

GenAI Tools & Training at NIH

September 9, 2025



Hi, I'm Nick Weber...

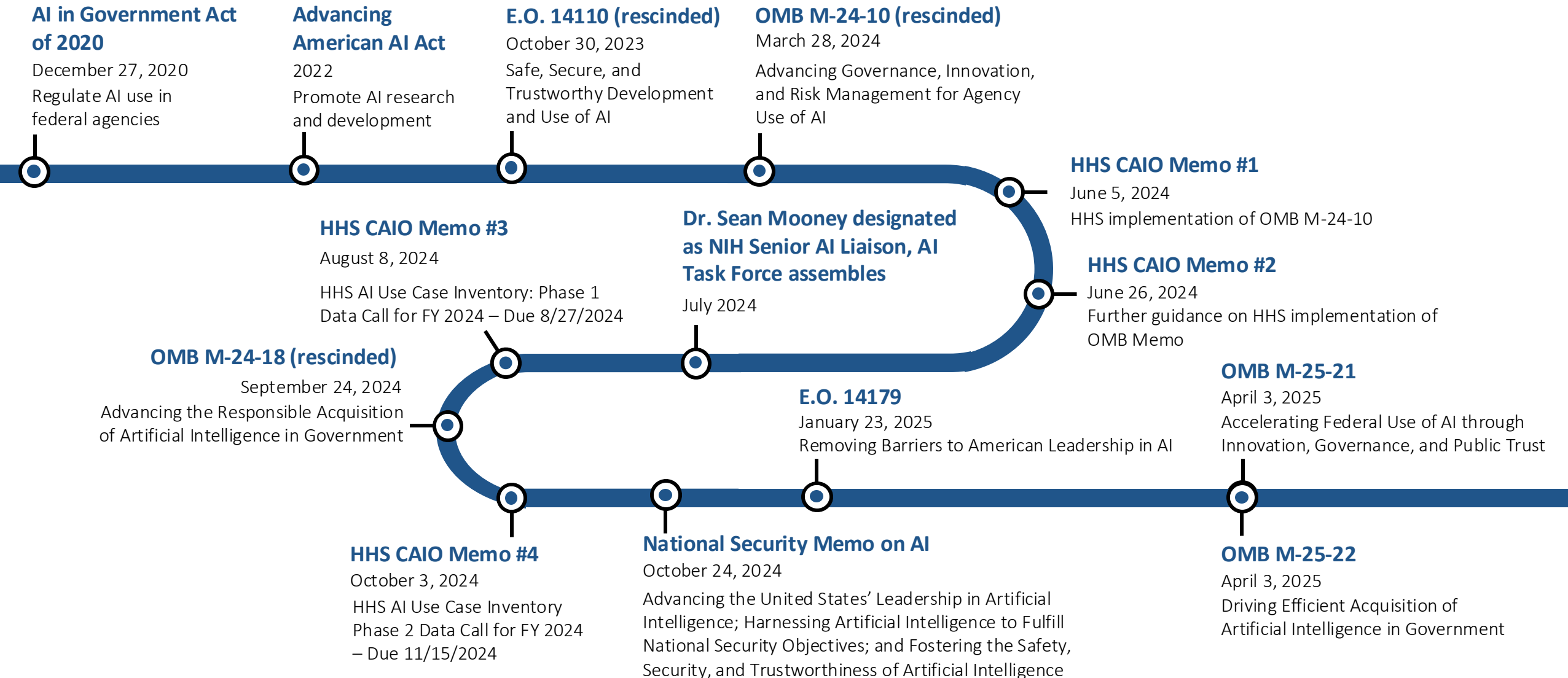
Acting Director, Office of Scientific Computing Services
NIH Center for Information Technology
NIH GenAI CoP Co-Chair



and I'm Dianne Babski

Director, User Services and Collection Division
NIH National Library of Medicine
NIH GenAI CoP Co-Chair

Rapid Rise of AI in Government



AI Capabilities at NIH

AVAILABLE NOW



STRIDES: Secure spaces to work with LLMs in authorized cloud platforms.
Contact STRIDES@nih.gov or submit a ticket through [ServiceNow](#) to request a consultation.



