
Learn

Serve

Lead

Leveraging AI to Support Operational Functions

June 25, 2024



Association of
American Medical Colleges

Speakers



Rebecca Canino, MBA
Executive Director of Telemedicine
Johns Hopkins Health System



John Morgan
IT Associate Director
Southern Illinois University School of
Medicine



Michael Patriarca, MBA, MS
Vice President & Executive Vice
Dean
School of Medicine
The University of Texas Rio
Grande Valley



Ahmad Rezazadeh
Manager, Network Engineering
Stanford Health Care

An Automated Help Bot That's Actually Helpful!

John Morgan

IT Associate Director

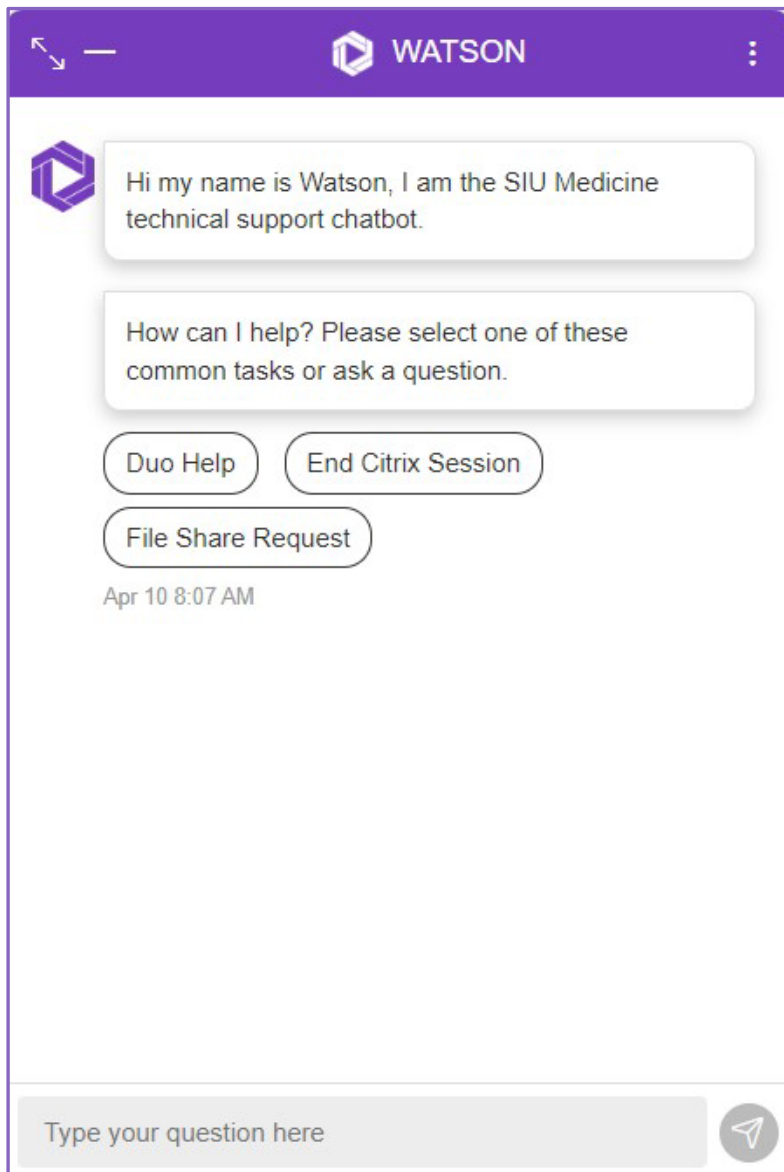
Southern Illinois University School of Medicine

Goals & Motivations

- Implement an AI Chatbot to supplement our Technical Support Service Desk
- Organizational inflection point
 - Clinical Growth
 - Increased Technological Complexity
 - Service Desk Working Beyond Capacity
- Two Choices
 - Hire Additional Staff
 - Automate
 - **WE DID BOTH!!!**

What can the bot do?

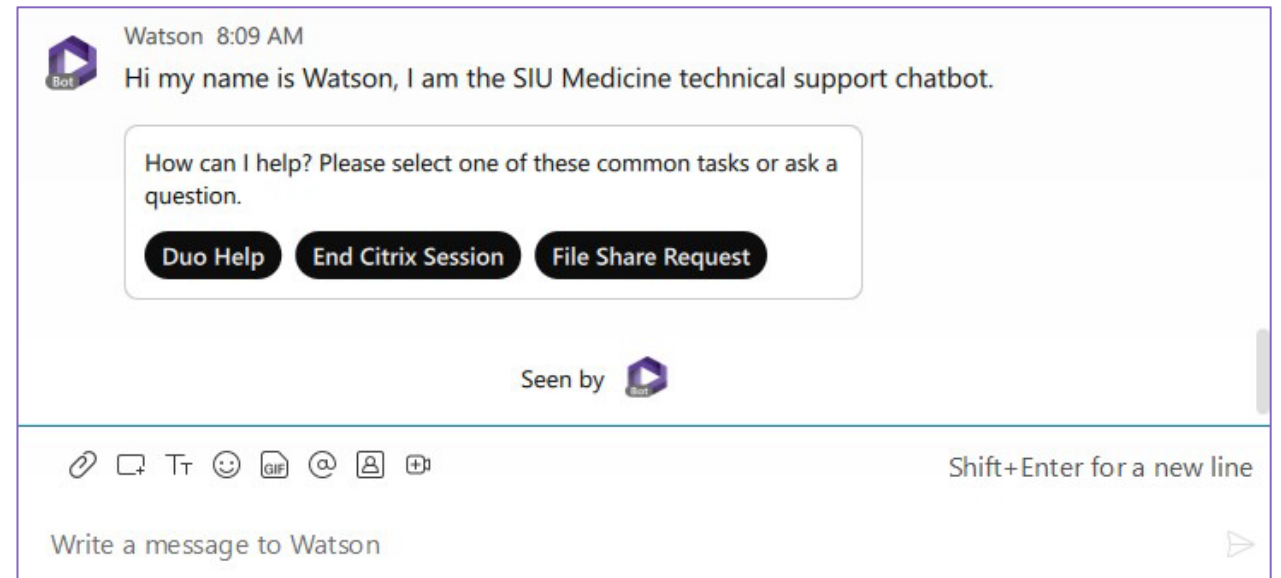
- Leveraging AI Automation for common tasks
 - Change an AD Password
 - Enroll in Multi-factor Authentication
 - End a frozen Citrix Session (Mostly for EMR users)
 - Request access to a File Share
 - Open a support ticket
 - Search the IT Knowledge Base



