DRIVING INNOVATION

Turning knowledge into practice with generative AI

What is generative AI?

Generative AI is a term for artificial intelligence (AI) technology that uses deep learning models to generate images and conversational text. Commonly called "gen AI," it is a new term and concept for many who are unfamiliar with its origin. But the technology itself was actually in one of the earliest incarnations of chatbots more than 60 years ago.[1]

Gen AI as we know it today materialized in 2014.[1] Machine learning algorithms known as generative adversarial networks (GANs) underpinned the creation of high-quality content based on the data with which the models were trained.

According to a 2023 global survey, "60 percent of organizations with reported AI adoption are using gen AI."[2] From financial services to telecommunications, education, retail and beyond, gen AI is having a direct and immediate effect on all facets of business operations, product services, and customer experiences. The federal government is also exploring the use of gen AI for enhancing research, citizen services, and internal efficiencies.

Keeping pace with rapid evolution

RTI keeps pace with the rapid evolution of the data science ecosystem, which includes gen AI, because the changing needs of our clients demand it. Our ongoing investment in the most relevant innovations has led to notable achievements in several areas.

ADVANCING SCIENCE RESEARCH RESPONSIBLY

RTI is committed to the ethical and responsible use of generative AI—to ensure research integrity, data privacy, and data security. Our commitment mirrors our mission and values, and extends to developing policies and procedures for use, particularly with client data.

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1   CMSwire.com (2023, June 28). "Generative AI timeline: 9 Decades of Notable Milestones."
2   McKinsey & Company (2023, August 1). "The state of AI in 2023: Generative AI's breakout year."

rti.org/artificial-intelligence

AUTOMATING INFORMATION EXTRACTION FOR SYSTEMATIC REVIEWS AND OTHER EVIDENCE SYNTHESIS PRODUCTS

Description: Evaluate the capacity of GPT-4 and Claude 2 to extract key data accurately from published literature, which is commonly incorporated into evidence synthesis products.

Impact: Faster time to results without sacrificing accuracy. Our models extracted information with as much as 98% accuracy, enabling people typically assigned the job to invest the hours they save in more pressing tasks.

LARGE LANGUAGE MODELS (LLMs) AS QUALITATIVE CODERS

Description: Determine whether a large language model can code texts into categories based on a provided codebook.

Impact: LLMs (specifically, LLM-Assisted Content Analysis, or LACA) can reduce the time it takes for deductive coding with levels of agreement comparable to human coders, while retaining the flexibility of a traditional content analysis. LACA helps refine prompts, identify codes for which an LLM is randomly guessing, and assess when to use LLMs vs. human coders.

PLAIN LANGUAGE WRITING

Description: Test whether an LLM can rewrite texts according to a set of given writing principles for a given audience, to produce a first draft for human writers to revise.

Impact: Quickly making technical language easier to read and understand for general audiences. AI that generates a first draft of consumable content gives content creators a leg up. They can start by reviewing and revising to meet business goals rather than writing the initial draft themselves. Our plain language writing app is being piloted on projects currently in progress.

More to come

Working together with our government partners, we are piloting the use of gen AI on projects in public health, environment, justice, education, and official statistics.

40+ RTI data scientists and subject matter experts actively researching gen AI's ability to solve problems responsibly in the public sector

Interested in learning more about generative AI and its role and impact on research? Contact us.

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