Anaconda AI Navigator: Desktop app that allows running LLMs on your computer.
Visit the [Anaconda page on the ISDP SharePoint Site](#) to learn more about Anaconda.



GitHub Copilot: AI code assistant through the GitHub license that offers access to Copilot. Review the [GitHub Resource Center](#) for more information.



CHIRP: NIH community chatbot used to summarize documents, generate text, write and debug code.
Contact [Steevenson Nelson](#) for more information.

IN PILOT PHASE



ChatGPT Enterprise: A fully integrated enterprise-grade secure AI platform.
Contact [Nick Weber](#) for more information.

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Anaconda: Secure Scientific Computing Platform for AI, ML, and Data Science with Python & R

Anaconda is a popular platform for scientific computing, artificial intelligence, and machine learning.

Common Scientific Use Cases



Genomic Analysis



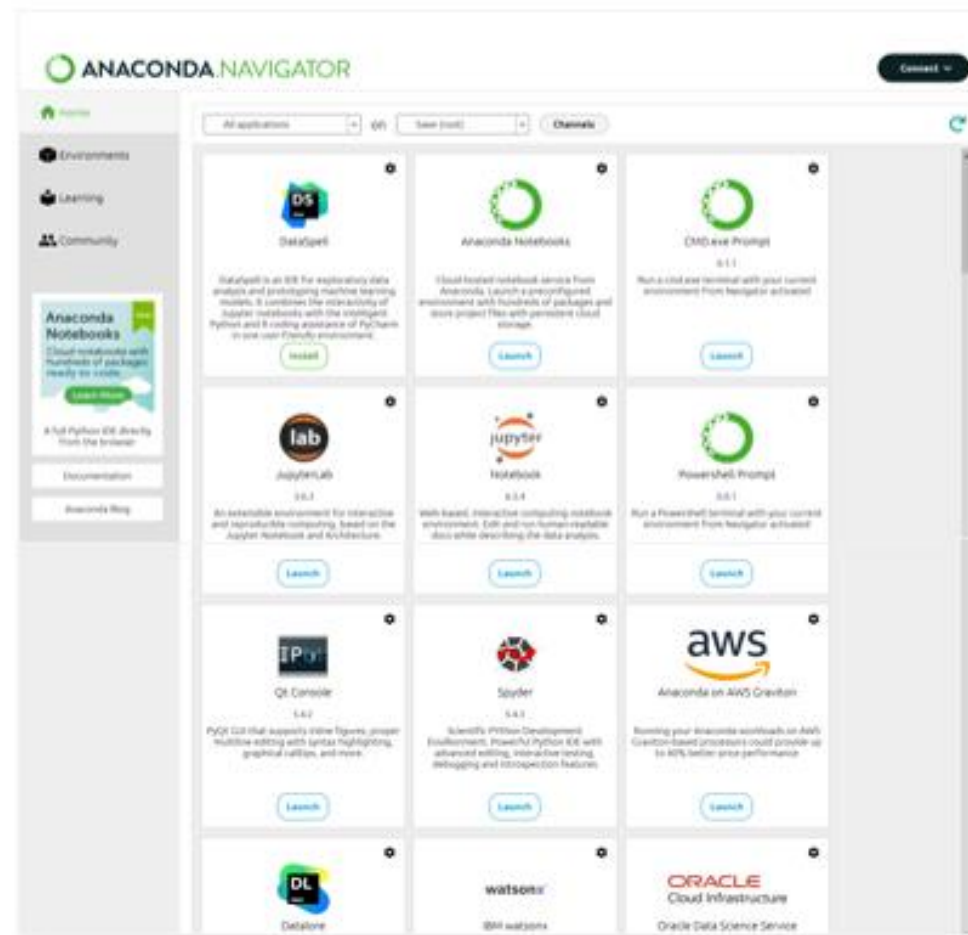
Drug Development



Disease Modeling



...and more



GitHub Copilot

Increase developer productivity with GitHub Copilot



GitHub Copilot

About GitHub Copilot

GitHub Copilot is an AI-powered coding assistant that leverages GenAI models to provide intelligent code suggestions and automate repetitive coding tasks. It is trained to use code from public repositories, allowing it to understand context and generate relevant code snippets on the fly.