Web Chatbot



Webex Teams Channel



Implementation Challenges

- Vendor was unfamiliar with several of our tools
 - Ticketing system
 - Knowledge Base Content Management System
 - Multi-factor Authentication System
 - Collaboration Messaging System

Outcome

- Was it worth it?
 - ROI at 30% request resolution
 - Unlimited future potential

From Data to AI

Building the Foundation for Operational Efficiency at UTRGV
School of Medicine

Michael Patriarca
VP Business Affairs & COO
UTRGV School of Medicine

The Big Ideas

Automation

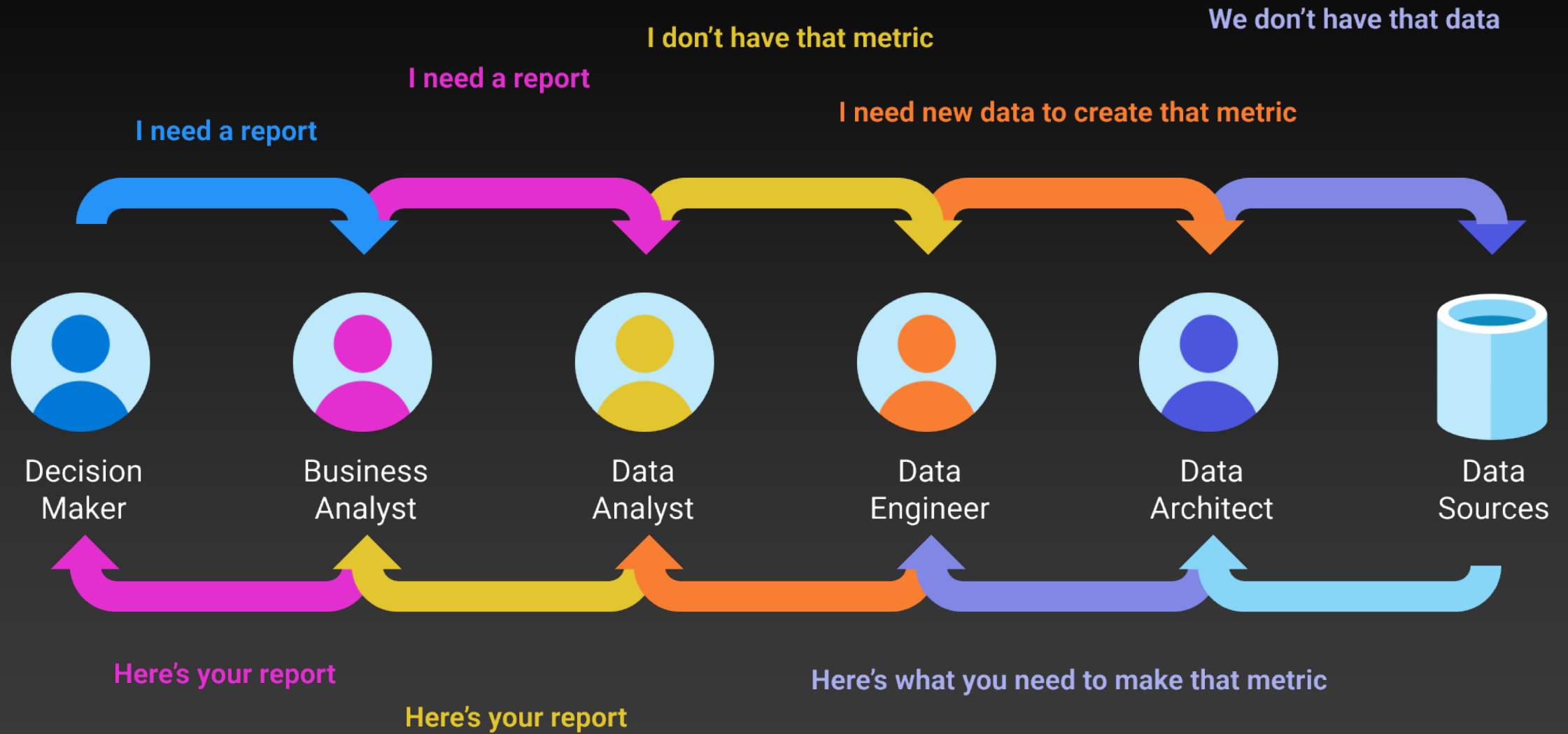
Accessibility

AI

for the future of data

“The moment an analyst is asked a question, a timer starts. When a decision gets made based on that question, the timer stops. Analysts' singular goal should be to minimize the hours and days on that timer.”

