



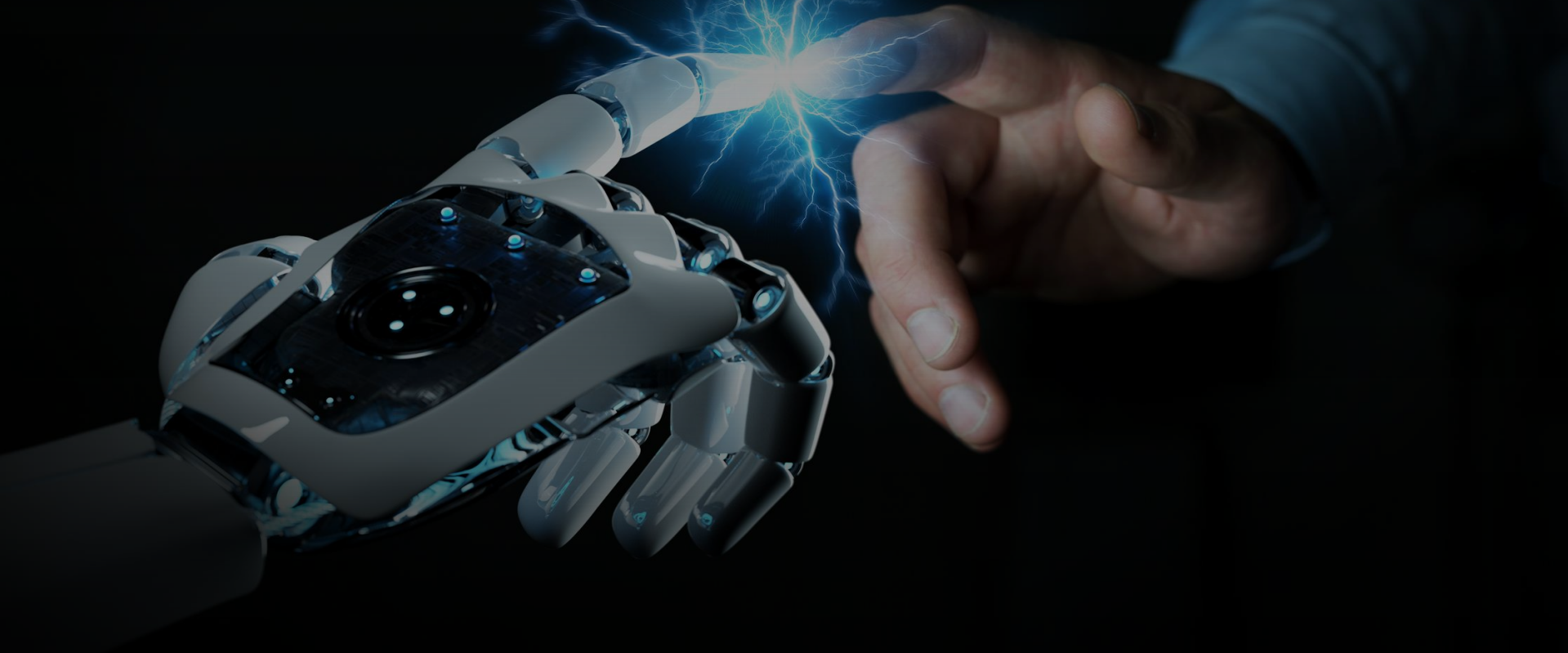
Artificial Intelligence

Katie Birch

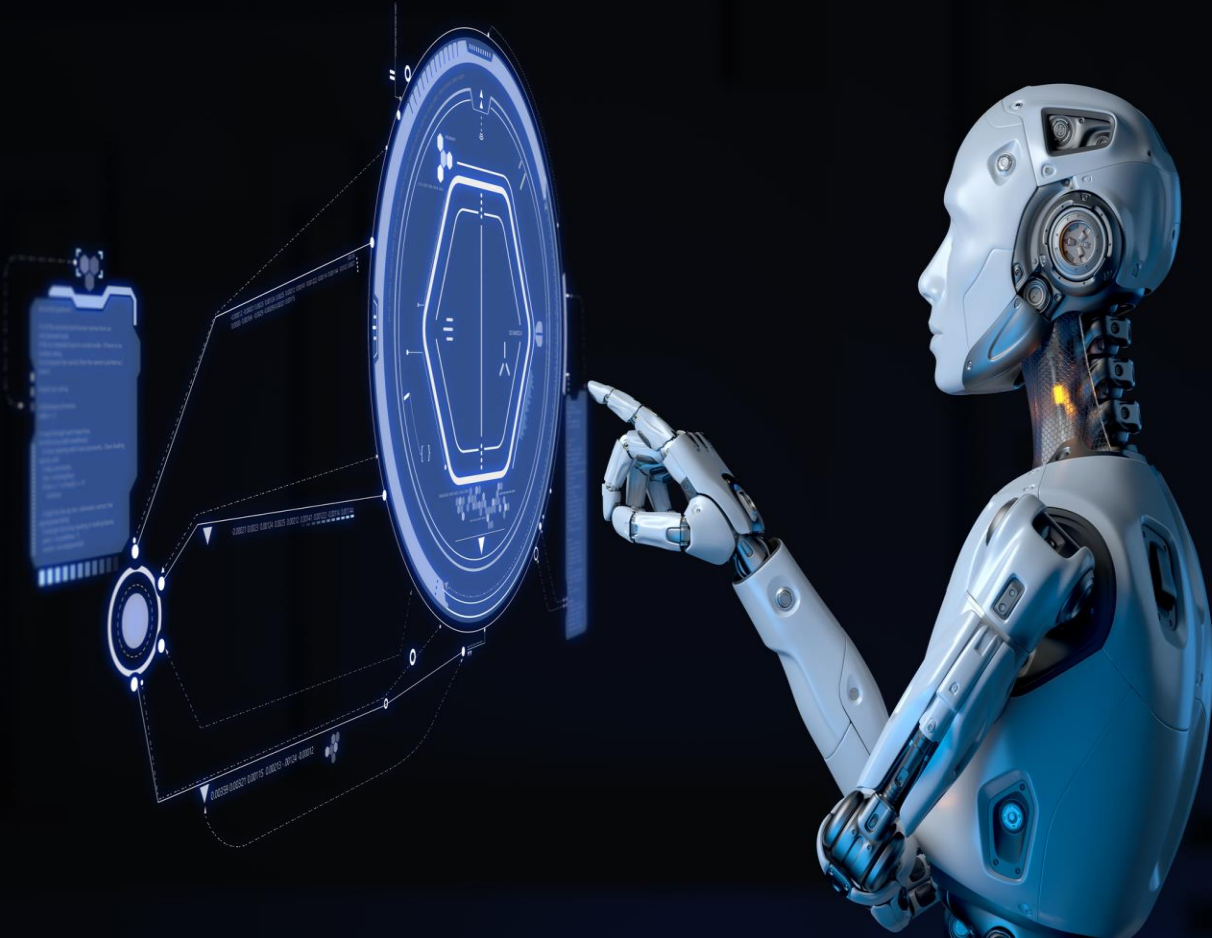
Senior Director, Resource Sharing Solutions