GitHub Copilot can provide productivity gains and tasks completed in up to 55% less time*. Using [NIH Enterprise GitHub](#), Copilot is available for all Organizations.

For access and details, contact github@nih.gov.

* Source: "Research: Quantifying GitHub Copilot's impact on developer productivity and happiness"

Retrieved from: <https://github.blog/2022-09-07-research-quantifying-github-copilots-impact-on-developer-productivity-and-happiness/>

Microsoft Copilot: Top 10 Things to Try First

Microsoft has shared 10 recommended features to explore when first incorporating M365 Copilot into your daily workflow. For more information, visit Copilot Lab at: aka.ms/CopilotLab



1

Recap a meeting

– let Copilot keep track of key topics and action items so you can stay focused during the meeting and avoid listening to the recording after.

→ Draft an email with notes and action items from meeting



2

Summarize an email thread

– get quickly caught up to a long, complex email thread.

→ Click on the Summarize icon



3

Draft email

– personalize the tone and length.

→ Draft an email to [name] that informs them that Project X is delayed two weeks. Make it short and casual in tone.



4

Summarize a document

– get right down to business by summarizing long documents and focusing on the relevant sections.

→ Give me a bulleted list of key points from file



5

Tell me about a topic/project

– provide insights and analysis from across multiple sources to get up to speed quickly.

→ Tell me what's new about topic organized by emails, chats, and files?



6

Give me some ideas for ...

– boost your creativity with ideas for your work such as agendas, product names, social media posts, etc.

→ Suggest 10 compelling taglines based on file



7

Help me write ...

– jumpstart creativity and write and edit like a pro by getting a first draft in seconds.

→ Generate three ways to say [x]



8

What did they say ...

– when you vaguely remember someone mentioning a topic, have Copilot do the research.

→ What did person say about topic



9

Revise this content

– when you've got a rough draft of an idea, turn it into usable text and then vary the length and tone.

→ Rewrite with Copilot



10

Translate a message

– with business becoming increasingly international, it's important to be able to read or write messages in other languages.

→ Translate the following text into French:

CHIRP: NIH-secure GenAI

Research Analysis & Summarization

- Summarize documents
- Extract key findings, methods, limitations
- Generate plain-language summaries
- Compare and contrast across multiple sources

Data Interpretation

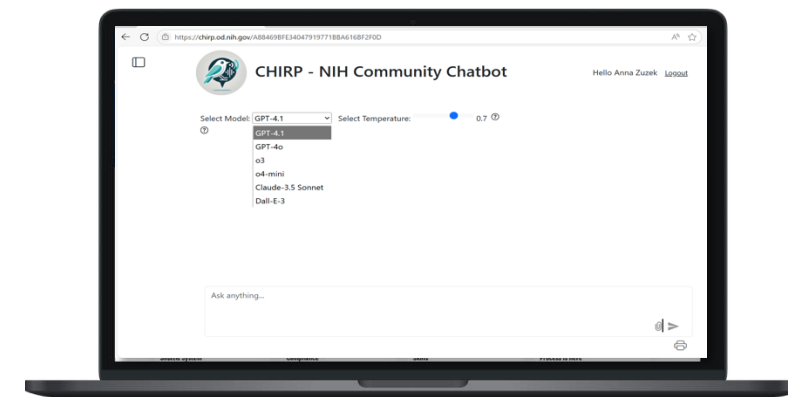
- Ask for a statistical explanation
- Write narratives for charts and tables
- Get visualization ideas based on raw data

Writing & Editing Support

- Draft or edit protocols, reports, emails
- Improve clarity, conciseness, and tone
- Convert bullet points to text and vice versa

Administrative Tasks

- Create meeting agendas, summaries, etc.
- Outline or draft content
- Generate graphics
- Locate internal policies, resources, reports



