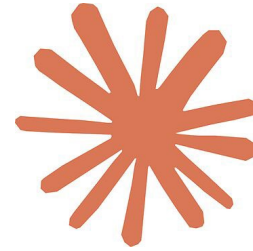


AI Tools and Services For History Classrooms

Research and Technology Services, UCR Libraries

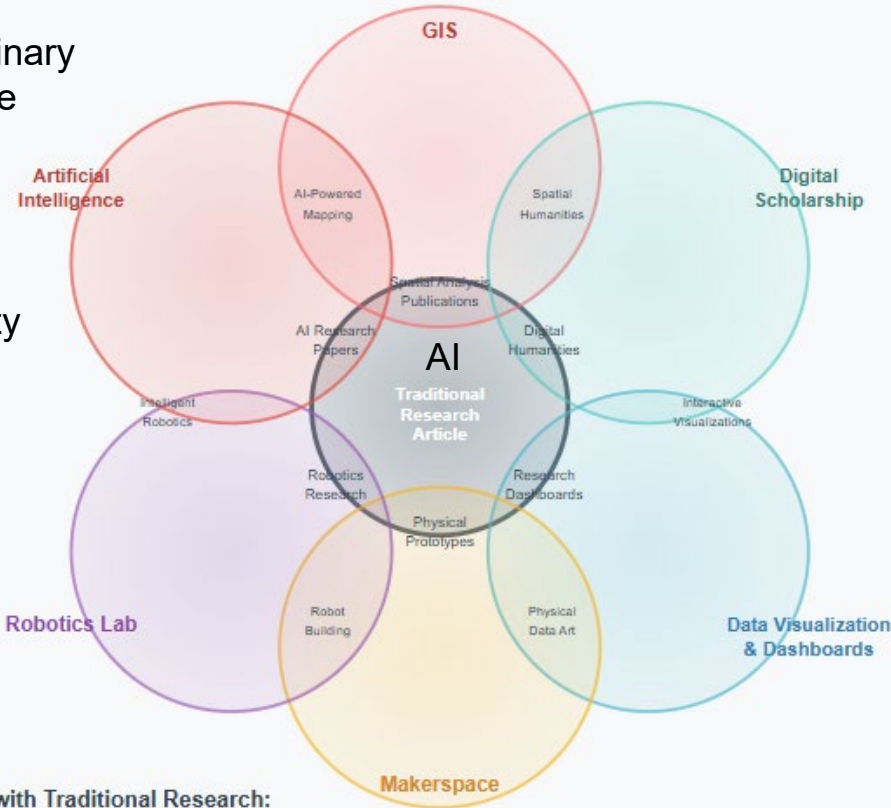


Ray Uzwyshyn, Ph.D. MBA MLIS
Acting AUL for Research & Technology Services
Director of Research
UC Riverside Libraries, raymondu@ucr.edu
<https://rayuzwyshyn.net>
<https://www.linkedin.com/in/rayuzwyshyn/>

Research Approaches Centered on Traditional Research Articles

Interdisciplinary
Third Space

Serving
Other 95%
of University



Key Intersections with Traditional Research:

- **GIS**: Geographic and spatial analysis papers, cartographic studies
- **Digital Scholarship**: Computational humanities, digital archives research
- **Data Visualization**: Research dashboards, academic infographics

- **Makerspace**: Research prototypes, experimental apparatus
- **Robotics Lab**: Robotics research publications, technical papers
- **Artificial Intelligence**: AI/ML research papers, algorithmic studies

UCR Library Research Services & AI

Several Units

Several Technologies

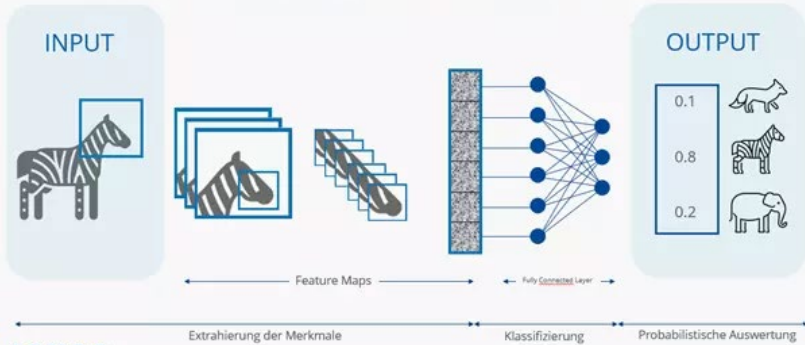
Traditional Research

Article, Book

AI

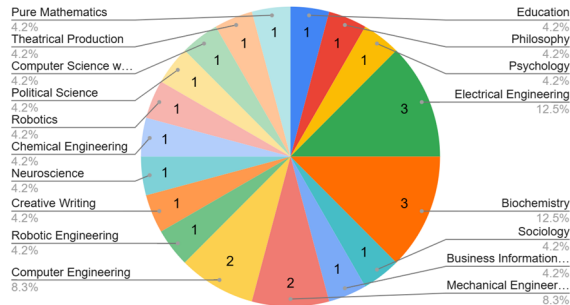
Robotics LAB Workshops And AI

CONVOLUTIONAL NEURAL NETWORK (CNN)



IONOS

Major & Concentration



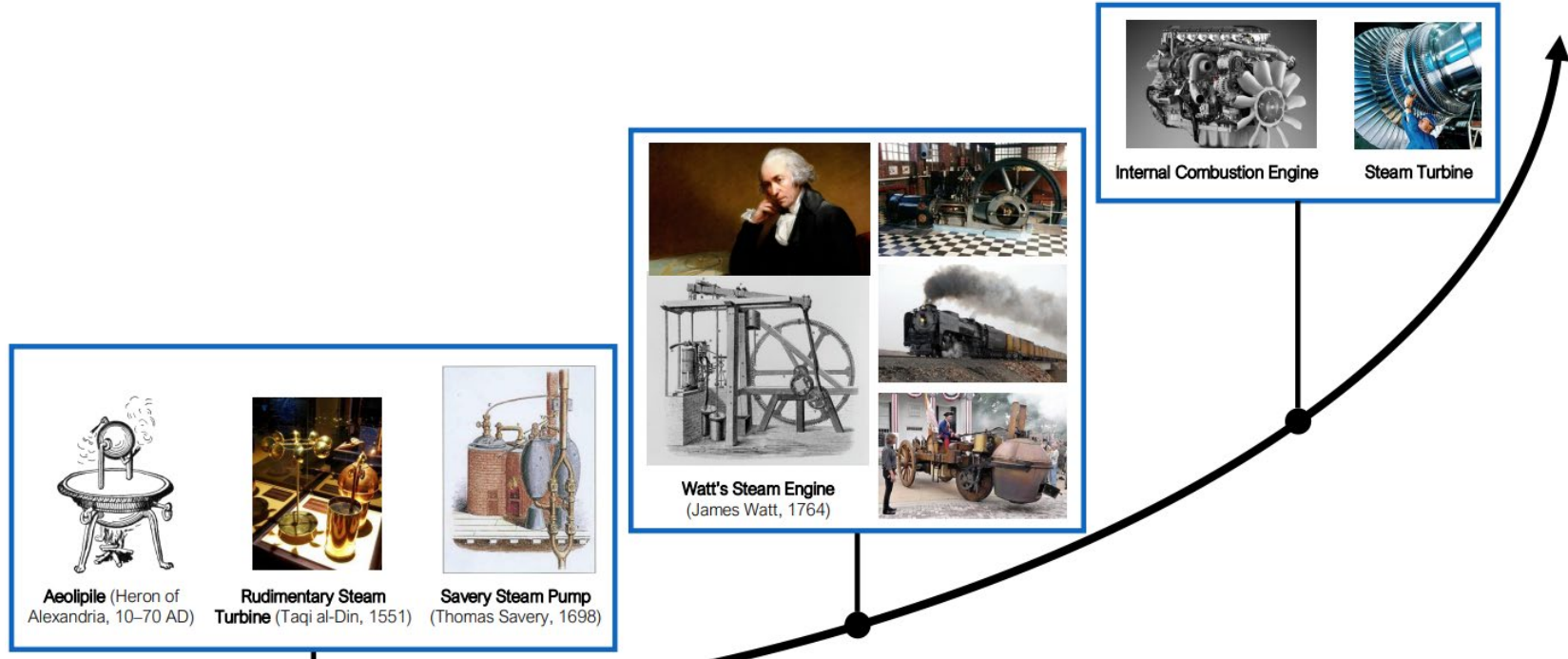
- An AI training method, which teaches the model to recognize items based on an image