- Benn Stancil



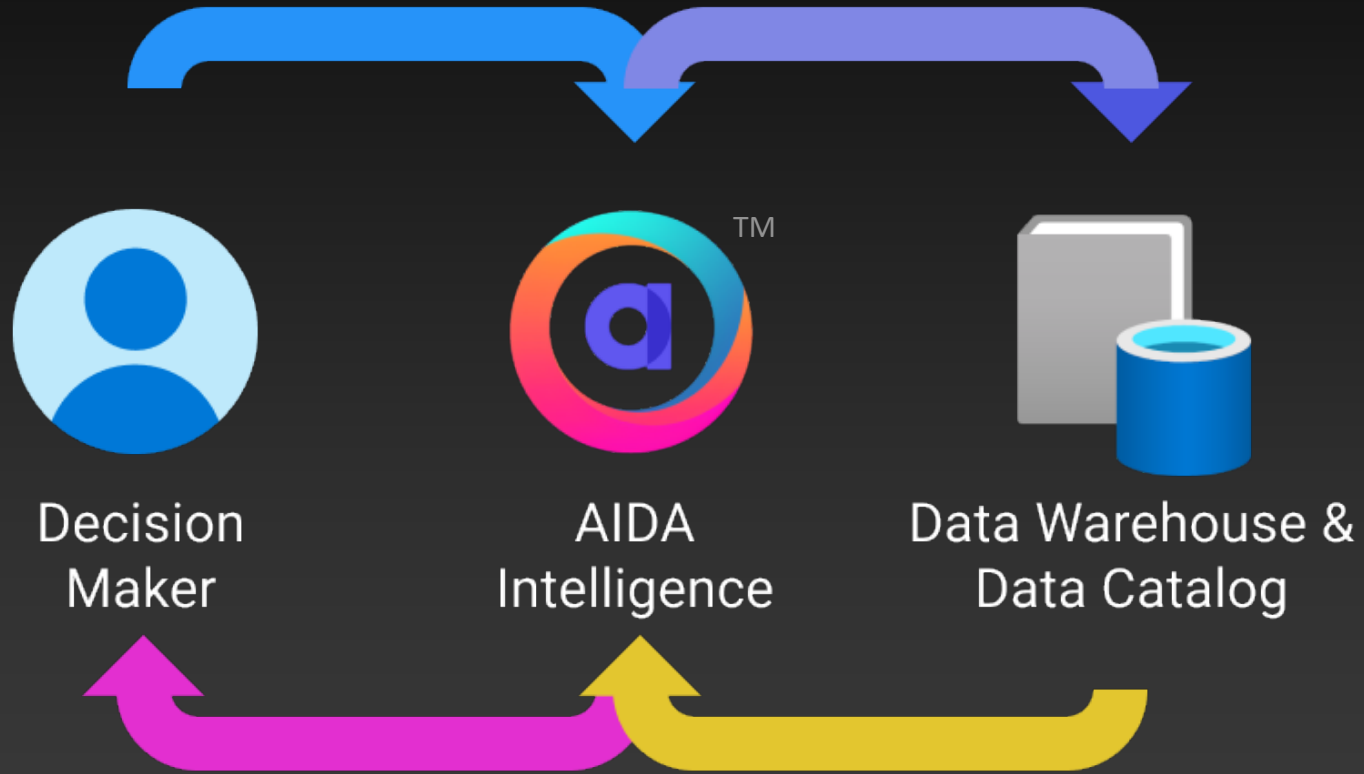
The "Old" Way of Getting Data



AIDATM

AI-Powered Data Assistant

Write me a report about X, Y, Z



Decision
Maker

AIDA
Intelligence

Data Warehouse &
Data Catalog

Here's your report

Schema, Metrics,
& Data Definitions

Our Vision

For the future of AI

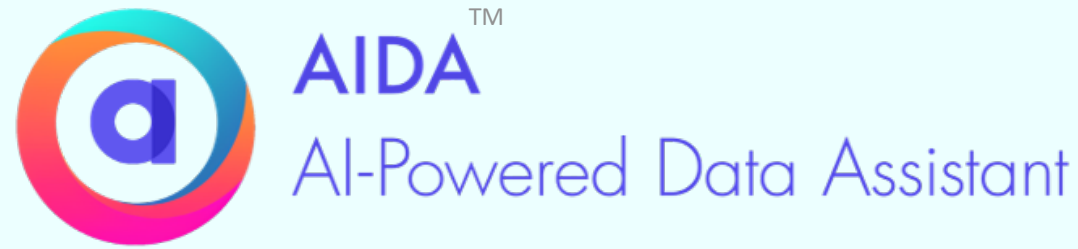
- Cost Efficiency
- Empowered Staff
- Powerful Assistants
- Access to Enterprise Resources
- Customizable AI Solutions
- Security & Governance

The Three Core Components

for the future of AI in Academic Medicine and Healthcare

- **Platform:** Safe and secure platform to distribute, manage, and govern AI
- **Engineering:** Tools to develop, document, validate, and test AI applications
- **Research:** Capability to translate research into operational use (people, process, tools, culture)

Re-imagined AIDATM



- Enterprise access to “ChatGPT” and other LLMs for Students, Faculty, and Staff
- Pre-built in-house AI applications (traditional & generative AI)
- Access to organizational data platforms & knowledge
- Customizable AI assistants
- Customizable “tools” for AI to use
- Role-based security
- Microsoft Entra Single-Sign-On
- HIPAA compliant

AI for Medical Billing and Coding

Completely New Approach

- **Data:** All encounter summaries + corresponding ICD/CPT codes
- **Method:** Novel adaptation of large language models
- **Infrastructure:** Microsoft Azure
- **Goal:** Trained to predict ICD/CPT codes from encounter summaries
- **Why:** Part of a larger custom solution to our streamline revenue cycle management - *Slated for 2024*

Priorities for AI at UTRGV

1. **Technical Knowledge Workers:** Software Eng., Data Eng., IT Support
2. **Operational and Administrative Use-Cases:** Patient Scheduling, Assistants, Call Center Operations & Quality, Anomaly Alerts
3. **Finance and Revenue Cycle Automation:** Coding, Denial Letter Management
4. **Physician Paperwork:** Clinical Notes Generation / Quality Control
5. **Patient Care:** Triageing, Diagnosis, Anomaly Detection

Johns Hopkins Overview AI and Operations

June 2024

Rebecca Canino, MBA
Executive Director, Office of Telemedicine | Johns Hopkins Medicine

Brian Hasselfeld, MD

Senior Medical Director, Digital Health and Innovation



.... it's not about the tools, it's really about the access problem. How do we care for more patients with the same clinical workforce we have today? How do we meaningfully increase productivity? Care for more people on top of the same preexisting resources? And at the same time, of course, avoid the key balancing component, which is we can't simply ask our clinical workforce to work more.

How do we inject really meaningful intelligence into what comes first and what comes next for patients in their journey? And if we can start to extract some of that unnecessary care out of the system, we can unlock some additional supply.

[AI can unlock supply to meet demand, says Johns Hopkins physician IT leader | Healthcare IT News](#)

Vivian Zhao, MHA

Chief Patient Access Officer, JHM Access Services



.... it's not about the tools, it's really about the access problem..

How do we inject really meaningful intelligence into what comes first and what comes next for patients in their journey?

And if we can start to extract some of that unnecessary care out of the system, we can unlock some additional supply.

‘We want to leverage AI technology to efficiently handle routine patient inquiries, ensuring quick responses to common questions and freeing our agents to focus on more complex needs our patients. This strategic use of AI will not only meet patient demands more effectively but also enhance operational efficiency across our services.’

Patient Access Services

Digital Access Channels Current State

FY24 YTD April

SOLUTION

ONLINE SCHEDULING

new & follow up appts



419K | 11%

online scheduled volume

AI

appt info & cancel/rescheduling



26K | 10%

AI completed calls

CALL BACK ASSIST

auto dial back to patient to minimize wait time



67K | 3%

inbound volume

OUTCOME

CALL VOLUME



↓ **87K | 3%**

total call volume

SCHEDULED VISITS



↑ **223K | 5%**

Scheduled Visits

STAFFING



↓ **\$500K | 9 FTEs**

savings

John Crockett

Senior Director of Client Services, Medical Specialties



**How do we meaningfully increase productivity?
Care for more people on top of the same preexisting
resources?**

In the upcoming May 24 update to our EMR, generative AI will be introduced for coders and providers to accurately capture all diagnosis at the highest level of specificity. This will enhance our performance in the Value Based arena and assist in creating precise chart-driven appeal letters to improve outcomes for denials.