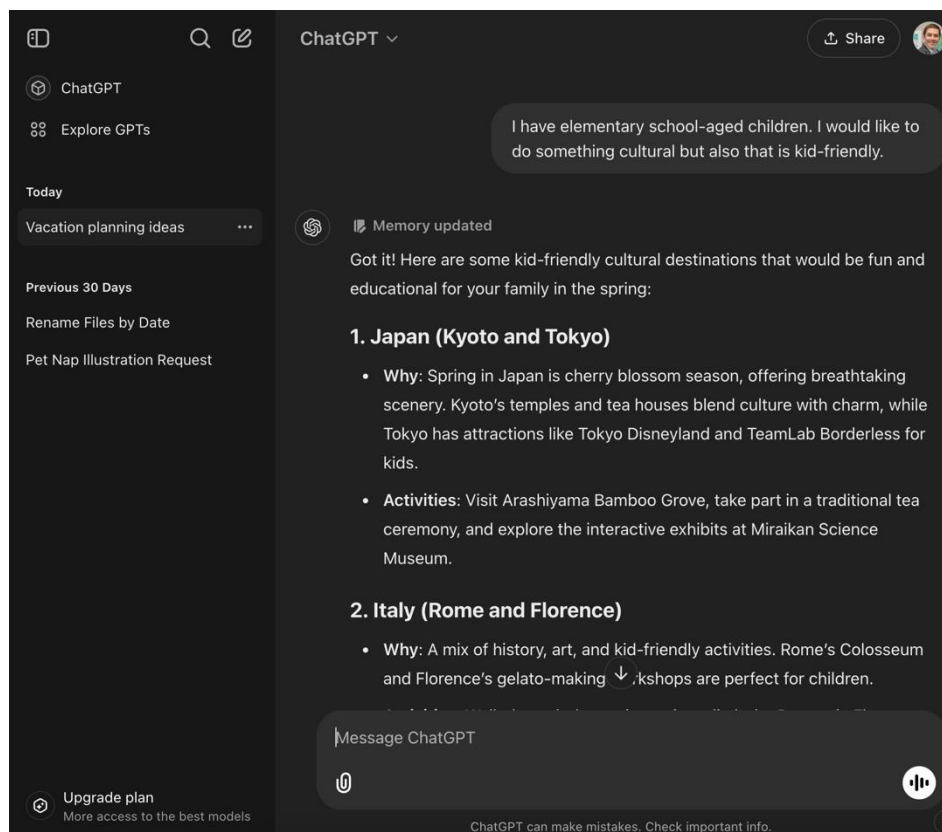
How to Access:

1. Connect to NIH Network or VPN
2. Go to <https://chirp.od.nih.gov>

ChatGPT Enterprise

*SaaS tool currently in **Pilot Phase** or **Available Now***

- An AI tool from OpenAI that boosts productivity and streamlines processes
- A robust version of the public ChatGPT version, tailored for enterprise use, offering advanced security and privacy, faster processing, and data analysis capabilities
- Data is not used for training the AI model and data is not shared outside of the enterprise



Overview

ChatGPT Enterprise is a Generative AI tool based on OpenAI's GPT-4 engine with multiple AI models that responds to multimodal inputs (text, images, and video) and offers a conversational interface to perform fast data analysis, web searches, language translations, create and debug software code, create custom automated workflows and processes, and document summarizations.

NIH STRIDES

Accelerating biomedical research

Cloud Service Providers (CSPs) are companies that offer cloud computing services on a pay-as-you-go basis. Each CSP equips their users with the ability to obtain resources such as servers, storage, networking, and software to propel their project use cases and needs. CSPs provide users an expansive and scalable environment that promotes global connection.

We partner with Azure (Microsoft), **AWS** (Amazon), and **GCP** (Google).



Cloud Services Providers Overview & GenAI Capabilities

There has been a large push towards using Generative AI tooling through STRIDES by exploring multiple use cases:

Azure Open AI

Chatbot creation for coding assistance, quality assurance, and data review

AWS Bedrock

Large-scale/institutional Chatbot for general usage

GCP Gemini

Data reformatting of unstructured and freeform text data for reporting and clinical publication

Experiment in the Cloud

NIH Cloud Lab is a no-cost, 90-day program for researchers to try Amazon Web Services, Google Cloud, or Microsoft Azure in an NIH-approved environment.