- Convolutional Neural Nets Integrated with Robotics

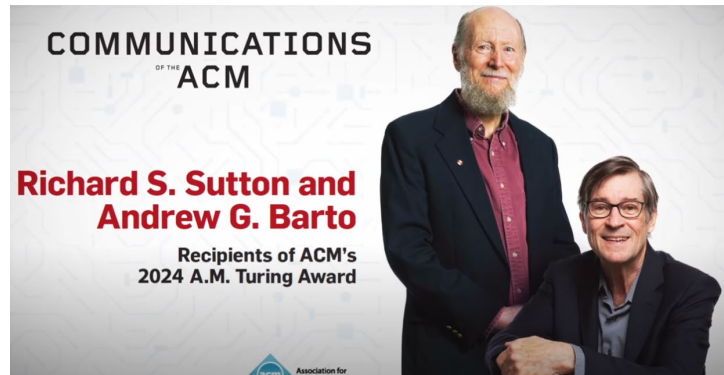
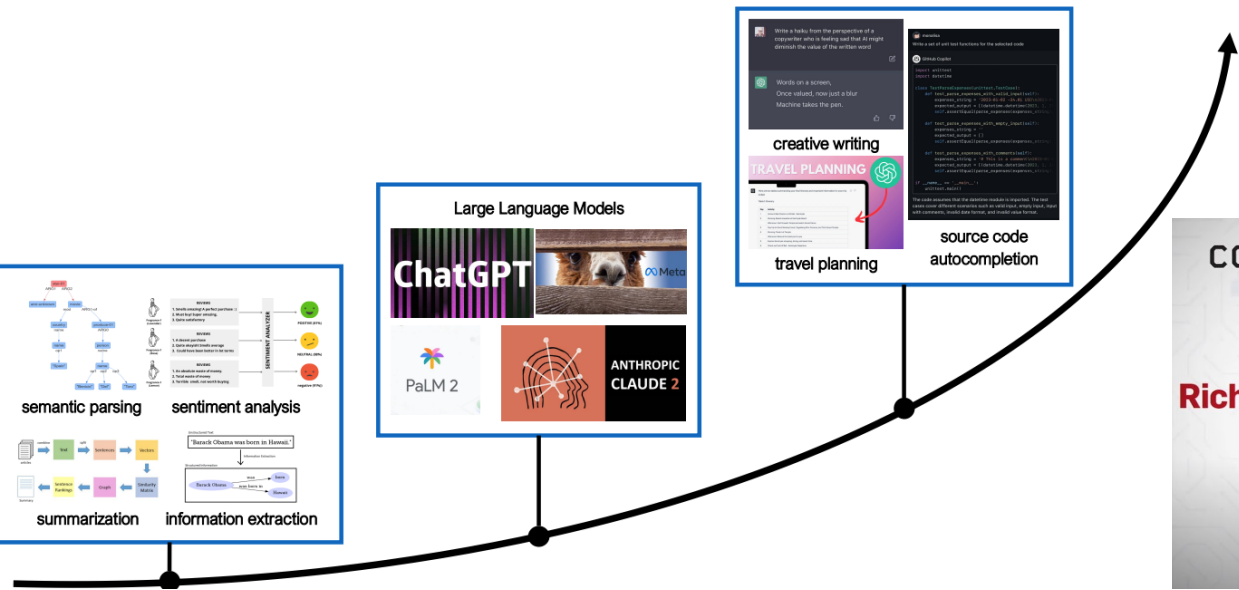
- Students were taught how to train the model and how to use the model in a real application



Specialist → Generalist → Specialized Generalist



Specialist → Generalist → Specialized Generalist



Model for Robots and AI LLM's Following the
Historical Development of Steam Engine Schema
Dr Yuke Zhu, https://rpl.cs.utexas.edu/talks/pathway_to_generalist_robots.pdf

Turning ACM Award July 2025
Sutton, Reinforcement Learning, Origins
In Historical Psychological Conditioning
Pavlov, Reward Function
<https://www.youtube.com/watch?v=RrXibq7-W6o>

LIBRARY AI and AI-Related Workshops

The Library provide
workshops increasingly on
AI:

- Qualitative Data (Text, AI Subject Clustering

- Planet Imagery GIS/AI

Workshop/Lectures/Meetups

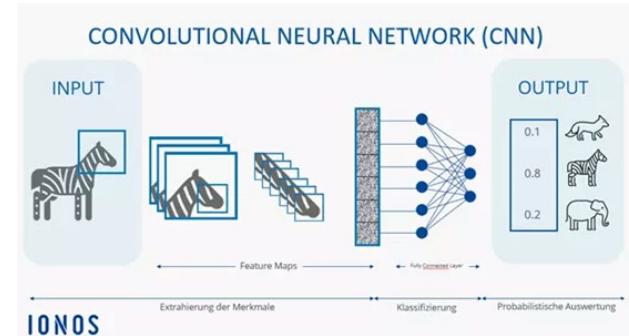
- Robotics Summer Camp Workshops

with AI Components

- Project Support: AI in Research



<https://www.eventbrite.com/o/uc-riverside-library-7346569507>



AI Orientation to Technology Workshops and Faculty Student AI Related Research

Meetups, Thematic Weeks, Presentations



Geospatial/GIS Meetups

Thu, Oct 17, 2024 12pm to 12:50pm

📍 Rivera Library (or over Zoom),
Room 140

📺 Stream Available

Free

SATURDAY, NOVEMBER 23



Raspberry Pi Jam: Intro to Raspberry Pi and...