The Rise of Generative AI

A Game Changer



AI is all around us, for years...



What is Generative AI?

E

What is Generative AI?



Generative AI is a subfield of artificial intelligence (AI) that involves developing models and algorithms that can produce new and original data, such as images, text, and music, that are similar to or indistinguishable from real data. Unlike traditional AI models that are designed to recognize patterns in existing data, generative AI models are capable of creating new



Creating new content

data. They can be trained on large datasets to learn patterns and generate new data that resembles the original data. Generative AI has applications in a variety of fields, including art, music, fashion, gaming, and medicine. For example, generative AI can be used to create realistic images of people and objects, generate music or sound effects for video games, or even create new drugs by generating molecules with specific properties.



The Drive Behind The Rise

- Open to everyone
- Conversation like
- Context aware
- So what if it's not perfect



The Rise of ChatGPT

ChatGPT Sprints to One Million Users

Time it took for selected online services to reach one million users

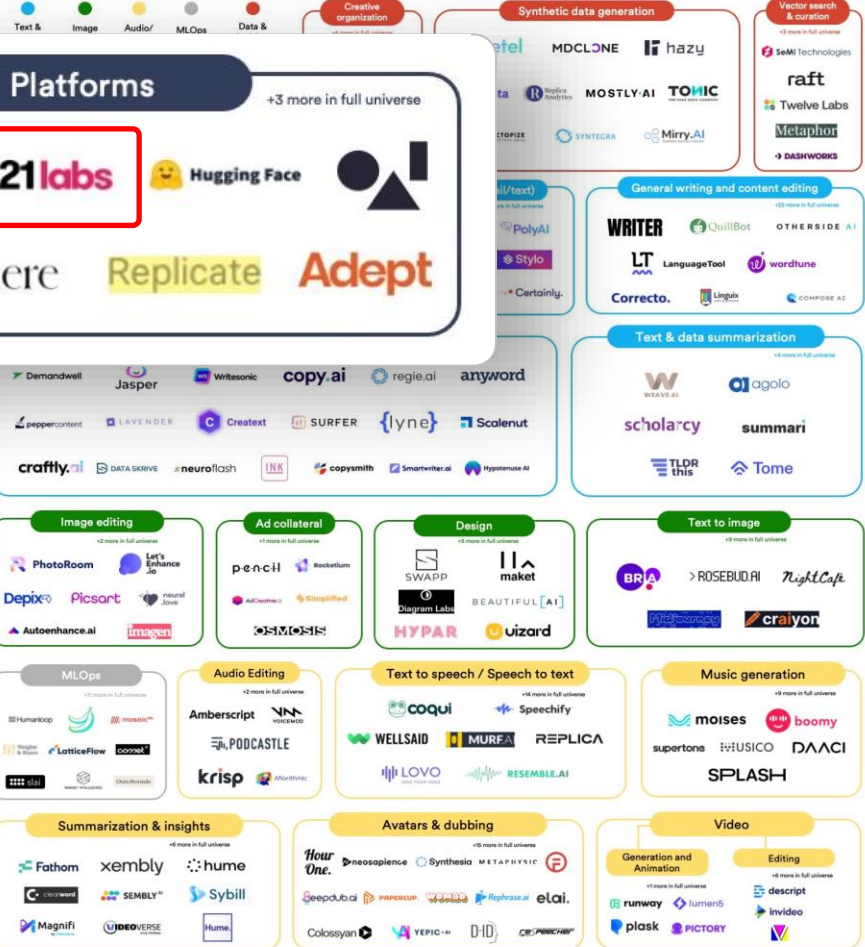


statista



BASE10 TREND MAP: GENERATIVE AI

Companies are grouped based on medium produced and segmented by use case within each medium. Companies that offer products across segments are grouped in the segment of the core product offering.



450+

Startups Working on Generative AI





Posted by u/Pleasant-Day-9456 1 day ago



90

When you realize ChatGPT can do your work better than you...

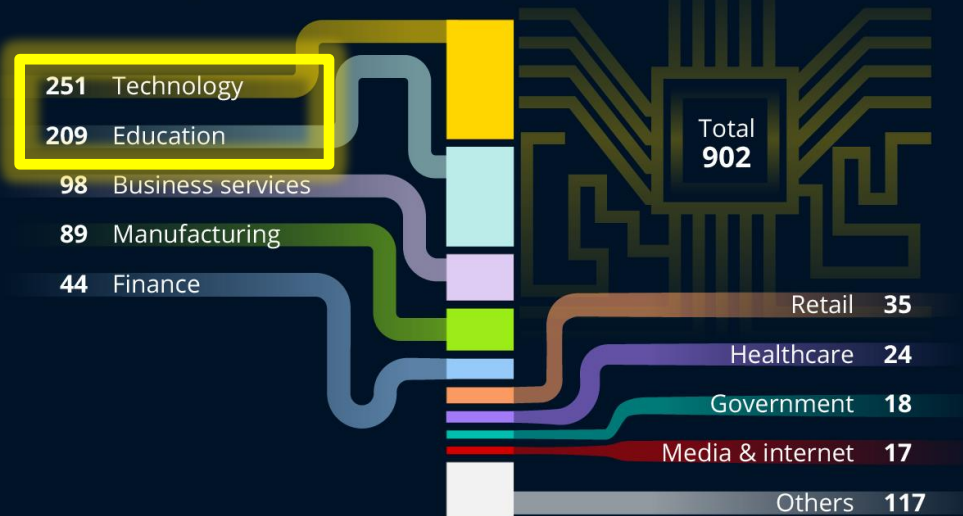
Funny



Generative AI Impact on Various Sectors - Should we be Concerned?