The team launched Cloud Lab to NIH staff in June 2022 and a small group of awardees in June 2023. We're now expanding the program to current and prospective recipients of NIH funding.



Learn More!

Scan the QR code or visit
cloud.nih.gov/resources/cloudlab

NIH Use Cases

Evaluate Utility & Cost

Provides an easy route to evaluate the cloud's utility/cost for a project without major time or financial commitments.

Develop New Tools

Allows experienced teams to prototype new architectures and evaluate software and hardware combinations.

Share Ideas

Connects NIH'ers from across ICs to share ideas on how to conduct biomedical research in the cloud.

Learn New Skills

Simplifies access to tools and cloud environments that participants can use for training purposes.

Tutorial Overview

Anyone with a Cloud Account can run interactive, cloud-based tutorials in several GitHub repositories.



NIH Cloud Lab for Amazon Web Services

This repository teaches Cloud Lab participants and others how to use Amazon Web Services for research. It includes basic tutorials and links to helpful resources.



NIH Cloud Lab for Google Cloud

This repository teaches Cloud Lab participants and others how to use Google Cloud for research. It includes basic tutorials and links to helpful resources.

NIGMS Sandbox

This repository teaches students, researchers, and clinicians how to utilize the cloud for research. It includes 12 interactive modules and a set of [complementary videos](#).



NIH Cloud Lab for Azure

This repository teaches Cloud Lab participants and others how to use Azure for research. It includes basic tutorials and links to helpful resources.

Good to Know: Most of these interactive tutorials cost between \$2 and \$10 to run.

Publicly Available Interactive Tutorials Across All Three CSPs!

Cloud Lab offers a [suite of interactive tutorials](#) designed to help participants perform viable research in the cloud. Open to all who wish to gain skills, not just Cloud Lab participants!

Scientific

- Accessing Open Datasets
- AI/ML
- BLAST
- FHIR
- Genomic Variant Calling
- GWAS
- Long Read Genomics
- Medical Image Segmentation
- Proteomics
- RNAseq
- scRNAseq
- Radiogenomics
- SRA Data Interaction
- VCF Query with SQL
- ...and more

GenAI

- Model Training
- Guidance & Best Practices
- Introduction to tools across all platforms
- Leverage Large Language Models (LLMs)
- Chatbot Implementation
- Retrieval- Augmented Generation (RAG)

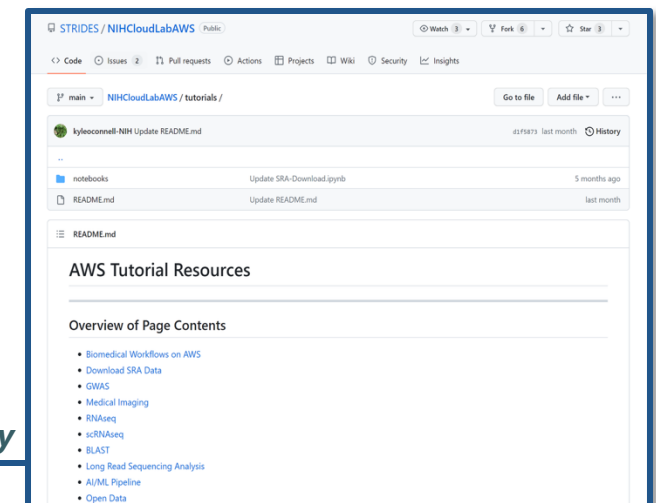
General Cloud Ops

- Access Marketplace Offerings
- Access Public Datasets
- Command Line Tools / SDKs
- Disk Images
- Ingest and Store Data
- Introduction to Cloud
- Jupyter Notebooks
- Serverless Functionality
- Virtual Machines

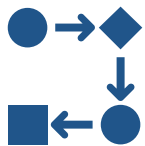
Computing & Code

- Conda Environments
- Container Registries
- Git Repos
- HPC Clusters
- Kubeflow
- Serverless Functionality