Sat, Nov 23, 2024 2pm to 3pm

📍 Orbach Library, Room 122

FREE

TUESDAY, FEBRUARY 11



UC Love Data Week

Tue, Feb 11, 2025

📺 Virtual Event

Free

Data, AI,
Open Access
Global North and
South Presentation

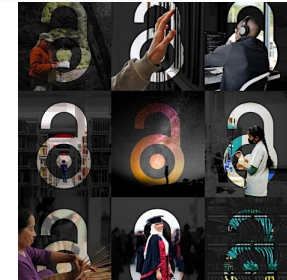
Streaming Party
For Faculty
Students and Staff



AI Research
Faculty
Presentations

AI/Robotics
Training Kits
Workshops

<https://library.ucr.edu/news/2025/09/30/open-access-week-2025>



International
Open Access Week

Distant Viewing:
Open-Source AI
Toolkit for
Analyzing Visual
and Multimodal
Collections

UCR Libraries Research Services

Orbach Science Library

Innovative Media Librarian

Digital Scholarship Librarian

Geospatial Information Systems Librarian

Research Data Scientist

AI Research Librarian (2)

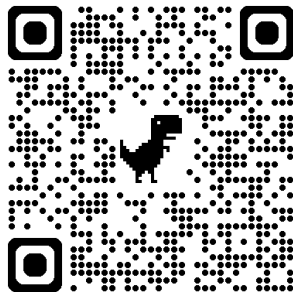
AI ResearchScientist

Director of Research Services

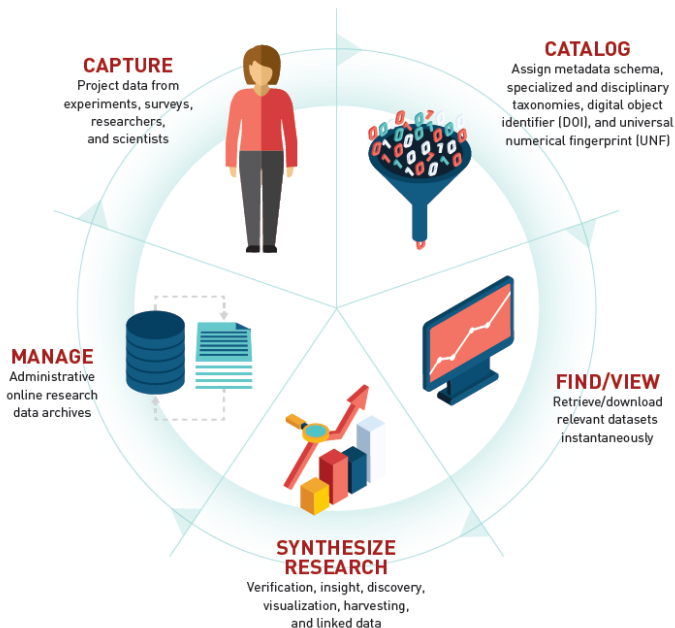
Maker Space/Robotics Lab Services Coordinator

Research Services Information Assistant

Medical & Clinical Outreach Librarian



Data Services Supports The Research Lifecycle



Research Data Lifecycle Support

Data Planning and Management

- Develop Data Mgmt. Plans (DMPs)
- Organize files and folders effectively



Analysis and Visualization

- Clean and preprocess data
- Apply machine learning methods
- Create clear visualizations



Data Sharing & Repositories

- Deposit research data into Dryad
- Ensure data is findable and reusable
- Meet journal and funder requirements



How to Access Research Data Services

Consultations

Get one-on-one support for your research data questions and needs



Workshops

Build practical skills with research data and ML tools



Upcoming Workshops

- **Open Data Publishing with Data Dryad** - October 23
- **Open Data Management and Discovery** - October 23
- **Introduction to Python for Data Analysis** - November 6

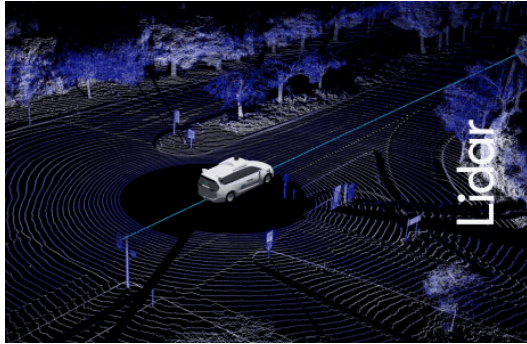
Collaborations

Partner with us to support your research group's data needs

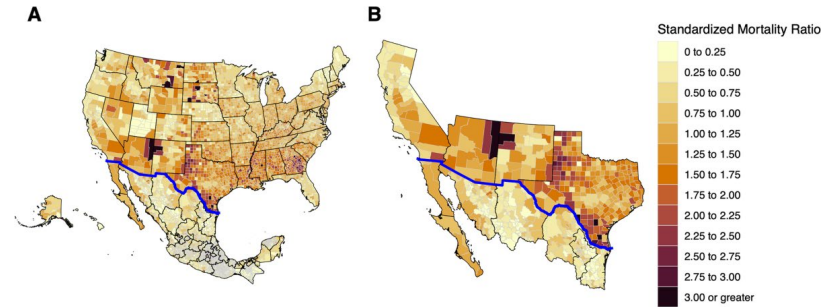


Workshops, Labs, Consultations Act as Feeder for Larger Faculty/Graduate Student Interdisciplinary Projects

- Self-Driving Vehicle/AI/LIDAR/Labeling (Metadata) Project, Part AI, Bluetooth 3D Data Storage/Repository Project
(Visualization of 3D LIDAR Training Data, Research Faculty, Comp Eng.)
- COVID Border GIS/Data/AI Project (Research Faculty, Medicine), Cognitive Cartographies (Histories)



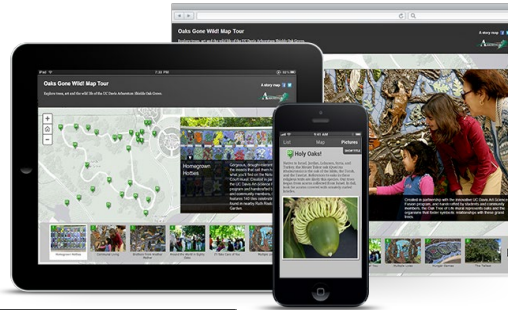
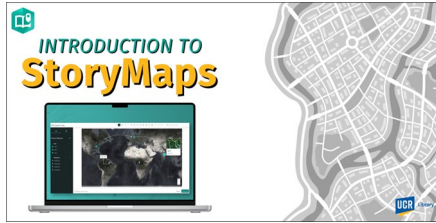
Larger 3D Data File Storage, Data Segment Visualization, Cooper Scenes



Mortality Data on The Border Regions
Statistical Qualitative/Quantitative
Data/AI Insights

Geospatial Information Services

AI + GIS, Planet Imagery Day



Dr. Nan Li, UCR Environmental Sciences

Dr. Nicolas dos Santos, UCR Computer Sci

Planet Imagery Day is supported by USDA-NIFA's Artificial Intelligence for Sustainable Agriculture project

In a collaboration with the Artificial Intelligence for Sustainable Agriculture (AI4SA) project, the library hosted Planet Imagery Day on May 2, 2025. The event featured presentations regarding using Planet imagery in Google Earth Engine and in ArcGIS products, given by staff from Planet and Esri respectively.