Which Sectors Are Working With OpenAI?

Number of companies/organizations using Open AI in their business processes worldwide, by sector* (as of Jan. 2023)



* OpenAI is an artificial intelligence research and deployment company (e.g. ChatGPT)

Source: Enterprise Apps Today

Generative AI Impact on Various Sectors

Creative





“a boy walking in a boulevard with trees on both sides in the autumn. oil painting”

© 2023 Ex Libris | Confidential & Proprietary

Source: Me & DALL-E



“a fisherman with hook at a dock watching the sunset. oil painting”

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ALICE AND SPARKLE


by Ammaar Reshi



The best of friends

Sparkle quickly proved to be a valuable friend. It helped Alice with her schoolwork, played games with her, and they had the best time ever.

Author? Artist?



1 Year: Print & Digital Access




TIME

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DAILY SPOTLIGHT WHAT TO DO IF YOU CAN'T AFFORD YOUR STUDENT LOANS

TECH • ARTIFICIAL INTELLIGENCE

He Used AI to Publish a Children's Book in a Weekend. Artists Are Not Happy About It



The best of friends

Sparkle quickly proved to be a valuable friend. It helped Alice with her schoolwork,

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FREE delivery Sunday, March 19

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Customer reviews

★★★★☆ 3.1 out of 5

65 global ratings

5 star	<div></div>	48%
4 star	<div></div>	4%
3 star	<div></div>	4%
2 star	<div></div>	2%
1 star	<div></div>	42%

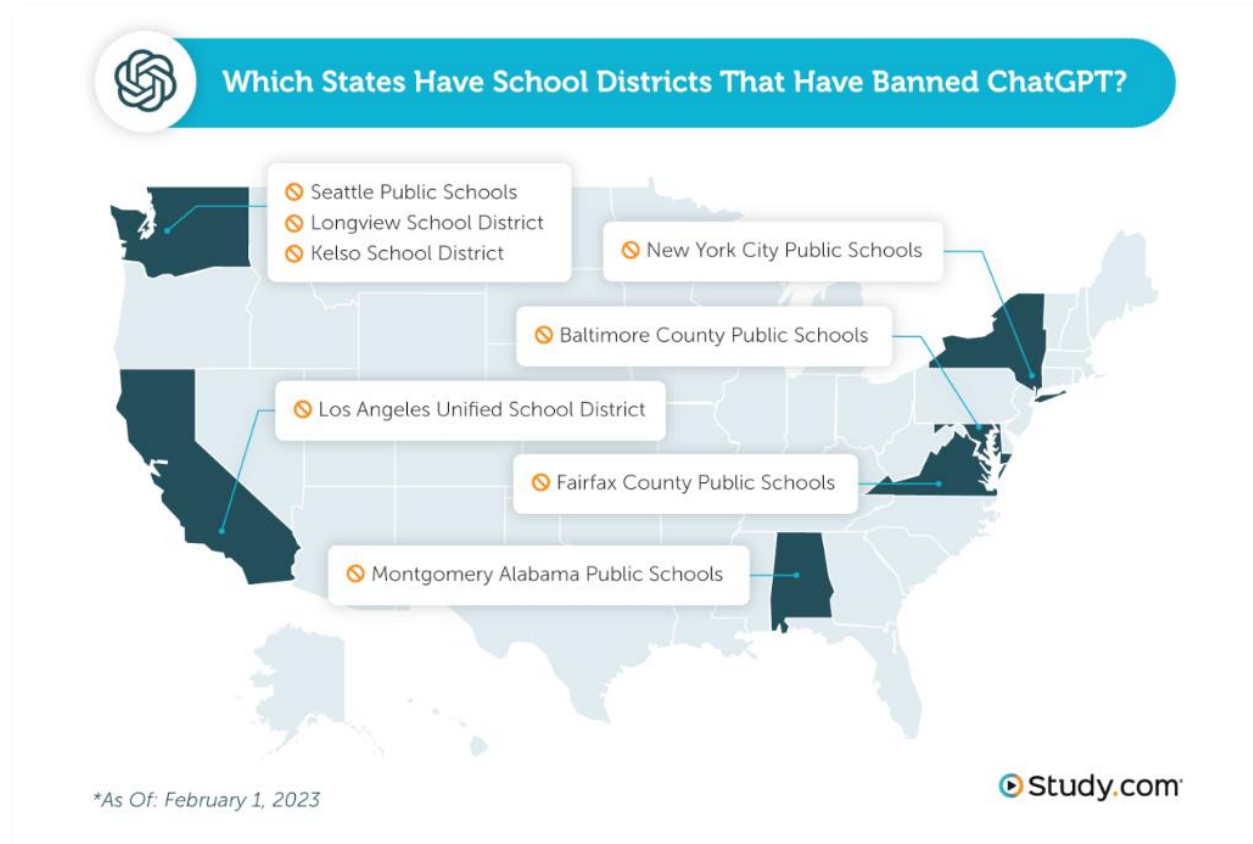
Source: <https://time.com/6240569/ai-childrens-book-alice-and-sparkle-artists-unhappy/>



Education

Education – Can We Fight This?

- NA – 6 states banned ChatGPT from school networks & devices.
- Homework should be handed in handwriting on paper...