NIH Cloud Lab AWS Tutorial Repository



SCassist: AI Powered Workflow Assistant



- AI assistant to help analyze large and complex single-cell data
- Open-source R package on GitHub
- High level of “groundedness” (minimal hallucinations) and semantic similarity
- Human evaluators reported high clarity, accuracy, and usefulness
- Low cost
- [Click here to view recording](#)

Ask Althena – Academic Q&A Bot



- Answers biomedical, clinical, translational research questions
- Makes literature recommendation from 250M abstracts, 50M full texts (daily updates)
- Modular RAG framework with multiple modes
- Guardrails against hallucinations & prompt injection
- [Click here to view recording](#)

NIH GenAI CoP

Since its inception a year ago, the NIH GenAI CoP community has grown to **over 1,300 members**, including federal staff, contractors, fellows, volunteers, and guests.

2024 & 2025 meeting files:
[Presentations and Recordings](#)

Past topics and ICs/Organizations represented:

- AI: The Big Picture; LLMs for DMS (OD)
- NLM GenAI Pilot (NLM)
- EP Portfolio Analysis; NBS Assist Chatbot (NLM)
- Generative AI Process Overview: GenAI Solution Planning and Design (CIT)
- STRIDES GenAI Solutions Portfolio: Capabilities Available Across STRIDES Cloud Platforms; Demos of GCP and AWS GenAI offerings (CIT)
- Model Cards; Cost and Availability of GPUs; Tools for Code Generation (CIT)
- Using Generative AI for Mining Scholarly Literature: An Opportunity or a Liability? (Northwestern University)
- LLMs & Cloud Platforms: An Informal Bake Off (CIT)
- Advancing AI Operations at National Institute of Standards and Technology (NIST)
- ToxPipe: Chatbots and Retrieval-Augmented Generation on Toxicological Data Streams (NIEHS)
- Update on the ODEO Chat Bots; Update on the LLM4DMS Project (OD & CIT)
- Enabling GenAI Ecosystem with CFG.AI (Deloitte)
- CARE: Chatbot Accuracy and Reliability Evaluation (ARPA-H)
- Boost Employee Productivity with Amazon Q Business (AWS)
- GenAI Use Case: Extracting Information from Submitted Letters of Support (CSR)
- Microsoft GenAI Use Cases: GitHub Copilot Demo and Science Engine Overview (GH CTO Public Sector)
- Responsible AI Roundtable – Panel Discussion
- Overview of Google Vertex AI Platform for GenAI (Google)
- FDA CDER's Journey in Developing AI Capabilities (FDA)
- Microsoft 365 Copilot Preview (CIT)
- GenAI CoP at NIH: One Year of Collaboration and Growth
- GenAI Embedding as a Shared Multimodal Representation (NCI)
- AI Learning Resources and Trainings (OD/ORS)
- Enabling Trustworthy Use of Generative AI (ACF/HHS)
- Advancing Multimodal AI for Biomedical Innovation (NLM & Mind Moves)
- Generative AI Adoption at CDC (CDC)
- The Road to Adopting AI in Strategic Planning, Performance & Evaluation (OD)
- AI Governance at NIH and Related AI Use Case Inventory (OD)
- Overview of NIH AI Initiatives (CIT)
- Introduction to Microsoft Copilot Studio (Microsoft)
- Microsoft 365 Copilot Project Update (CIT)
- Human-In-the-Loop Evaluation (NLM & Mind Moves)
- SCassist: An AI Based Workflow Assistant for Single-Cell Analysis (NEI)
- AI for Discovery: Applications in Biomedicine and ADRD (NIA)
- Generative AI Platform for Application Development (NIAD)
- NIH GenAI Tools Evaluation & Comparison (OD)
- Agentic AI with Google Agentspace (Google)
- Ask Althena: An Academic Question Answering Bot (NCATS)
- AI Strategy Development at NIH (NIBIB)
- Large Language Models for Data Management & Sharing (LLM4DMS) Pilot Update (NIA, NHGRI, and CIT)