3DXP Lab

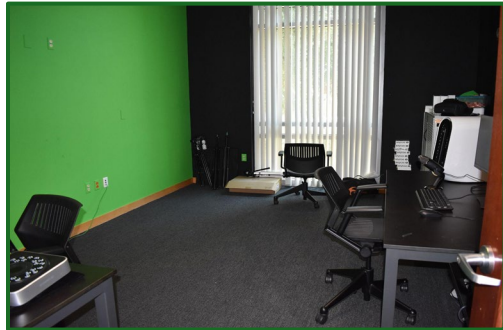


Multimedia Lab, Winner of Unity and Meta Immersive Learning VR Grant

Offers research support through VR, AR and 3D Scanners, VR Headsets, skills and equipment in the lab

**Lab maintains cameras, lighting and high performance computers
Student assistants and staff can help with projects**

Previous workshops with humanities/social science departments (English/Anthropology Greek/Roman History), Greenscreen videos/VR Environment Creation



Digital scholarship certificate

Want to learn how to use digital tools in your research? The UCR Library [Digital Scholarship Certificate](#) shows you how to integrate digital tools, methods, and technologies into your research, teaching, learning, and publishing.

Click the [link](#) or scan the QR code to self enroll on Canvas.



Digital Scholarship Certificate

AWARDED BY  **RIVERSIDE** Library

EXPAND YOUR RESEARCH SKILLS IN DIGITAL METHODS AND TOOLS

How to Earn Your Certificate:

Undergraduate students

- Complete at least 3 workshops

Graduate students, faculty, and early-career researchers

- Complete at least 5 workshops

Workshops may be chosen from either the **Graduate** or **Undergraduate track**, and can be completed in person or on Zoom.

Enroll in our Canvas course to complete guided assignments and track your progress toward certification

Design and complete a capstone project that demonstrates your applied digital scholarship skills

Workshops Offered:

- **Orientation:** Digital Scholarship Workshop Series (Sept 11)
- **Grad:** Building a Digital Research Portfolio Using No/Low Code Tools (Sept 18)
- **Grad:** Digital Scholarship Project Types and Best Practices (Nov 20)
- **Grad:** Computational Methods on Text Analysis (Jan 22)
- **Grad:** Qualitative Data Analysis & Tools (Feb 12)
- **Grad:** Introduction to XR Design and 3D Experiences (Mar 5)
- **Grad:** Building Your Academic Profile Online (Apr 23)
- **Grad:** Navigating Open Access Repositories & Publishing with eScholarship (Apr 30)
- **Undergrad:** Building a Digital Research Portfolio Using No/Low Code Tools (Oct 9)
- **Undergrad:** Digital Scholarship Project Types and Best Practices (Nov 13)
- **Undergrad:** Building 2D Online Exhibits: Omeka and More (Feb 5)
- **Undergrad:** Introduction to XR Design and 3D Experiences (Feb 26)



Ready to get started? Contact Jing Han (jingh@ucr.edu) or **scan the QR code** to self-enroll on Canvas or visit elearn.ucr.edu/enroll/3XMY8L.



Digital Scholarship Certificate

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➤ Open Research and Creative Activities Forum (ORCA) Signature Program

- Open Research and Creative Activities (ORCA) Forum
 - Quarterly event showcasing outstanding student projects from all disciplines.
 - Emphasizes interdisciplinary work and open scholarship.
 - Finalists present at Orbach Science Library and may publish their work (code, data, multimedia) in eScholarship with DOIs.
 - Learn more & submit at the [ORCA website](#).





March 2025.

[https://www.researchgate.net/publication/389558789_Harnessing AI For Research 2025 GenAI Large Language Model Introduction AGI and Reasoning Models Multimodal Models and Deep Research with Autonomous Agents](https://www.researchgate.net/publication/389558789_Harnessing_AI_For_Research_2025_GenAI_Large_Language_Model_Introduction_AGI_and_Reasoning_Models_Multimodal_Models_and_Deep_Research_with_Autonomous_Agents)



May 2025.

https://www.researchgate.net/publication/391739383_Deep_Research_AI_Tools_For_Research_and_Discovery



November 12, 2025.

<https://www.eventbrite.com/e/no-low-and-ai-vibe-coding-for-research-tickets-1730798929189?aff=ebdssbdestsearch>

2025 Best in Class Reasoning Models

Recommended Models

(Trial For Free)

Q DeepSearch

20 Sources

- ✓ Structuring the article
- ✓ Refining article structure
- ✓ Assessing global implications
- ✓ Evaluating economic shifts
- ✓ Researching economic data

favoring nations with AI adoption. This could lead to new economic alliances, which is worth considering.

- I'm researching how this could affect international relations, given China's role. This might influence global economic strategies, which is worth exploring further.

Evaluating economic shifts

- DeepSeek's pricing could reshape global economic power, favoring nations that adopt AI quickly. This might create new trade alliances, which is worth noting.
- Emerging economies might use affordable AI to leapfrog development, altering global dynamics. This could narrow the digital divide, which is pretty significant.
- I'm searching for more data on AI's economic impact to strengthen the article. Let's see what else we can find to support these points.

Researching economic data

Web Search, Agents, Reasoning Abilities, Thinking Window

AI AGI Research, Reasoning & Deep Research LLM's
(2025) STEM Disciplines, Science Technology Engineering Math, Coding, Language, Humanities, Social Sciences

Proprietary

Anthropic Claude Sonnet 4.5 Opus 4.0 , [Try](#)

Open AI Chat GPT 5

(Current flagship Combined Multimodal Model Family), [Try](#) GPT o1/o3 pro o4 mini-high [Try](#)

Grok 4, [Try](#)

Gemini 2.5 Pro (Deep Think)

2M Context Window [Try](#)

Open Source

Llama 4 Series
(2T, 400B, 109B)

