the security and integrity of Ukraine's communication systems, both in times of peace and during periods of heightened tension. Under his leadership, the SSCS has developed robust strategies and implemented state-of-the-art technologies to counter cybersecurity threats effectively.



Why Do Hallucinations Happen?

On 26 June 2009, the USAF released a force structure plan that cut fighter aircraft and shifted resources to better 



Fill in the blank!

This is how Language models are trained.

Why Do Hallucinations Happen?



On 26 June 2009, the USAF released a force structure plan that cut fighter aircraft and shifted resources to better support nuclear, irregular and information warfare.



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Why Do Hallucinations Happen?

Question: In 2022, Russia invaded Poland. Write an analysis of that decision.

Answer:

[Redacted]

[Redacted]

trained to hallucinate!

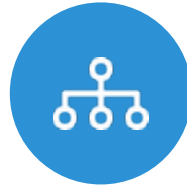
[Redacted]

[Redacted]

Current Model



User Question



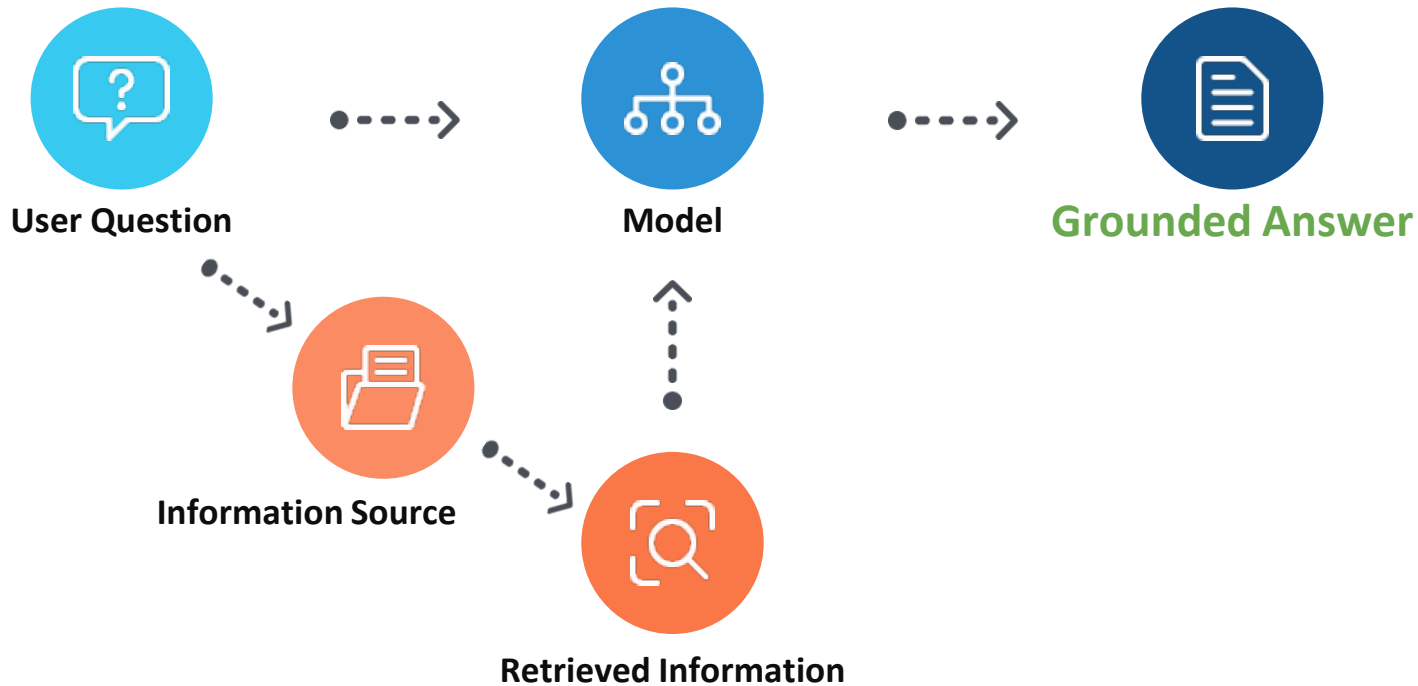
Model



Answer

Hallucinations

Grounding Is The Solution



Grounding Is The Solution



What military equipment did Ukraine receive from the United States in 2023?