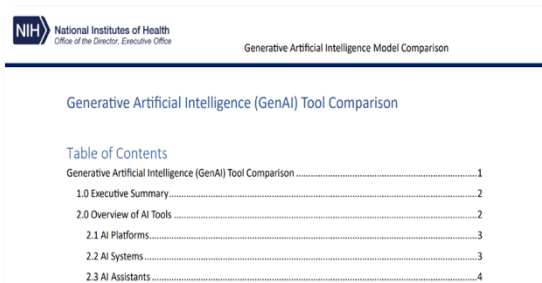
GENERATIVE AI COMMUNITY OF PRACTICE



NotebookLM Podcast Excerpt

- Sample podcast deep-dive into the NIH GenAI Community of Practice (45 s)

AI Learning Resources & Training



NIH National Institutes of Health
Office of the Director, Executive Office

Generative Artificial Intelligence Model Comparison

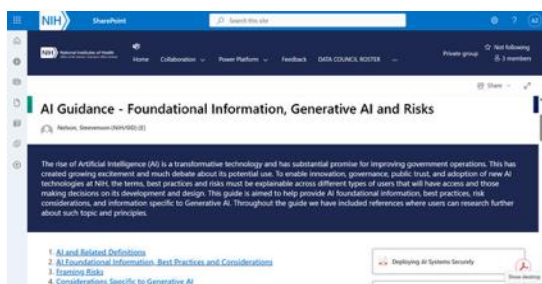
Generative Artificial Intelligence (GenAI) Tool Comparison

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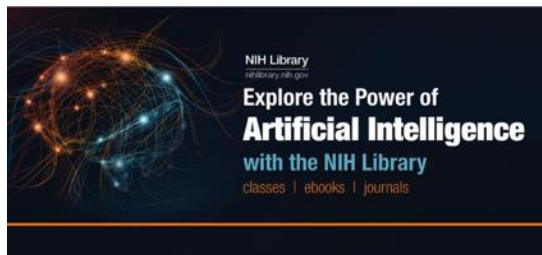
GenAI Tool Comparison

- [Report](#) to help NIH staff determine which AI tool meets their use case needs
- This file is regularly updated, and your feedback is welcome. For questions, please contact [Nelson Steevenson](#) (NIH/OD), [Andrew Schroeder](#) (NIH/OD/ORS), and [Etan Kuperberg](#) (NIH/OD).



OD AI Guidance SharePoint Site

- [SharePoint site](#) with 18+ resources with information on AI and GenAI best practices, how to guides, ethical and risk considerations, and NIH use cases



AI Resources and Training at the NIH Library

- Over 21,000 e-books on AI through the [NIH Library Catalog](#)
- 80+ short videos on Sage Research Methods portal. Filter by “Content Available to Me”
- [Trainings on AI](#)
- [GenAI Subject Guide Website](#) & [GenAI Usage Toolkit](#)

NLM Resources & Training

National Library of Medicine specializes in biomedical informatics and computational biology, including:

- Biomedical literature
- Health data standards
- Indexing and curation
- Women's health research
- GenAI innovation pilots



Data Access

- [Data Discovery](#)
 - [Dataset Catalog](#)
 - [Genomic Data](#)
-

Learning/Training Resources

- [NLM Learning](#)
- [Network of the NLM Training](#)

Thought Leadership

- [Musings from the Mezzanine](#)

Products and Services Updates

- [Technical Bulletin](#)
- [NCBI Insights](#)

Advancing Biomedical Research and Operational Efficiency Through Generative AI: An Innovation Pilot