Source: <https://study.com/resources/chatgpt-in-the-classroom#:~:text=New%20York%20City%20Public%20Schools,Maryland%2C%20Alabama%2C%20and%20Virginia>



3d printer does my homework
that ChatGPT wrote

UK EDITION

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Cheating by students using ChatGPT is already on the rise, surveys suggest

About a quarter of over 200 surveyed teachers reportedly caught at least one student cheating

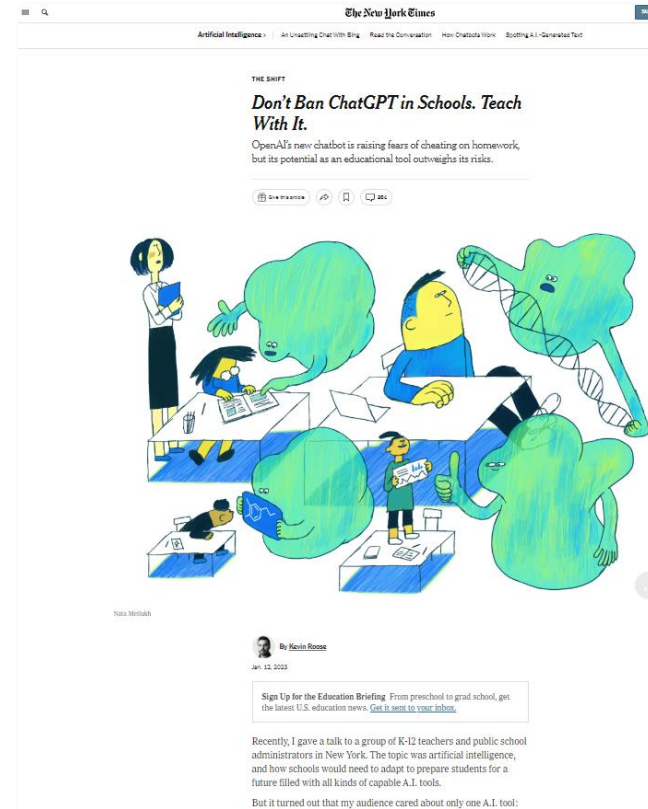
Source

<https://www.independent.co.uk/tech/chatgpt-cheating-students-openai-chatbot-b2278850.html>

Printer does my homework
that ChatGPT wrote

Education – What's at Risk?

NYC education department - “Due to concerns about negative impacts on student learning, and concerns regarding the **safety and accuracy** of content, access to ChatGPT is restricted on New York City Public Schools’ networks and devices,” said education department spokesperson Jenna Lyle. “While the tool may be able to provide quick and easy answers to questions, it does not build **critical-thinking and problem-solving skills**, which are essential for academic and lifelong success.”



Source: <https://www.nytimes.com/2023/01/12/technology/chatgpt-schools-teachers.html>

*“Attitudes about generative AI in higher education are **improving**”*

Figure 1. Disposition toward Generative AI, February QuickPoll and Current QuickPoll

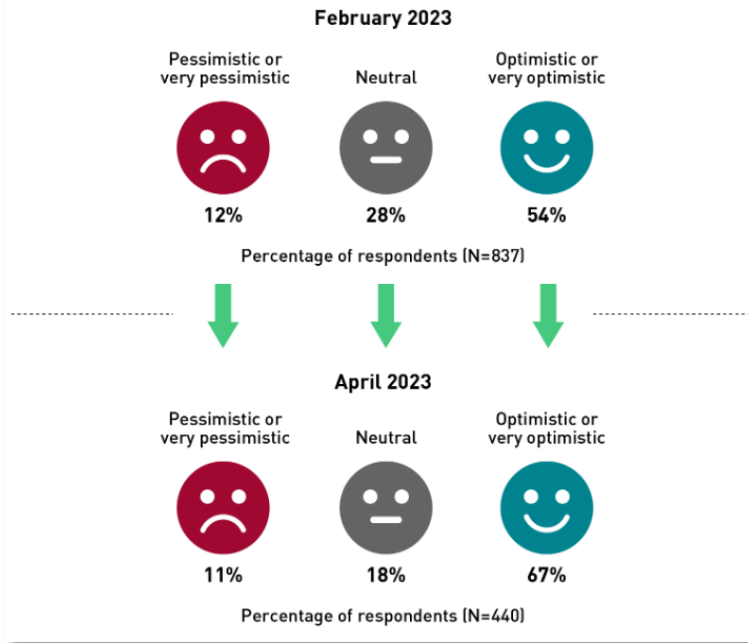
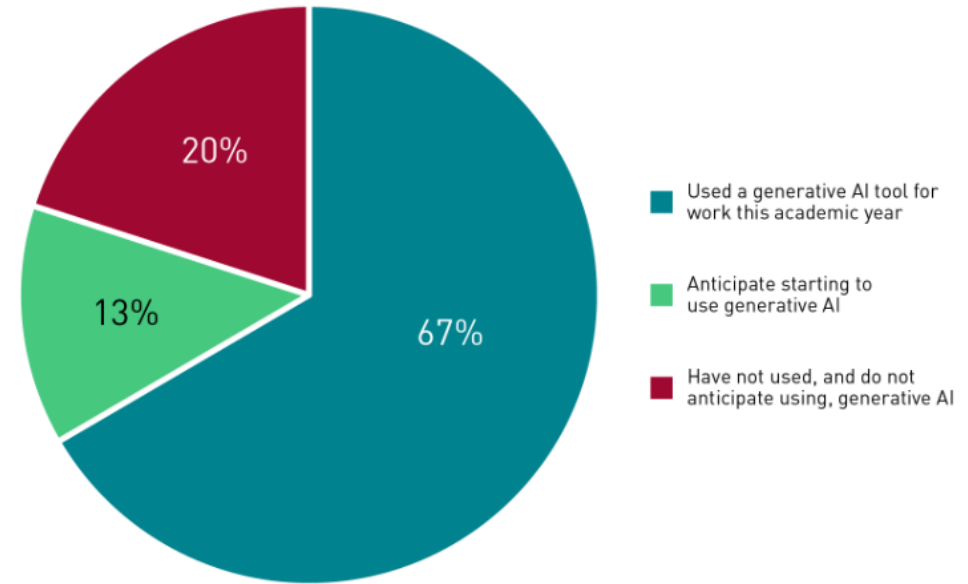


Figure 2. Distribution of Generative AI Use and Intended Use



Source: https://er.educause.edu/articles/2023/4/educause-quickpoll-results-adopting-and-adapting-to-generative-ai-in-higher-ed-tech?utm_source=connect_post