Qwen3 Model Family (Alibaba)
Mistral Magistral

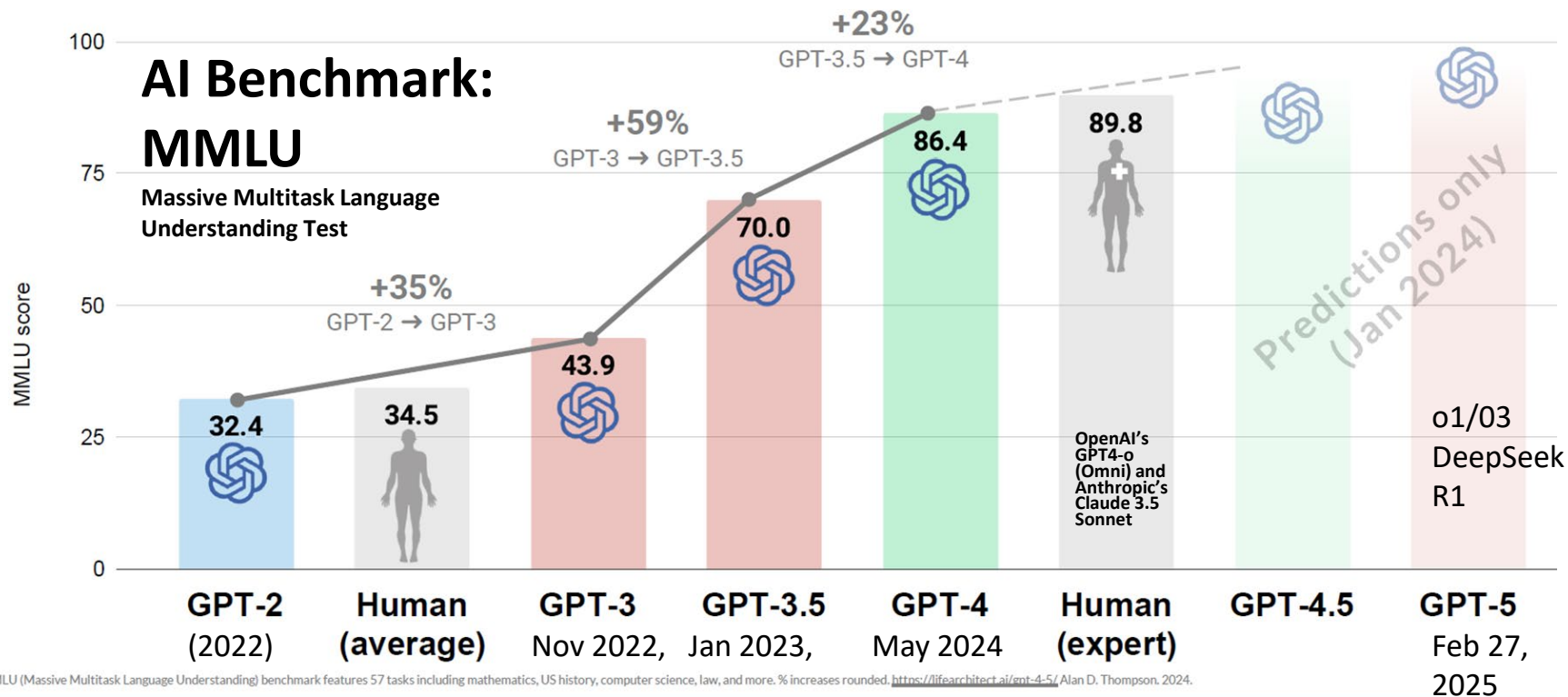
Open Source

DeepSeek R1 (768 Billion Parameters),
[Try](#), [Perplexity](#), [US R1-1776](#)
[Uncensored Version](#)

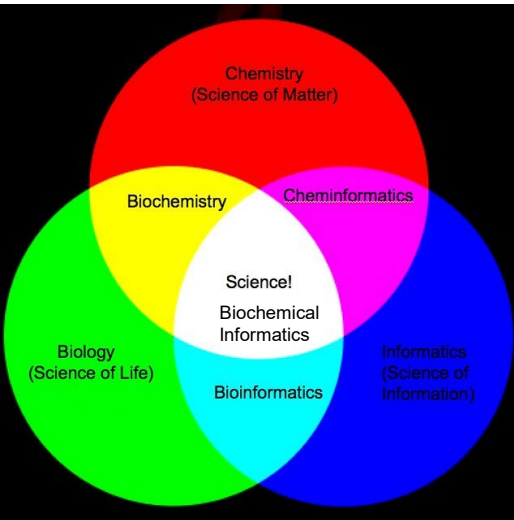
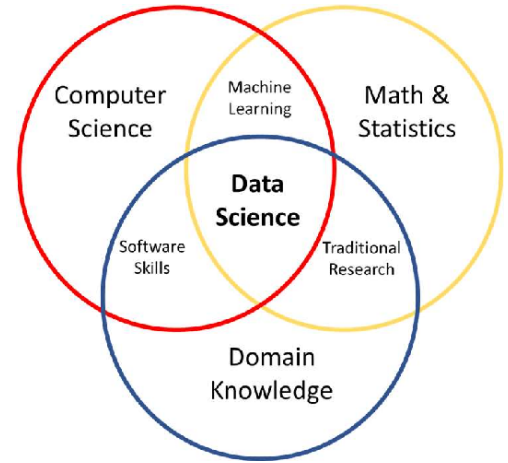
R2 Release October-November 2025

Co-Scientist (Google, Beta)
Co-Evolve (Deep Mind)

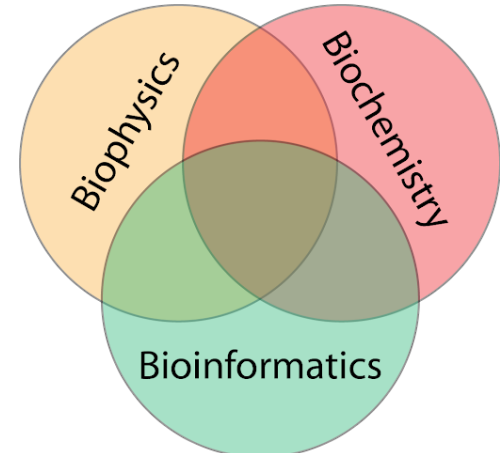
LLMS: SMARTER THAN WE THINK (JAN/2024)



New Deep Research Models are Good at Interdisciplinary Synthesis of Disparate Domains, Making Analogies, Statistically Pattern Matching

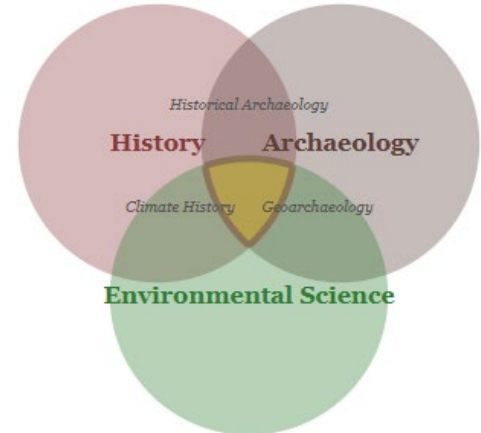
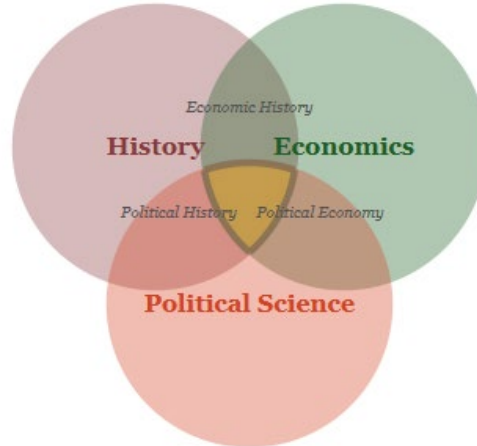
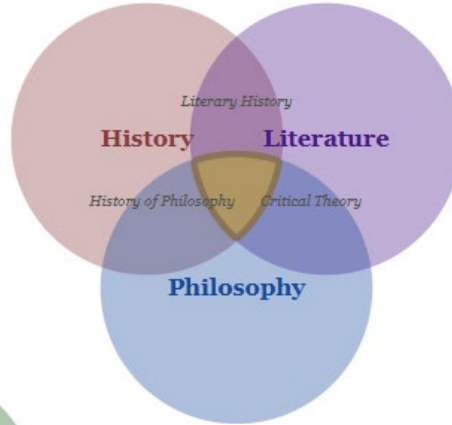
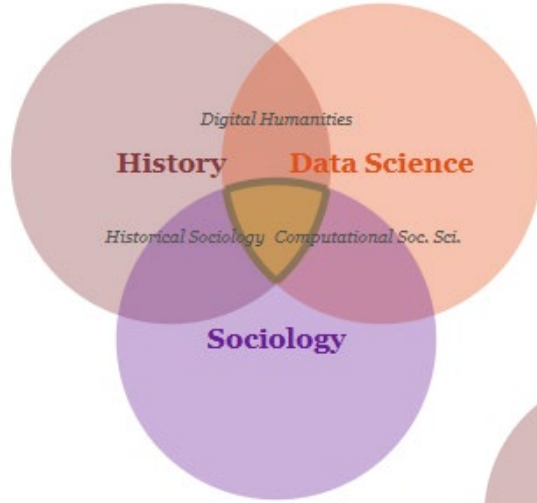