Dianne Babski, Director USCD, NLM

National Library of Medicine

Objective	Abstract	Results																														
Prototype and evaluate viable use cases using large language models (LLMs) for internal process improvement, while enhancing workforce skills and cultivating a supportive community of practice.	Generative AI (GenAI) holds transformative potential for biomedical research and operational efficiency. The National Library of Medicine (NLM) conducted a six-month pilot to explore LLMs across domains such as customer service, operational process, data analysis, and clinical support. Use cases included automated error detection to improve website accessibility, drafting consumer-health responses, enhancing patient-clinical trial matching, and using semantic models to explore data-literature relationships affecting health outcomes. The pilot emphasized ethical AI practices, operating in secure environments guided by the NIST AI Risk Management Framework. Its success aligned with NLM's strategic vision, fostering innovation, skill development, and a collaborative community of practice. NLM's pilot serves as a model for other institutes, showcasing GenAI's potential to advance biomedical research and patient care.	We demonstrated that GenAI can effectively address use case hypotheses and enhance productivity. Participants acquired new skills, supported one another's progress, and generated momentum that advanced the organization's AI journey.																														
Organizational Change	Methodology & Process	Use Case Prototypes																														
This pilot fostered a culture of innovation and aligned with NLM's strategic vision. Eighteen (18) innovators from across divisions led prototype development, participated in training sessions, and engaged in codeathons, benefiting from the collaborative cohort experience. The pilot gained significant attention internally and externally, influencing staff across NLM and NIH exploring AI/LLM applications. It was featured in publications, including FedScoop, highlighting its impact within a short time frame.	The ten (10) pilot prototypes spanned areas such as responsive customer service, operational efficiency, data analysis, and clinical support, aiming to enhance accessibility, biomedical discovery, and health outcomes with GenAI. Case studies highlight key strategies, obstacles, and the metrics of success, serving as a learning tool for others.	The ten (10) pilot prototypes spanned areas such as responsive customer service, operational efficiency, data analysis, and clinical support, aiming to enhance accessibility, biomedical discovery, and health outcomes with GenAI. Case studies highlight key strategies, obstacles, and the metrics of success, serving as a learning tool for others.																														
COHORT SUPPORT	ALIGNMENT WITH NLM'S STRATEGIC VISION																															
Provided Throughout The Pilot: - Hands-on engineering and programming assistance - Platform usage and cost monitoring - Templates and coaching that guide constructive progress - Regular group check-ins for participants to learn from each other and develop new skills	<table><tr><th>Secure Deployment Platforms</th><th>Structured Research Approach</th><th>Safe and Effective Development</th></tr><tr><td>Utilization of robust, secure, and compliant deployment platforms to guarantee the confidentiality, integrity, and availability of sensitive biomedical data and algorithms.</td><td>Involving 18 diverse innovators from various backgrounds and disciplines to ensure a comprehensive and well-rounded perspective.</td><td>Evaluation of the model efficacy, accuracy, potential risks, ethical implications, and mitigation strategies to ensure the responsible and ethical deployment of generative AI.</td></tr></table>	Secure Deployment Platforms	Structured Research Approach	Safe and Effective Development	Utilization of robust, secure, and compliant deployment platforms to guarantee the confidentiality, integrity, and availability of sensitive biomedical data and algorithms.	Involving 18 diverse innovators from various backgrounds and disciplines to ensure a comprehensive and well-rounded perspective.	Evaluation of the model efficacy, accuracy, potential risks, ethical implications, and mitigation strategies to ensure the responsible and ethical deployment of generative AI.	<table><tr><td rowspan="3">Responsive Customer Service</td><td>Classification and Web Accessibility</td><td></td></tr><tr><td>Customer Response</td><td></td></tr><tr><td>Product Knowledge Insights</td><td></td></tr><tr><td rowspan="3">Operational Process Efficiency</td><td>IT Programming Tasks</td><td></td></tr><tr><td>Metadata Retrieval and Transformation</td><td></td></tr><tr><td>UMLS Edit Support</td><td></td></tr><tr><td rowspan="2">Summarization and Analysis</td><td>Data Viz and Segmentation</td><td></td></tr><tr><td>EP Grant Portfolio Analysis</td><td></td></tr><tr><td rowspan="2">Clinical Support Assistance</td><td>Network Analysis</td><td></td></tr><tr><td>Research and Development: TrialGPT</td><td></td></tr></table>	Responsive Customer Service	Classification and Web Accessibility		Customer Response		Product Knowledge Insights		Operational Process Efficiency	IT Programming Tasks		Metadata Retrieval and Transformation		UMLS Edit Support		Summarization and Analysis	Data Viz and Segmentation		EP Grant Portfolio Analysis		Clinical Support Assistance	Network Analysis		Research and Development: TrialGPT	
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Thank You!

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