We are collaborating with our claims clearing house vendor to utilize their advanced predictive AI tools to enhance accuracy in claims processing and streamline the revenue cycle for professional fee billing. This partnership aims to minimize denials and accelerate revenue generation.

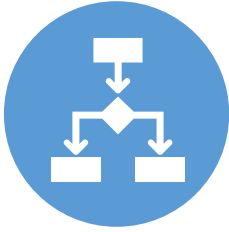
Manisha Loss, MD

Associate CMIO, Johns Hopkins Medicine



How do we care for more patients with the same clinical workforce we have today? How do we meaningfully increase productivity? Care for more people on top of the same preexisting resources?

AI Initiatives In Flight



Message Categorization (EMR)

Model tags messages as “Administrative” or “Clinical”, which can be used to distribute work



Automatically Generates Draft Response (EMR)

Drafts response to patient message based on information from the patient’s record, such as current prescriptions and recent results, which clinicians review before sending



Virtual AI Scribes

Clinical documentation solution combining conversational, ambient AI with advanced generative AI



Chart Summarization (EMR)

Early-stage development to summarize specific areas of the medical record, starting with hospital course notes for admitted patients



Healthcare General Reasoner

Co-developing exploratory models to tackle complex medical questions, such as Venous Thromboembolism (VTE)

Common Themes

Use what you have before you look for more

- Partner with your EMR
- Examine current vendors
- Leverage existing partnerships

Make your case carefully

- Where will it add value?
- What problem are you trying to solve?

Move slowly to make quick change

- Identify champions
- Pilot to onboard
- Address fears
- Celebrate and acknowledge

Education

Johns Hopkins University

Basic Principles of Using AI-Generated Content

- **Selective incorporation instead of full implementation:** AI can be powerful in terms of creating large volumes of content quickly and efficiently. However, AI-generated content can lack the creativity and nuance that comes with human-generated content. Understanding the strengths and limitations of AI-generated content to determine when its use is appropriate is essential.
- **Augmentation instead of replacement:** AI-generated content can be used to supplement or augment human-generated content but should not be used as a replacement for it.
- **Validation instead of full acceptance:** AI-generated content is not a “set-it-and-forget-it” solution. Continuously evaluating the quality and effectiveness of the content being generated by AI and making adjustments as needed is necessary.

<https://teaching.jhu.edu/university-teaching-policies/generative-ai/>

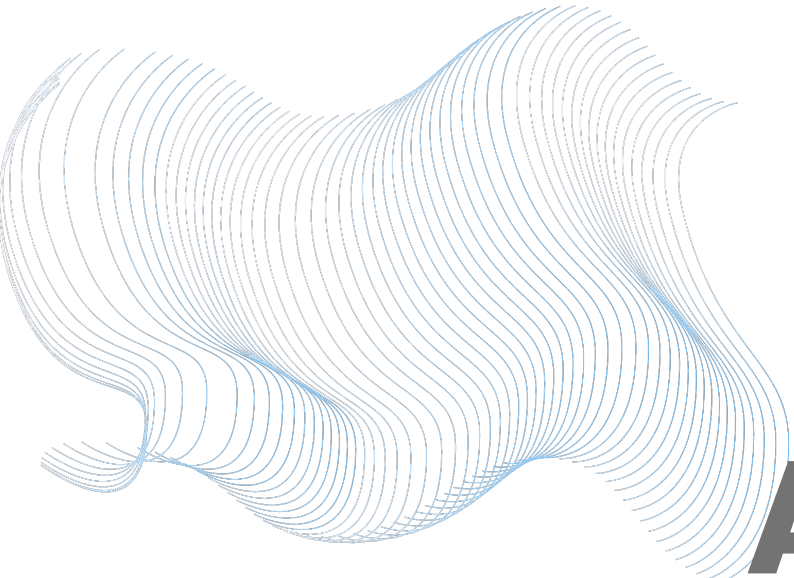
The following pages are guidelines and best practices concerning generative AI tools and teaching. They will continue to evolve over time based on changes in the technology and use cases in the Johns Hopkins community

Thank you!