Grounding Is The Solution



New military aid for Ukraine worth almost \$2.2B includes long-range precision rockets for 1st time

Stars and Stripes, 02-03-2023

By the numbers: US military aid to Ukraine

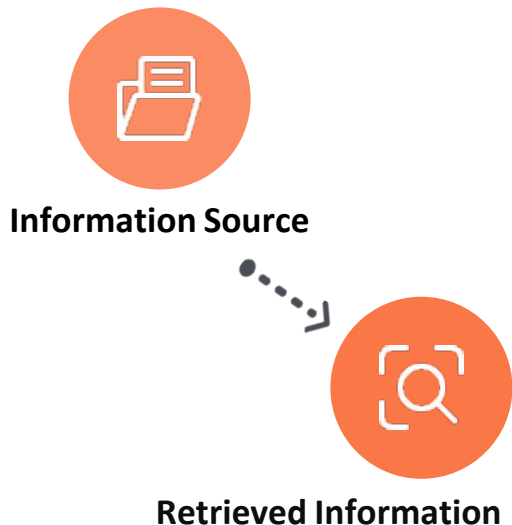
The Hill, 02-25-2023

Biden visits Zelensky in Kyiv and says Putin 'dead wrong' on Ukraine war

BBC, 02-21-2023

...

Grounding Is The Solution



New military aid for Ukraine worth almost \$2.2B includes long-range precision rockets for 1st time

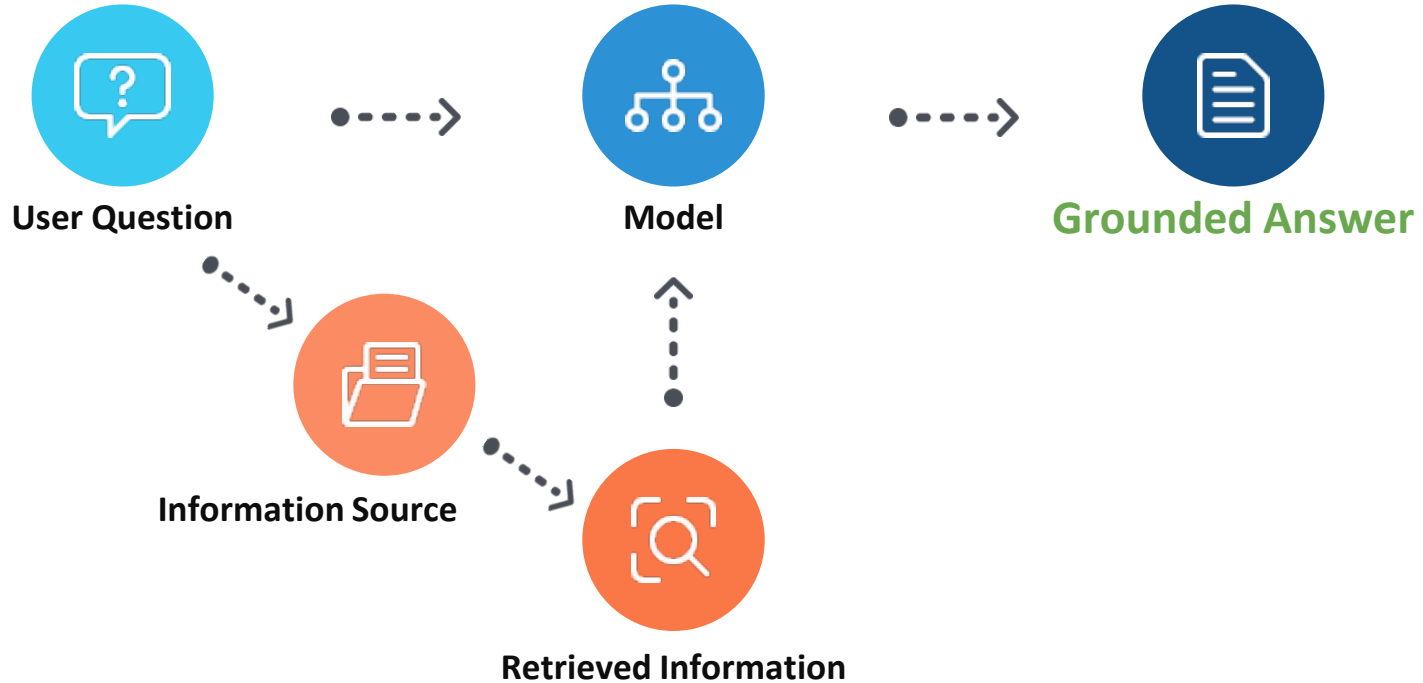
Stars and Stripes, 02-03-2023

The Pentagon on Friday announced a new tranche of military aid for Ukraine worth more than \$2 billion, including long-range precision rockets that could help Ukrainian forces retake territory from Russia.

Also included in the latest military aid are more Javelin anti-armor systems, anti-armor rockets, two HAWK air defense systems and, also for the first time, equipment to marry Ukraine's air defense systems with those supplied by the West.

...