Institutions' Guidelines for using Generative AI

Brandeis
UNIVERSITY

Center for Teaching and Learning

Home / chatGPT and AI / Preliminary guidelines

CTL Help Request Form
Services, Programs, and Resources
Calendar
Grants to Support Teaching
Student Learning Resources
Teaching Assistants (TAs) and
Course Assistant (CAs)
chatGPT and AI
What is chatGPT?
Preliminary guidelines
How to Engage with chatGPT in
your Course
Ethical and Privacy Concerns
Some Helpful Resources

Preliminary guidelines

CTL's Evolving Guidelines for Dealing with chatGPT (last updated Feb 6, 2023)

[Note: this page was summarized as a [handout](#) for our [chatGPT discussions on February 6th, 8th, and 10th.](#)]

The following evolving guidelines are designed to help you address the challenge of teaching in the age of chatGPT while still emphasizing student learning and allowing for meaningful student assessment. Please treat these as preliminary guidelines as Brandeis develops its official policies.



CYBERSECURITY GOVTECH 100 TRANSPORTATION

HIGHER EDUCATION

Iowa Universities Issue Guidance on ChatGPT

Iowa's public universities are issuing guidance, forming committees, crafting assignments and churning out research on how best to take advantage of ChatGPT and how to guard against its limitations and potential harms.

February 27, 2023 - Vanessa Miller, The Gazette, Cedar Rapids, Iowa



Washington University in St. Louis
CENTER FOR TEACHING AND LEARNING

Recommendations

As ChatGPT is new, the higher education community is still grappling with its potential impact and how best to respond. We offer the following initial suggestions:

Assignment Design

- **Learn how ChatGPT would respond to your class assignments:** Try out ChatGPT yourself to understand its capabilities and limitations.
- **Focus on higher order thinking tasks in Bloom's taxonomy (e.g., analysis over recall):** ChatGPT is best at summarizing from its training data and less good at applying knowledge to new areas. Focus student tasks on the higher levels of Bloom's taxonomy, such as creating, evaluating, and analyzing.
- **Make assignments more authentic and robust:** Authentic assessments asks students to complete complex tasks similar to those they would in a non-academic setting.
 - **Add non-traditional ways of assessing learning (podcasts, oral exams, projects):** Consider other ways of letting students demonstrate the knowledge they've learned in their course beyond the traditional college essay.
- **Use local or class-based prompts:** One limitation of ChatGPT is that it does not know what happens in your class. Consider designing prompts related specifically to your course. For example, one could ask students to respond to a particular class discussion or answer questions requiring knowledge from a lecture slide.
- **Leverage other educational technologies:** Instead of using open-ended questions in Canvas, try social annotation tools that require students to engage with a text or video along with their classmates. WashU supports [Hydrospace](#) for social annotation of texts and [Announce](#) for collaborative commenting on videos.

the good parts of student voice, style, interests, and connectivity and whole self to learn more or questions in the assignment to the assignment.

GPT in your assignments



NEW HAVEN, CONNECTICUT • SUNDAY, MARCH 12, 2023 • VOL. CXLV

HOME OPINION UNIVERSITY CITY SCITECH ARTS SPORTS MULTIMEDIA WKND MAGA

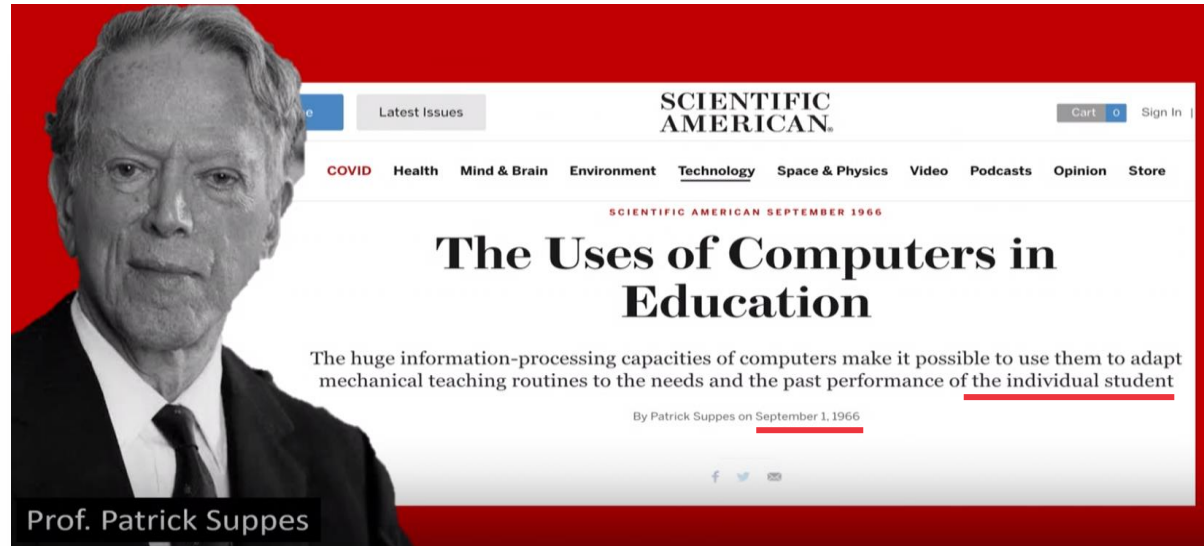
University leaders issue AI guidance in response to growing popularity of ChatGPT

Students, professors and administrators anticipate significant changes to teaching and learning at Yale as artificial intelligence technology continues to improve and develop.