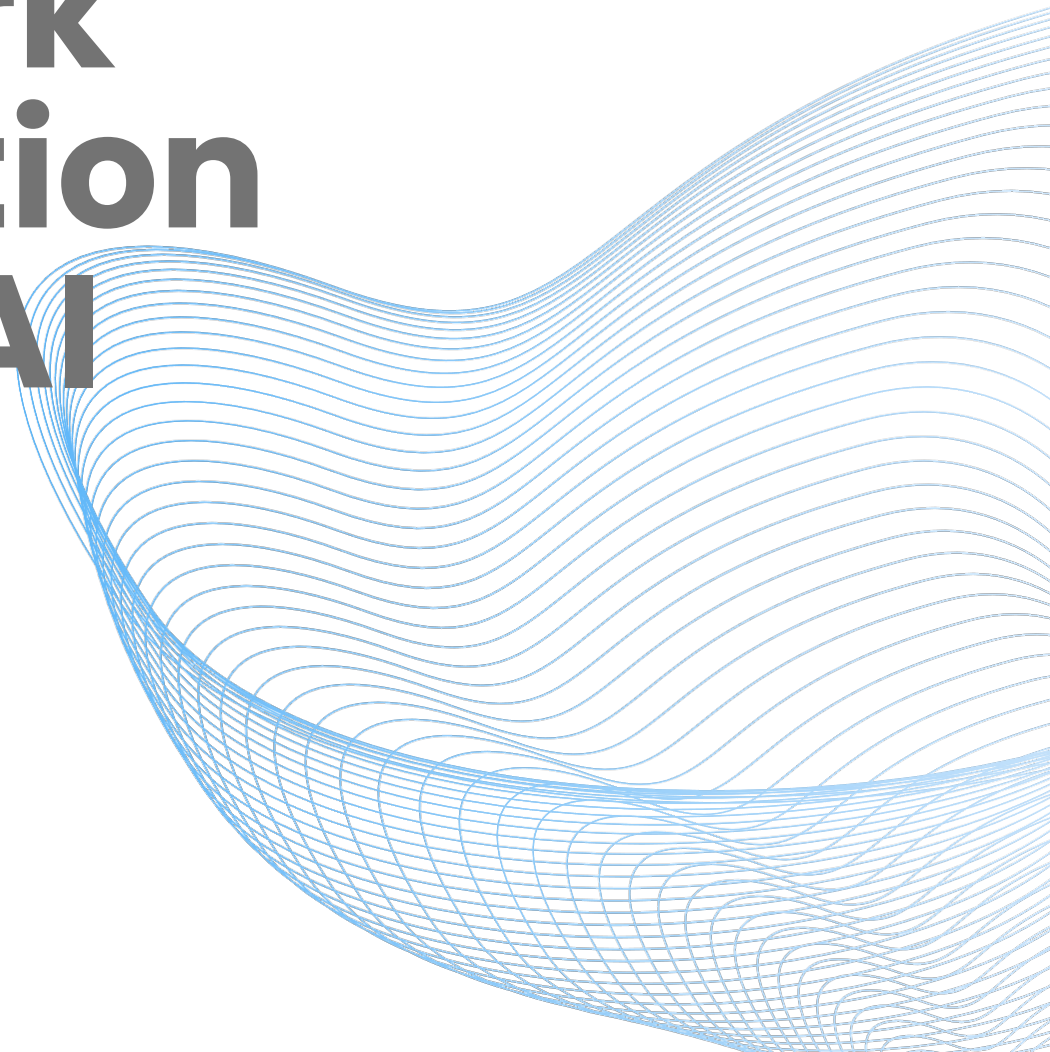


....avoid the key balancing component,
which is we can't simply ask our clinical
workforce to work more.

Questions?
rcanino1@jhmi.edu



Network Automation Using AI



Ahmad Rezazadeh
Engineering Network Manager
www.klevernet.ai

AI Use Cases For SHC Enterprise Network

1. Pre-Post Validation
2. Peer Review
3. QA Chat bot

Pre-Post Validation Process

- Replacing end-of-life hardware
- Lengthy process to validate software configurations
- Manual review of 100s of line of codes
- Time-consuming and prone to human error.
- Human error leads to unplanned outage

Pre-Post Validation Process

Collect Pre

10.250.80.1

Filter by session name <[i]>

Sessions

- 0.0 NetSamrt
 - NetSmart BKUP
 - NetSmart DB
 - NetSmart_Prod
- 0.0.1 HNC
 - HNCFOR-I12-SD01
 - HNCFOR-I13-SD02
 - HNCFOR-T49R37-SA01
 - HNCFOR-T49R40-SD02
 - HNCFOR-U49R39-SD01
 - HNCMED2-L552-SA01
 - HNCMED2-L552-SA02
- 0.1 Console
- 02.100Gig Core
 - NC-Building-A Uplogix
 - STNMC-FOR-RR-2
 - STNMC-NDCCCH-RC03
 - STNMC-NDCCCH-RD03
 - STNMC-WECH-OR23-RH01
 - STNMC-WECH-OR24-RS01
 - STNMC-WECH-OR24-RS02
 - STNMC-WECH-RC04
 - STNMC-WECH-RD03
 - STNMC-WECH-RD04
 - STNNC-420-RR-1
 - STNNC-A11-RC02-PE
 - STNNC-A11-RD02
 - STNNC-BDD-C5-RS01
 - STNNC-BDD-C5-RS02
 - STNNC-D11-RC01-PE
 - STNNC-D11-RC01-PE - MGMT
 - STNNC-D11-RD01
 - STNNC-D11-RH02
- 03.FOR
- 04.500P
 - 3rd Floor
 - MDF
 - MTR
 - SCHMED02-PSR-LF07
 - SCHMED02-PSR-LF08
 - SCHMED02-PSR-LF11
 - SCHMED02-PSR-LF12
 - STNMED2-PSR-LF09
 - STNMED2-PSR-LF10
 - STNMED2-PSR-SW901

```
authentication event server dead action au
authentication event server alive action
authentication host-mode multi-auth
authentication open
authentication order mab dot1x
authentication priority dot1x mab
authentication port-control auto
authentication periodic
authentication timer reauthenticate server
authentication violation restrict
mab
dot1x pae authenticator
dot1x timeout tx-period 10
spanning-tree portfast edge
spanning-tree bpduguard enable
ip dhcp snooping information option allow-
!
interface GigabitEthernet1/15
description SHC-Users
switchport access vlan 200
switchport mode access
switchport voice vlan 700
ip arp inspection limit rate 200
ip access-group ISE-FERMIT in
no logging event power-inline-status
authentication event fail action next-meth
authentication event server dead action au
authentication event server alive action
authentication host-mode multi-auth
authentication open
```

Collect Post

10.250.80.1

Filter by session name <[i]>

Sessions

- 0.0 NetSamrt
 - NetSmart BKUP
 - NetSmart DB
 - NetSmart_Prod
- 0.0.1 HNC
 - HNCFOR-I12-SD01
 - HNCFOR-I13-SD02
 - HNCFOR-T49R37-SA01
 - HNCFOR-T49R40-SD02
 - HNCFOR-U49R39-SD01
 - HNCMED2-L552-SA01
 - HNCMED2-L552-SA02
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 - STNMC-NDCCCH-RC03
 - STNMC-NDCCCH-RD03
 - STNMC-WECH-OR23-RH01
 - STNMC-WECH-OR24-RS01
 - STNMC-WECH-OR24-RS02
 - STNMC-WECH-RC04
 - STNMC-WECH-RD03
 - STNMC-WECH-RD04
 - STNNC-420-RR-1
 - STNNC-A11-RC02-PE
 - STNNC-A11-RD02
 - STNNC-BDD-C5-RS01
 - STNNC-BDD-C5-RS02
 - STNNC-D11-RC01-PE
 - STNNC-D11-RC01-PE - M
 - STNNC-D11-RD01
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 - SCHMED02-PSR-LF12
 - STNMED2-PSR-LF09
 - STNMED2-PSR-LF10
 - STNMED2-PSR-SW901

```
STNNWK-21-SA01#
STNNWK-21-SA01#
STNNWK-21-SA01#
STNNWK-21-SA01#
STNNWK-21-SA01#
STNNWK-21-SA01#
STNNWK-21-SA01#
```

MEDICINE

33

Pre-Post Validation Demo Using GPT

- Automated process using a GPT model.
- Reduces network engineers' time
- Simplified job creation for comparison.
- View compared results

Pre-Post Validation Demo Using GPT

[Back](#)