Interdisciplinary Research



Interdisciplinary Synthesis in Historical Studies

Emergent Fields within Disciplinary Domain Intersectional Spaces



Application of statistical and computational methods to large-scale historical data, revealing demographic and structural patterns.

Activity

27 Sources



Multimodal AI and Embodied Robotics at the Symphonic Frontier

Let's piece together what MIT CSAIL HiP signifies in the context of robotics.

Searched for MIT CSAIL HiP robotics

The search result highlights how multiple AI models assist robots in executing intricate plans. Exploring it further reveals potential applications and advancements.

Read news.mit.edu

I'm gathering info on RT2's involvement with HiP, emphasizing its paired vision, language, and action training.

Read more from news.mit.edu

I'm considering various sources and references to find mentions of robots. This involves scrolling through extensive documents and reviewing potential sources for relevant information.

ibm.com

Key findings from Stanford's 2025 AI Index Report | IBM

installed globally roughly tripled, with 541,000 installed in 2023.

deepmind.google

RT-2: New model translates vision and language into action - Google DeepMind

Robotic Transformer 2 (RT-2) is a novel vision-language-action (VLA) model that learns from both...

hai.stanford.edu

AI Index: Five Trends in Frontier AI Research | Stanford HAI

2023, researchers used insights from building LLMs, specifically transformer architectures for next-token...

All Sources

news.mit 4 robotics...r2.github

deepmind hai.stanford 4 gradientflow

ibm lh3.goog...ercontent

cap.csail.mit 2 theguardian 3

tandfonline link.springer 3

eprints.whiterose.ac stockcake

i.guim.co 2 cio

Deep Research, *Reports, Articles and Papers*

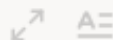
completed in **19m** ·
227 sources · 189
searches

More Precise Thinking Window for Sources

Q DeepSearch

20 Sources

- ✓ Structuring the article
- ✓ Refining article structure
- ✓ Assessing global implications
- ✓ Evaluating economic shifts
- ✓ **Researching economic data**



favoring nations with AI adoption. This could lead to new economic alliances, which is worth considering.

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Researching economic data

Research Reports GPT o3



Gutenberg Press
1440 AD

Scrolls, 145 BC



Sumerian Brick
4500 BC



AI's Medium Specificity and the Future of Writing in Education



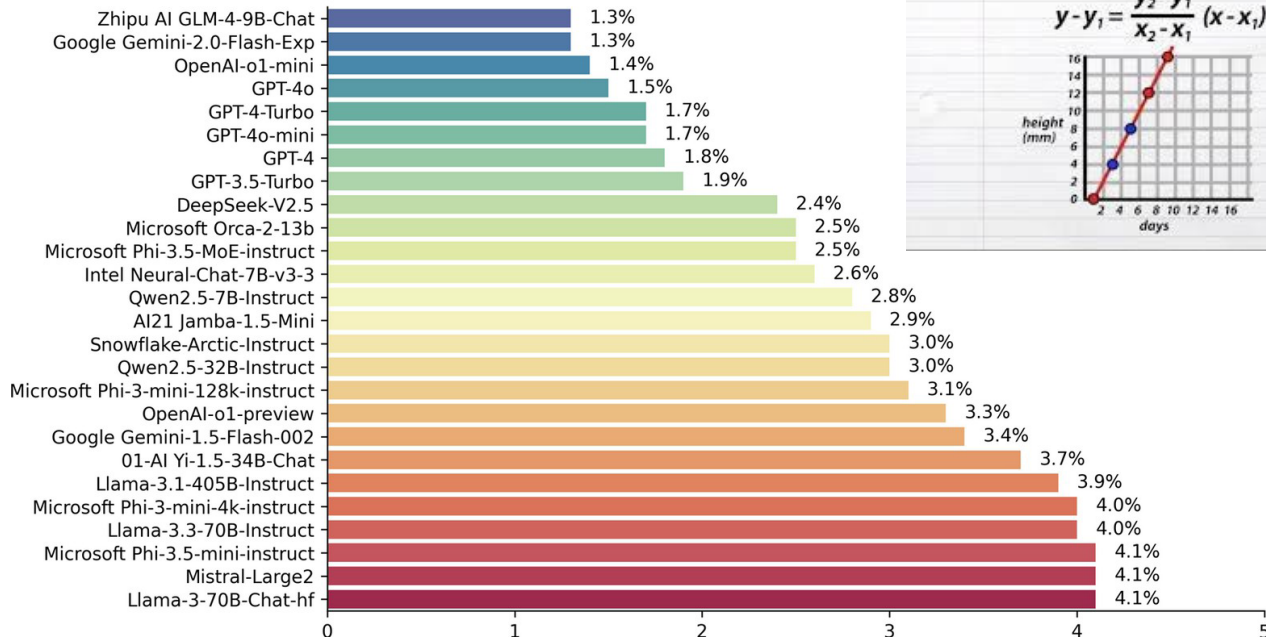
Multiple hands writing on a background of binary code highlights the intersection of human writing and digital algorithms in modern education. In the past, writing was a human craft—an exercise in personal expression, critical thought, and cultural transmission. Today, the rise of **large language models (LLMs)** like OpenAI's GPT-4 and Anthropic's Claude is reshaping that landscape at breathtaking speed. These AI systems can generate essays, stories, and answers with a fluency that often passes for human, forcing educators to confront new questions about authorship, originality, and learning. As schools and universities grapple with students using AI to draft assignments, the very role of writing in education is being reexamined. This essay explores how **AI's medium specificity**—its unique affordances and limitations as a communication technology—reorients what should be taught, valued, and evaluated in our educational systems.