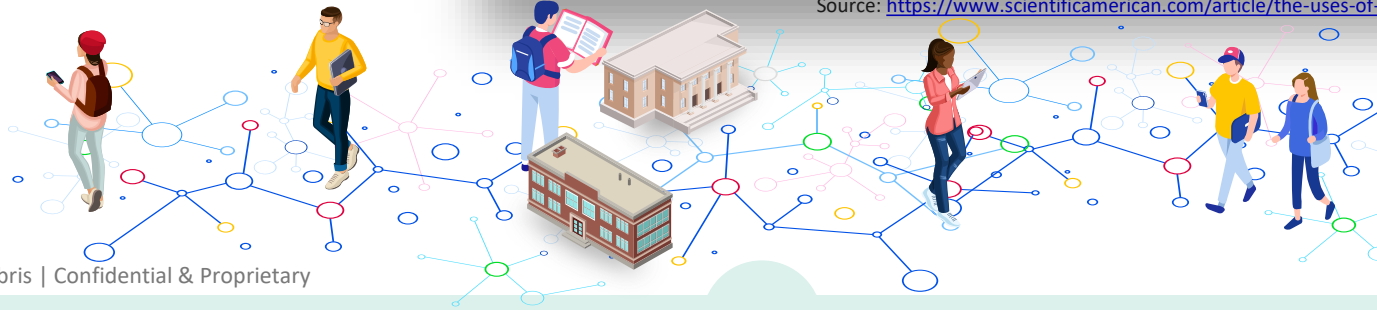
AI in Action in Education

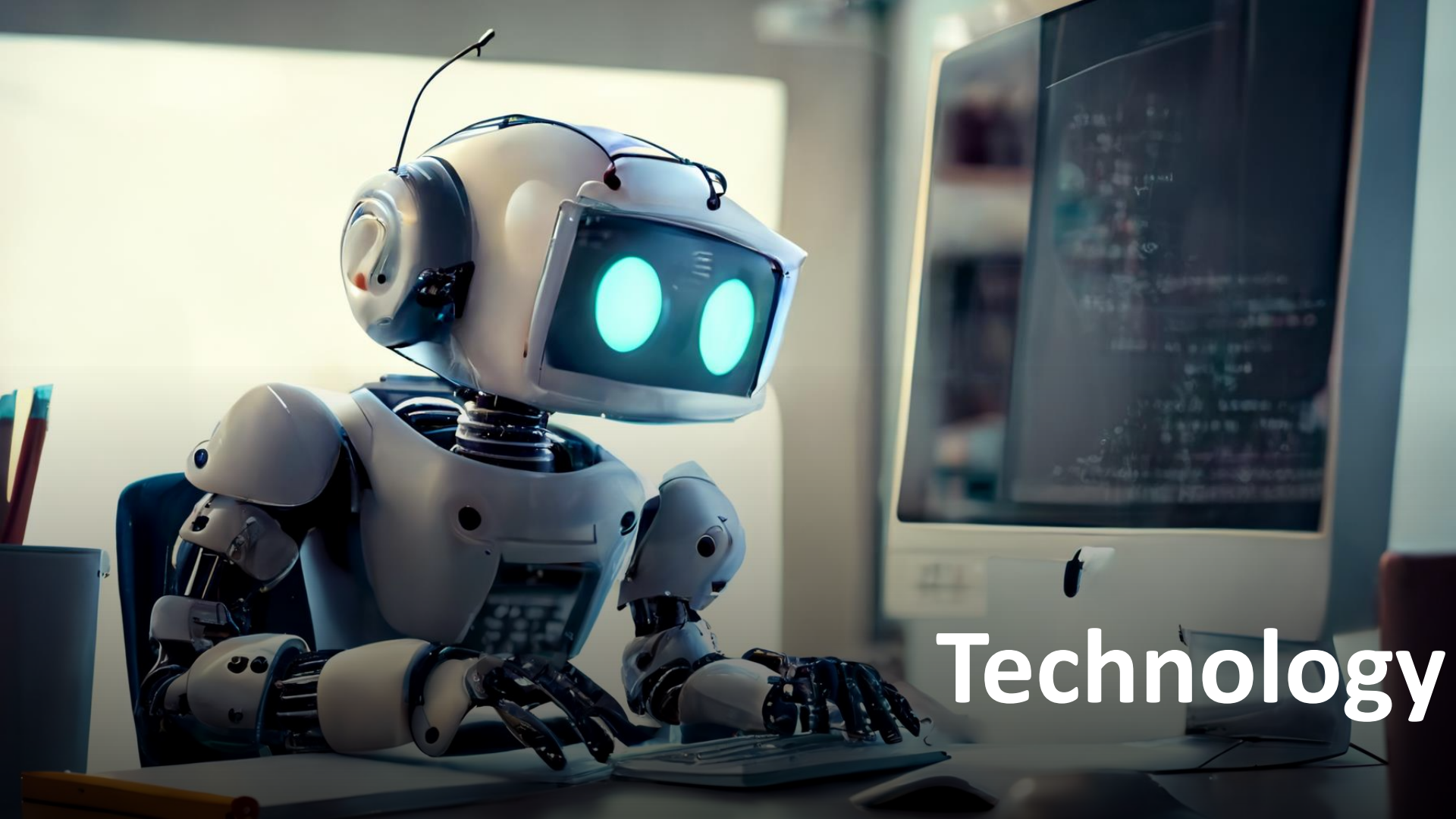
- Personalization
- Adaptive Learning
- Tutoring
- Reading / Writing
- Grading

... and much more



Source: <https://www.scientificamerican.com/article/the-uses-of-computers-in-education/>





Technology

- Co-pilot mode
- Streamline / automate
- Increase productivity



Your AI pair programmer



Amazon CodeWhisperer

Build applications faster and more securely with your AI coding companion



GeekWire

NEWS ▾ JOBS ▾ EVENTS ▾ LISTS ▾ MEMBERSHIP ▾ ABOUT ▾

AI's next frontier: AlphaCode can match programming prowess of average coders

BY ALAN BOYLE on December 8, 2022 at 11:00 am

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BOT or NOT? This **special series** explores the evolving relationship between humans and machines, examining the ways that robots, artificial intelligence and automation are impacting our work and lives.



Source: <https://www.geekwire.com/2022/ai-deepmind-alpha-code-average-programming/>

Massive Productivity Boost

AI Could Lead To A 10-Fold Increase In Coding Productivity

Based on a 70% annualized drop in training costs and feedback loops, AI coding assistants like Copilot could increase the output of software engineers ~10-fold by 2030.