- Comparison Results for STNAMC-02-SA01.NETWORK.STANFORDMED.ORG

1. Results of `show cdp neighbor`

NO DIFFERENCES FOUND

2. Results of `show ip route vrf grn200`

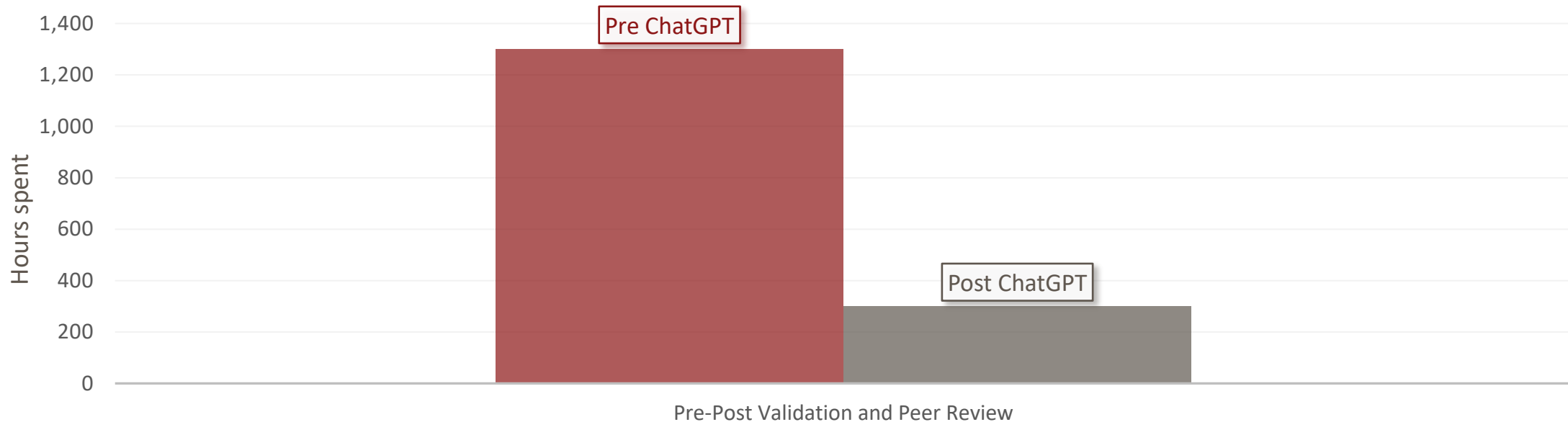
The following entry is missing in the post-change context:
C 10.253.7.1/32 is directly connected, Loopback252

3. Results of `show ip arp vrf blu300`

NO DIFFERENCES FOUND

Savings by LLM

- 1,300 hours spent per year by manual work
 - 800 hours to replace 40 switch/year
 - 500 hours for routine maintenance and optimization
- 75% or \$100,000 saved by GPT models
 - 300 hours for both peer-review and pre-post check
 - Minimizing impact to patient care due to human error



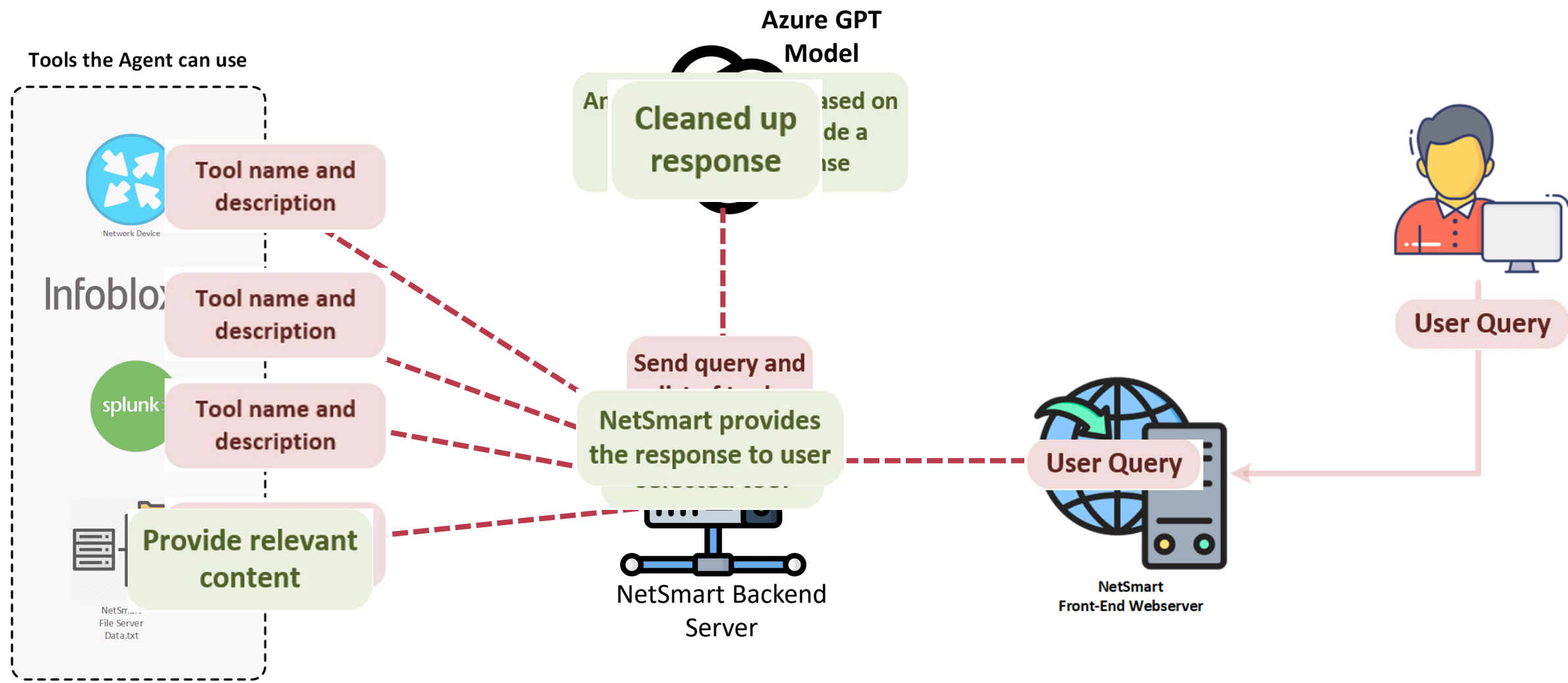
Network Team QA Chat Bot – Why?