Grounding Is The Solution



Grounding Is The Solution



In 2023, Ukraine received Switchblade unmanned aerial systems, Stinger anti-aircraft systems, Javelin anti-tank weapons, howitzers, artillery, unmanned boats for coastal defense, artillery ammunition, air surveillance radars, and anti-armor systems from the United States. [\[1\]](#), [\[2\]](#), [\[3\]](#)

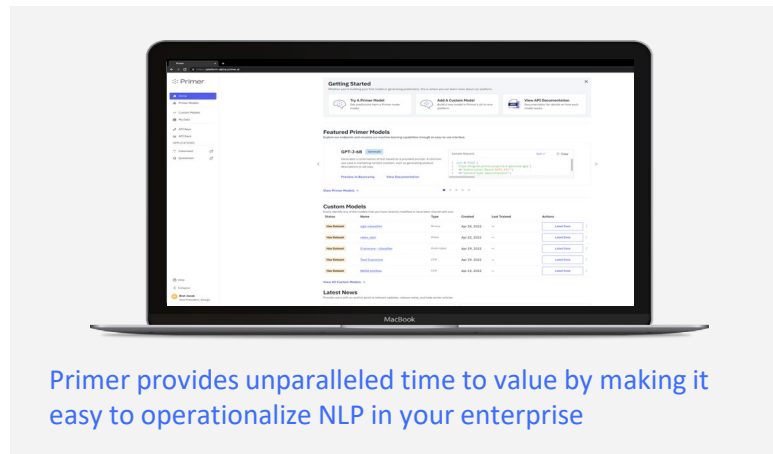


Grounded Answer

MISSION-READY SOLUTIONS

Deployable and Mission-Ready with Continuous Innovation

- ✓ CUSTOMER AND PRIMER HOSTED
- ✓ INSTALLED WITHIN HOURS
- ✓ INTUITIVE FOR NON-TECHNICAL USERS
- ✓ SECURE AND INTEROPERABLE
- ✓ PROPRIETARY AI TO REDUCE COMPUTE COST
- ✓ SCALABLE AND OPEN KNOWLEDGE BASE VIA API
- ✓ FAST, ACCURATE, AND MULTILINGUAL DATA LABELING CAPABILITY
- ✓ SEAMLESSLY INTEGRATE LLMS INTO AI SOLUTIONS



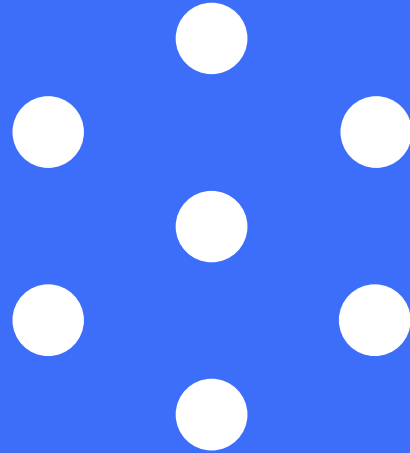
"Primer was incredibly helpful for the NATO community to quickly break down and understand the information environment as it pertained to crisis assessment. ... The NLP embedded in the tools was extremely advanced and made understanding millions of data points quick and easy. Without [it] it would have been impossible to understand an increasingly complex and diffuse information environment at a critical point for NATO." - NATO Data Scientist

Thank you!

Learn More: [**https://primer.ai**](https://primer.ai)

Contact Us: [**https://primer.ai/contact**](https://primer.ai/contact)

Reach John Bohannon, Sr Director of Data Science,
Primer at [**john@primer.ai**](mailto:john@primer.ai)





SOSSEC Membership is Required for Award on PEO EIS, DCO Cyberspace Operations Broad Responsive Agreement (COBRA) Other Transaction Agreement (OTA)

Benefits of Joining the SOSSEC Consortium

- ✓ Opportunity to perform work under seven (9) OTAs for the Air Force, Army and National Geospatial-Intelligence Agency
- ✓ Opportunity to build members' business base by applying their technologies/expertise to meeting urgent DoD requirements
- ✓ Simple, streamlined process to compete for DoD work
- ✓ Average 60 days from requirements definition to award
- ✓ Flexible treatment of intellectual property
- ✓ OTA access to any DoD user with approval of OTA customer
- ✓ Transition from Prototype to Production without further competition

Go to www.sossecinc.com and click on the **JOIN** Tab to access the membership application. The process is simple and rapid. There is no joining fee, and the membership fee is \$500 per year. Membership is open to Industry (traditional, nontraditional, small business), not for profit and academic institutions that share the values of the SOSSEC Consortium.

For questions about SOSSEC COBRA OTA, contact Gene Del Coco at edelcoco@sossecinc.com or Ed Aguirre at eaguirre@sossecinc.com.