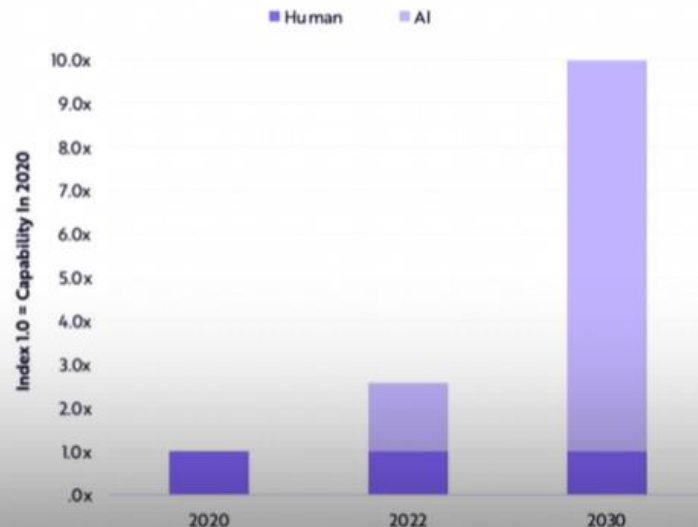
Github Copilot Example

Human Input

```
1 #!/usr/bin/env ts-node
2
3 import { fetch } from "fetch-h2";
4
5 // Determine whether the sentiment of text is positive
6 // Use a web service
7 async function isPositive(text: string): Promise<boolean> {
8   const response = await fetch('http://text-processing.com/api/sentiment/', {
9     method: "POST",
10    body: 'text=${text}',
11    headers: {
12      "Content-Type": "application/x-www-form-urlencoded",
13    },
14  });
15  const json = await response.json();
16  return json.label === "pos";
17 }
```

Copilot

Output of Human + AI: Coding Tasks



Source: Ark Investment

<https://www.analyticsinsight.net/generative-ai-could-lead-to-a-10-fold-increase-in-coding-productivity/#:~:text=3%20mins%20read,Generative%20AI%20could%20lead%20to%20a%2010-fold%20increase%20in%20the%20use%20of%20AI%20in%20coding,Generative%20AI%20could%20lead%20to%20a%2010-fold%20increase%20in%20the%20use%20of%20AI%20in%20coding>



Human vs. Machine?

1997 – IBM's Deep Blue beats Garry Kasparov



2016 – Google's AlphaGo beats Lee Sedol



Former Go champion beaten by DeepMind retires after declaring AI invincible



/ 'Even if I become the number one, there is an entity that cannot be defeated'

By **JAMES VINCENT**

Nov 27, 2019, 3:42 PM GMT+2 | ☐ 0 Comments / 0 New



Source:

<https://www.theverge.com/2019/11/27/20985260/ai-go-alphago-lee-se-dol-retired-deepmind-defeat>

Lee Se-dol is seen in 2016 during his matches with the AI program AlphaGo.
Photo: Google / Getty Images

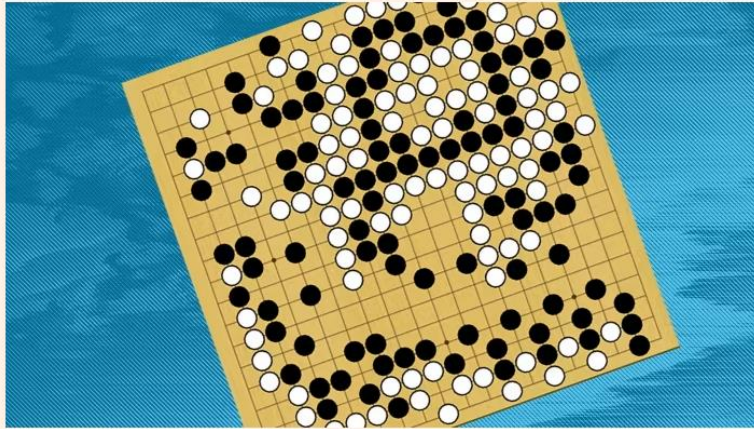
Human & Machine

February 2023 - Kellin Pelrine beats AlphaGo

Artificial intelligence + Add to myFT

Man beats machine at Go in human victory over AI

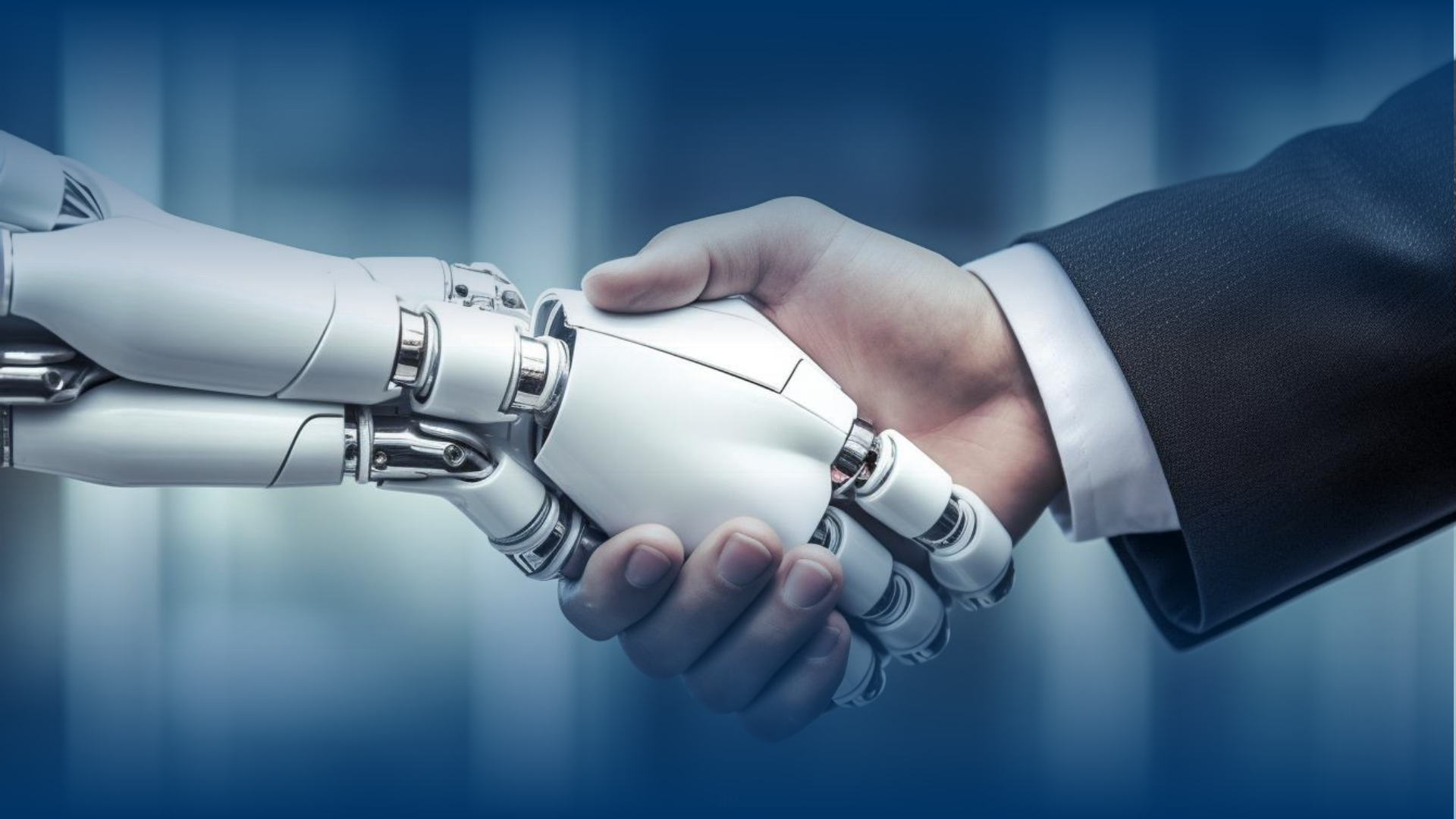
Amateur Kellin Pelrine exploited weakness in systems that have otherwise dominated board game's grandmasters