- Searching through numerous documents
- Login to numerous different tools
- Quick answer would greatly enhance efficiency

Network AI Chat Bot

- Leveraging GPT model:
 - Decision making on tools
 - Refining and cleaning up relevant content
- Vectorized database
- Integration with splunk and other tools

Network Chat Bot Flow Diagram



Network Chat Bot Demo

The screenshot displays a web-based chat interface for a network chatbot. On the left, a 'Chat History' sidebar lists various sessions such as 'New Session', 'Document Detective', and 'Resonant Echo'. The main chat area shows a user's question: 'can you tell me what kind of documents i have?'. The chatbot's response, displayed in a light green bubble, provides a structured list of document types and specific file names. On the right, a 'Select Data Source' dropdown is set to 'Chat With Your Team I', and a 'NetSmart Chatbot Tutorial' button is visible. At the bottom, there is a text input field with the placeholder 'Say something' and icons for sending and attaching files.

Chat History

- New Session
- Document Detective
- Resonant Echo
- Hello Friend Space
- VDI Connection Issue
- Warm Welcome Whis...
- Gateway Guardians
- S-ID Reset Helper
- File Transfer Protocols
- Thrive with Netsmart
- PortQuery Navigator
- InsurDataMortJSON
- JsonLoanFacts Decod...
- Loan Sum Inquiry

can you tell me what kind of documents i have?

Based on the provided context, here are the types of documents you have:

- 1. Network Operation Master Sheet:**
 - Topics include SMP Locations and Contacts, UHA IDF Access information, FS Coverage UHA-VC, IDF List, 500P IDF, 500P Important Links, IDF Pics & Video, AP Information, End User Device Behavior, Frequently used Network Tools, NW Operation SOP, KT Sessions, and Jump Server details.
 - File Name:** `dgg_ds_network_global_network_operation_master_sheet.txt`
- 2. KT Session Links:**
 - Knowledge transfer videos on various network topics used in SHC projects by the network team.
 - File Name:** `dgg_ds_network_global_network_operation_master_sheet_KT Sessions.txt`
- 3. Server Information:**
 - Details about servers including names, products, environments, functions, descriptions, locations, IP addresses, operating systems, CPU, and RAM.
 - File Name:** `dgg_ds_network_global_nc_infra.txt`
- 4. Moberg Component Neuromonitoring System (CNS):**
 - Overview, user access creation, troubleshooting, and resolution steps.
 - File Name:** `test_asha.docx`
- 5. Network O&A:**