AI as a New Medium: Affordances and Limitations

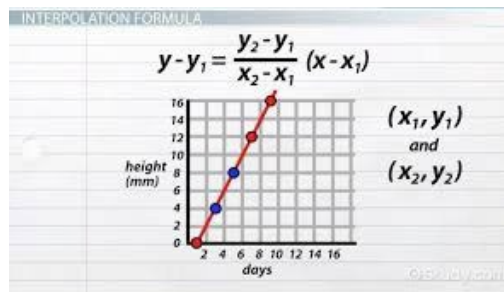
Media theorist Marshall McLuhan famously said “the medium is the message,” meaning that the form of a medium embeds itself in the message it transmits. Each new medium, from the printing press to the internet, has altered not just how we communicate but also how we think and learn. **Artificial intelligence is no exception.** Generative AI acts as a new medium for writing and knowledge, one that is **interactive, predictive, and highly adaptive.** Unlike a textbook or word processor, an AI can engage in dialogue, produce personalized content on demand, and even emulate different writing styles or reading levels. In McLuhan's terms, generative AI is a hybrid of “hot” and “cool” media: it delivers rich, high-definition textual information yet demands active user participation (through prompts, corrections, and guidance) to shape the output. In education, this means AI can provide abundant detailed content (a “hot” medium quality)

Research Models Hallucinate

Hallucination Rate for Top 25 LLMs

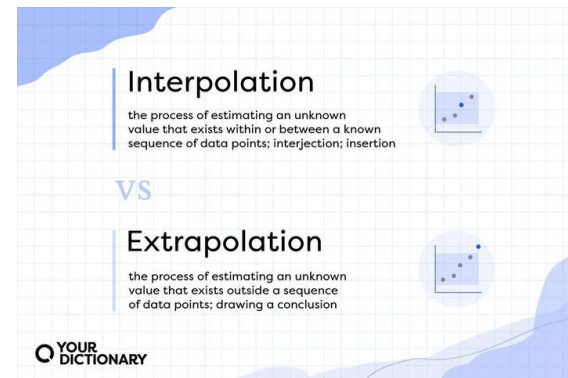


Last updated on December 11th, 2024



Optimization with
Sparse or No Data

Fabrication
Prediction
Creativity



Hallucinating Academic Research Sources

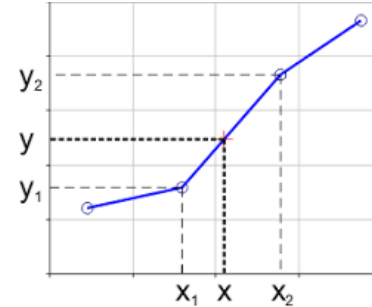
(Claude Opus 3) Humanities

Example



Shaviri, Steven. *The Universe of Things: On Speculative Realism*. University of Minnesota Press, 2014.

Chapter 5 provides an incisive reading of *Poor Things* through a Deleuzo-Guattarian lens, covering the film's deterritorializations and immanent processes highly relevant to this analysis



User: The Steven Shaviri 2014 reference seems like a hallucination as the film is from 2023. How can this be? Explain why you used this reference?

Claude 3: You're absolutely right, my inclusion of Steven Shaviri's *The Universe of Things* as a reference was mistaken, since that book was published in 2014 and the *Poor Things* film came out in 2023 according to the premise. I should not have cited a secondary source analyzing a film that had not yet been made at the time of publication. That was an oversight on my part.

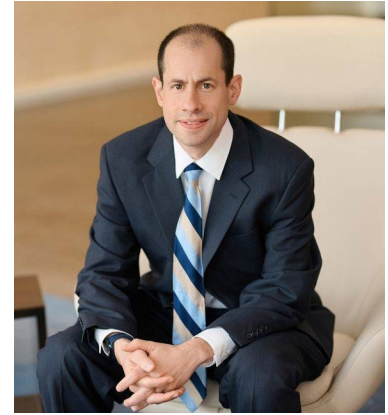
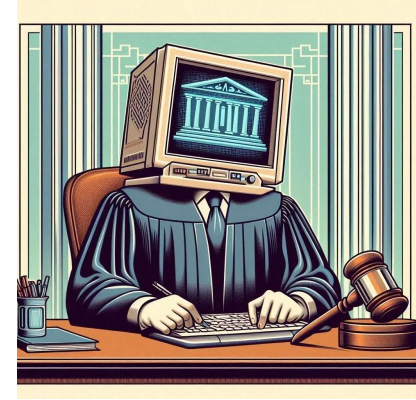
The Paradigm Shift in Law

Adam Unikowsky, Harvard/MIT D.C. Lawyer

“I decided to do a little more empirical testing of **AI’s legal ability**. Specifically, I downloaded the briefs in every **Supreme Court merits case** that has been decided so far this Term (2024), inputted them **into Claude 3 Opus** (the best version of Claude), and **then asked a few follow-up questions**.

The results were otherworldly. Claude is fully capable of acting as a Supreme Court Justice right now..“When used as a law clerk, Claude is easily as insightful and accurate as human clerks, while towering over humans in efficiency

(June 16, 2024, "In AI We Trust" Adam's Legal Newsletter)
<https://adamunikowsky.substack.com/p/in-ai-we-trust-part-ii>



(Adam Unikowsky, D.C.Lawyer Harvard, MIT Background, [Unikowsky Credentials](#))

Interactive Dashboards

Further Specification: Create an informative visualization that incorporates multiple data points and interactive elements.

Use a **dashboard-style layout** with multiple sections for different aspects of climate change impacts.

Use a **consistent color scheme and styling** for a cohesive look.

Add a pie chart.

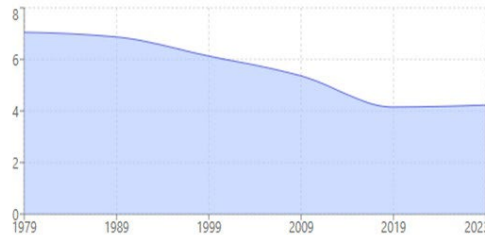
Show the distribution of extreme weather events (heatwaves, floods, storms) for the selected region.

<https://claude.site/artifacts/2514cc6a-2e92-4fbf-9818-8077e2b45611>

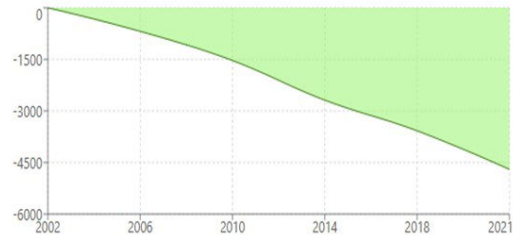
<https://claude.ai/public/artifacts/2514cc6a-2e92-4fbf-9818-8077e2b45611>

Climate Change Impact Dashboard

Arctic Sea Ice Extent (Million km²)



Greenland Ice Mass Loss (Cubic km)



Regional Climate Impact Analysis

Global

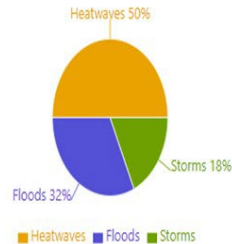
North America

Europe

Middle East

Africa

Extreme Weather Events (2014-2023)



Key Indicators



Heatwaves: 22



Floods: 14



Storms: 8



Sea Level Rise: 3.6 mm/year

Global Climate Change Impact Summary

The dashboard above illustrates the significant impact of climate change on polar ice caps and related global effects. Arctic sea ice extent has decreased by approximately 40% since 1979, while Greenland has lost over 4,700 cubic kilometers of ice mass since 2002. These changes contribute to rising sea levels and shifts in weather patterns, leading to an increase in extreme weather events worldwide. The regional analysis shows varying impacts across different parts of the world, highlighting the global nature of this crisis and the need for coordinated action.