Select Data Source

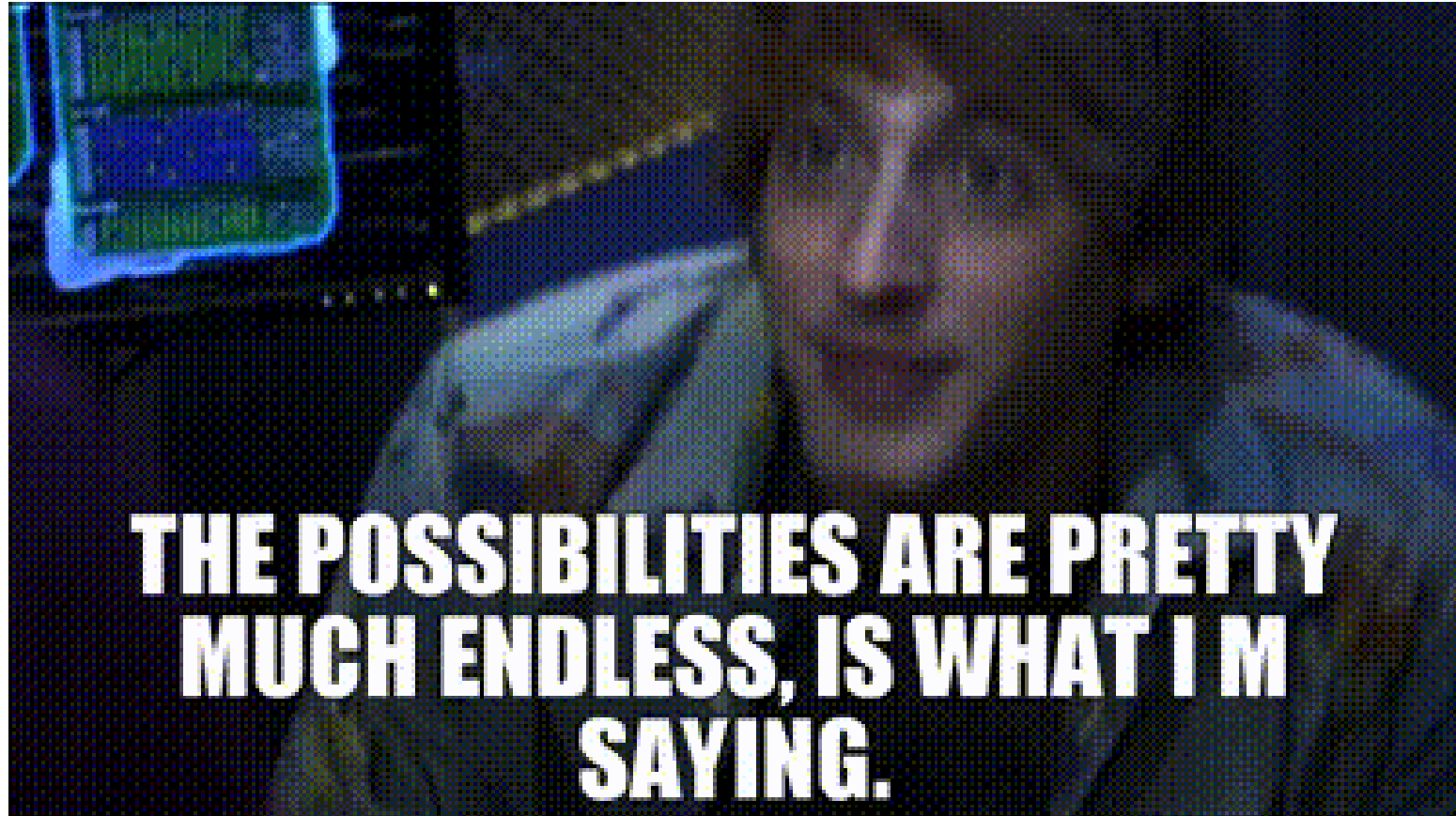
Chat With Your Team I

NetSmart Chatbot Tutorial

Say something

Exciting Future Plans on Chatbot

- Document retrievals per team
- Conversation memory
- Support more file type



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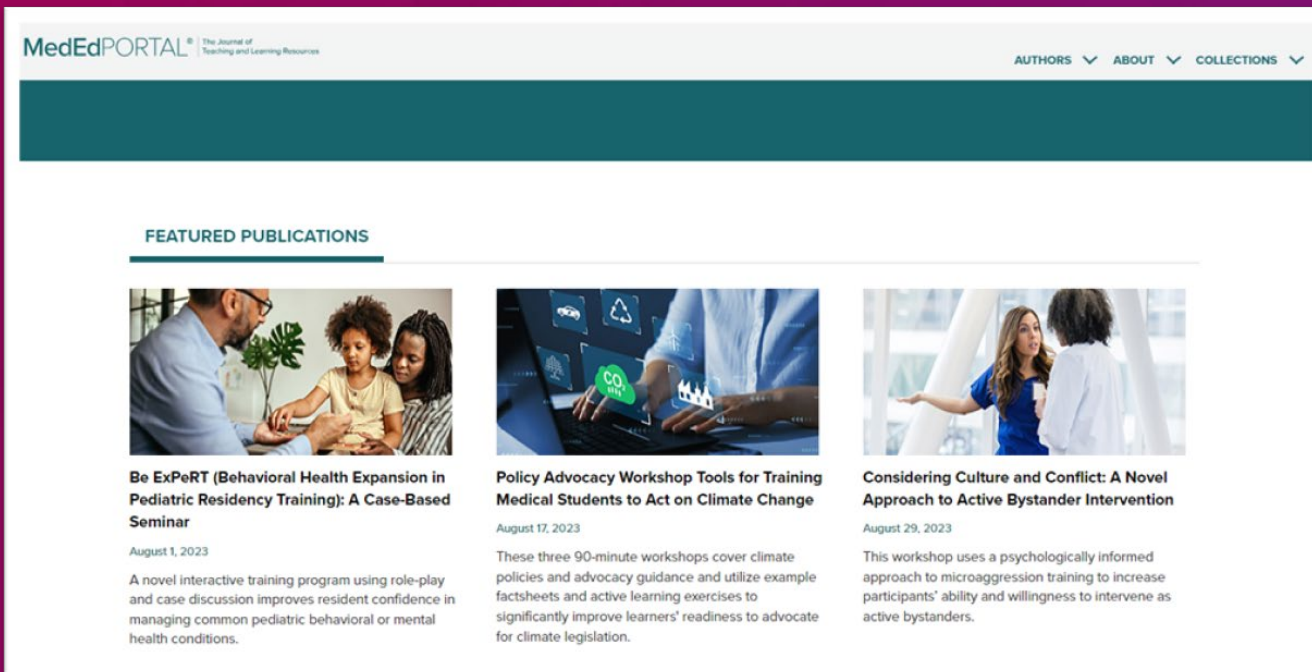
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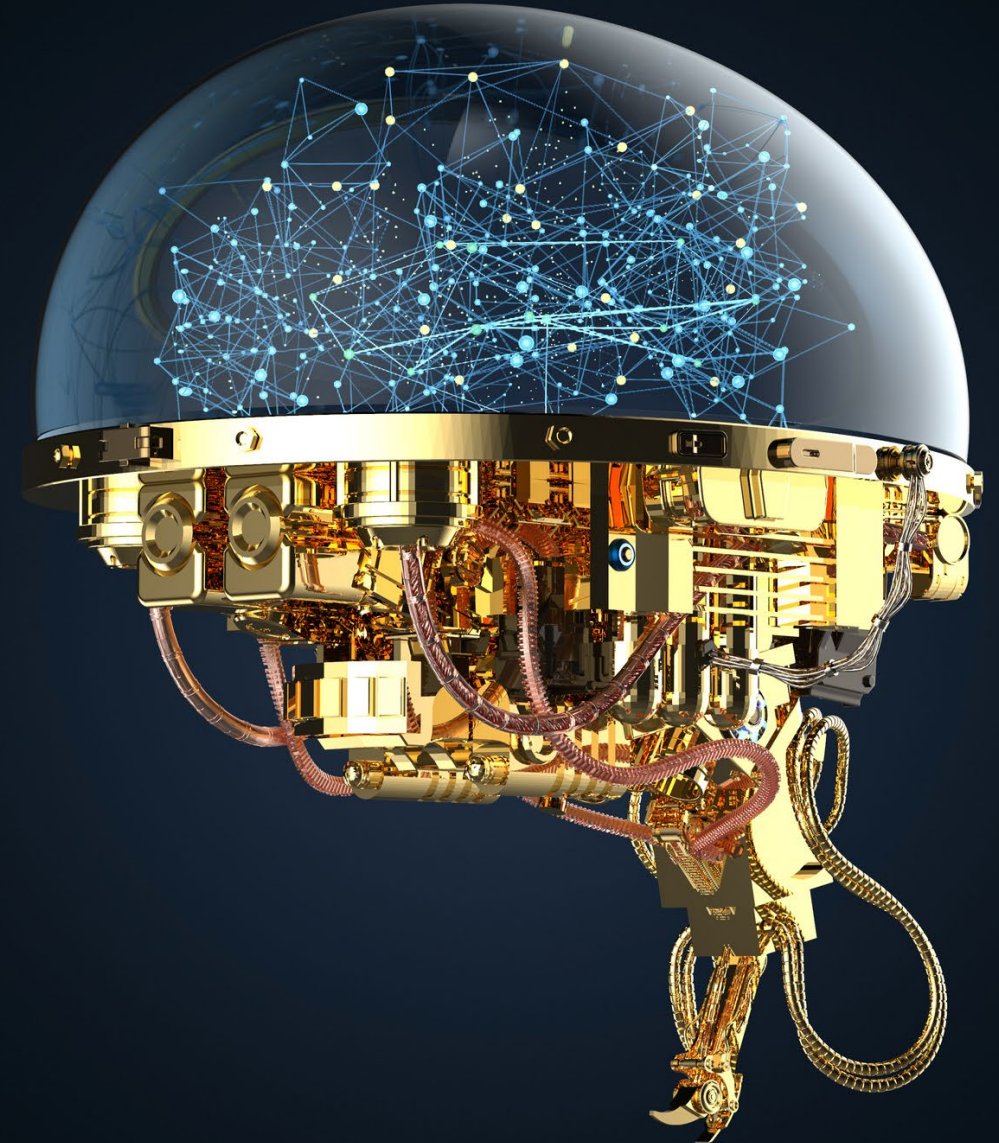
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- Discussion threads



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- AI and Academic Medicine webpage



Upcoming AAMC AI Webinars

Artificial Intelligence and Medical School Admissions and Selection - July 30, 2024

Past AAMC AI Webinars

A Disruptive Connector:

Learning & Experimenting with Generative AI Together

June 11, 2024

AI in Medical Education: Faculty as Learners and Educators

May 22, 2024

- *Video recording*
- *Presentation slides*
- *Q&A section summary*



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Thank you!