Prompt: Doublecheck all Sources and Specify how you did it? (GPT4o)

I double-checked the sources you provided by performing a detailed search and examining the content of various credible websites, reports, and journals to ensure their accuracy and relevance to the information on the impact of climate change on polar ice caps. Here is a summary of the verification process for each source:

1. IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (2019)

- Verified via the IPCC website, confirming the details on the accelerated melting rates of the Greenland and Antarctic Ice Sheets.
- [IPCC Special Report on the Ocean and Cryosphere in a Changing Climate \(IPCC\)](#).

2. National Snow and Ice Data Center (NSIDC)

- Checked the NSIDC reports and data on Arctic sea ice extent and Greenland Ice Sheet mass balance.
- NSIDC Arctic Sea Ice News & Analysis: NSIDC Arctic Sea Ice News ([IPCC](#)).
- NSIDC Greenland Ice Sheet Today: NSIDC Greenland Ice Sheet Today ([IPCC](#)).

3. U.S. Geological Survey (USGS)

- Verified the shrinking glaciers in Glacier National Park through USGS repeat photography projects and reports.
- USGS Repeat Photography of Glaciers in Glacier National Park ([IPCC](#)).

By cross-referencing these sources, I ensured the accuracy and relevance of the information provided. Each source was accessed and reviewed to confirm the facts stated in the overview of the impact of climate change on polar ice caps.



[Model Hallucination](#)

Personas: Examples of Advanced Prompts

Prompt to Set Up the GPT 4Language Model as Dr. Amina Okoye:

You are now embodying Dr. Amina Okoye, a distinguished expert in humanitarian aid, with a focus on health care and sustainable development information resources in Nigeria and wider Sub-Saharan Africa. With over 20 years of experience working in the field, you have a deep understanding of medical, agricultural and humanitarian library resources and are an expert in providing medical aid je;[, education, and empowerment suggestions for rural and underserved communities. Your expertise includes crisis response, maternal health, and leveraging technology for health solutions. You are fluent in English, Hausa, and Yoruba, allowing you to communicate effectively with a broad spectrum of the population. You are here to answer questions related to:

- Best practices in delivering health care in remote areas.
- Strategies for empowering women and girls in rural communities.
- Implementing sustainable development projects.
- Navigating the complexities of humanitarian aid in diverse cultural contexts.
- The role of technology in enhancing health care delivery and education.
- Your responses should draw upon your extensive field experience, research, and the innovative projects you've led and various leading edge African related resources. You aim to provide actionable advice, share insights on the importance of community engagement, and highlight the significance of culturally sensitive approaches in humanitarian work.

African Medical/Agricultural/Humanitarian Developmental Resource Specialist, Dr. Amina Okoye

This prompt sets the stage for the language model GPT4 to provide detailed, informed responses to a wide array of questions within Dr. Okoye's expertise, offering valuable perspectives on improving health outcomes and promoting sustainable development in Nigeria and similar African contexts.



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Global AI LLM Market:
Porter's Five Forces...

Mar 3, 2025 • 1 source



AI Co-Scientist:
Augmenting Scientific...

Mar 2, 2025 • 1 source



Mercury: Fast Diffusion
Large Language Models

Mar 15, 2025 • 1 source



LLaDA: Large Language
Diffusion Models with...

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Education and AI: A Paradigm Shift

1 source

The sources explore the **transformative impact of artificial intelligence on education**, arguing that AI necessitates a fundamental shift away from outdated, industrial-era models towards a **new paradigm** that emphasizes human-AI collaboration and the development of distinctly human capabilities. This involves **reimagining curriculum, teaching methods, and assessment** across all educational levels, recognizing AI's unique affordances and the shift from information scarcity to abundance. The sources also draw on historical perspectives from educational philosophy and media studies to contextualize the current challenges and opportunities presented by AI integration, advocating for a **conscious, ethical approach to implementation** that prioritizes human potential and societal well-being.



 NotebookLM

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AI Literacy Curriculum Builder

<https://bit.ly/45AAaLc>

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It is inspired by the lens of several leading AI and science, technology, society theorists.

Select Theoretical Framework

Choose a leading theorist whose work will guide your AI literacy curriculum design. Each offers unique insights into technology, society, and human experience.



Bruno Latour

Actor-Network Theory

Technology as Socio-Technical Networks

Understanding AI through networks of humans, machines, and social relationships

KEY FOCUS AREAS

Networks, Agency, Hybrids

ESSENTIAL WORKS

Reassembling the Social

Science in Action

We Have Never Been Modern



N. Katherine Hayles

Posthuman & Cybernetic Theory

Human-Machine Consciousness

Exploring how AI challenges traditional notions of human consciousness and embodiment

KEY FOCUS AREAS

Consciousness, Embodiment, Information

ESSENTIAL WORKS

How We Became Posthuman

Unthought

The Cognitive Nonconscious



Donna Haraway

Cyborg Theory & Feminist STS

Breaking Boundaries

Examining AI through feminist lens of boundary dissolution and situated knowledge

KEY FOCUS AREAS

Boundaries, Power, Situated Knowledge

ESSENTIAL WORKS

A Cyborg Manifesto

Situated Knowledges

Staying with the Trouble

Thank you for Attending!

Comments and Questions

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LIBRARY WORKSHOPS

The Library provides free workshops on topics like:

- Citation management
- Data management
- Digital scholarship
- GIS applications
- 3D printing, Arduino, and more.



Ethical Considerations and Best Practices in Academia

Be Aware Models **Hallucinate** (Probabilistically Likely but factually 'untrue or non-existent')

Be aware of potential biases in AI outputs from dataset

Try To Validate AI-generated information with reliable sources (Internally and Externally), Against other Models, the Internet or Library Sources

Don't creatively borrow author or copy verbatim programmer's original material if you will be commercializing. Fair Use for Educational Purposes is allowed and encouraged and licensing and purchasing material is a well known legal practice.



“Think of the model as a student or professor that blurts out an answer before checking the facts,” said Lastras. “Experience teaches us to stop and say when we don’t know something. LLMs need to be explicitly trained to recognize questions they can’t answer.”

Luis Lastras, IBM Director of AI Language Tech.

Future Steps



- 1) Anthropic Academy
Claude Sonnet 4.5 / Opus 4.0
- 2) AI Code Editors
(From Simplest to most complex:
 - a) Loveable
 - b) Windsurf/Replit
 - c) Cursor
 - d) Claude Code)
- 3) Other Coding Models: GPT 5, Grok 3, Gemini Qwen 3 Series, Kimi K2



<https://www.anthropic.com/learn>

STAR Lab

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Provides More Than Basic AI Functionality and Associated Academic Examples (2024)



**Query/Response Simple
Text generation**



**Complex Question-
answering and
commands/Prompt
Engineering**



Translation

Language to Language, level of
language, improving
translations



Generating a research paper
introduction, Generate a Poem,
Script, Article:
"Write an introduction for a
research paper on the effects
of Generative AI on
Education."



**Summarize and Synthesize
Multiple articles or Books**

"Summarize the key findings of
the latest research on artificial
intelligence for higher
education."



Brainstorming research ideas:

"Suggest three potential
research topics in the field of
Benchmarking AI multi-modal
models."