Kellin Pelrine won 14 of 15 games against one of the top Go-playing systems in January © FT montage



*"The tactics that put a human back on top on the Go board were **suggested by a computer program** that had probed the AI systems looking for **weaknesses**."*



Trends in discovery and patron services



**Focus patron experience:
Conversational discovery, but how?**

Conversational (chat-based) discovery

Important considerations

- Based on trusted content
- Transparency
- Accreditation for authors
- Compliance with license terms
- Fit with educational mission
- Support for diversity
- Information and algorithmic literacy learning




Welcome to the Next Discovery Experience

Conversational Discovery




Tell me about the Honey yield conditions and characteristics of honeys in California |



 Tell me about the Honey yield conditions and characteristics of honeys in California



 California is known for producing a variety of honeys such as orange blossom, sage, eucalyptus, avocado, and wildflower ^[1]. The quality criteria for honey are well specified by the European Community Guidelines 2001/110. The main criteria of interest are moisture, electrical conductivity, ash, reducing and nonreducing sugars, free acidity, diastase activity, and hydroxymethylfurfural (HMF) content ^[2].



See more results at the library site [↗](#)



ARTICLE

Range and Frequency of Africanized Honey Bees in California (USA)

By Kono, Yoshiaki ; Kohn, Joshua R; Wicker-Thomas, Claude

Online PDF 



ARTICLE

Admixture in Africanized honey bees (*Apis mellifera*) from Panamá...

By Zárata, Daniela ; Lima, Thiago G. ; Poole, Jude D. ; Calfee, Erin ; Burton,...

Request

Tell me about the Honey yield conditions and characteristics of honeys in California

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Were any studies on the impact of pollen consumption on honey bee (*Apis mellifera*) digestive physiology and carbohydrate metabolism done in California ?

I found a few studies that might interest you. One study investigated the impact of pollen consumption on honey bee (*Apis mellifera*) digestive physiology and carbohydrate metabolism [3]. Another study compared the effects of three pollen types on the survival rate, prepupal weight, developmental stage, and pollen digestibility in honey bee (*A. mellifera*) larvae. A third study compared the effects of eight different mixed-pollen diets on queenless adult survival and physiology [5].

See more results at the library site



ARTICLE

[1]

Range and Frequency of Africanized Honey Bees in California (USA)

By Kono, Yoshiaki ; Kohn, Joshua R ; Wicker-Thomas, Claude

Online PDF



ARTICLE

[2]

Admixture in Africanized honey bees (*Apis mellifera*) from Panamá...

By Zárate, Daniela ; Lima, Thiago G. ; Poole, Jude D. ; Calfee, Erin ; Burton,...

Request



ARTICLE

[3]

The Great Bee Migration: Supply Analysis of Honey Bee Colony Shipments...

By Goodrich, Brittney K ; Williams, Jeffrey C ; Goodhue, Rachael E...

Online PDF



ARTICLE

[4]

Genome Sequencing of Museum Specimens Reveals Rapid Changes i...

I found a few studies that might interest you. One study investigated the impact of pollen consumption on honey bee (*Apis mellifera*) digestive physiology and carbohydrate metabolism [3]^a [4]^a. Another study compared the effects of three pollen types on the survival rate, prepupal weight, developmental stage, and pollen digestibility in honey bee (*A. mellifera*) larvae. A third study compared the effects of eight different mixed-pollen diets on queenless adult survival and physiology [5]^a.



What is the research that was done in article [3]^a? Sum up the article for me in under 300 words.

Due to climate variability and the locations of forage sources, there are regional differences in honey production and honey bee colony populations within the U.S. This article suggests a use of Geographically Weighted Regression (GWR) methods over data from 2007-2018 to explain the differences and suggest the shipping costs to Almond pollination are a big factor, while actual pollination costs are not.

Abstract

Over the last two decades, the number of honey bee colonies performing pollination services for the California almond industry has grown steadily and now equals a substantial share of all colonies in the United States. Most US beekeeping operations have not expanded their colony numbers at the current levels of almond pollination fees. Thus, as almond acreage has increased, the marginal supplier of colonies has moved further away from California, increasing interstate shipments. We provide a conceptual representation of the supply and demand of U.S. colonies for almond pollination, and utilize the relatively inelastic demand for colonies to explore spatial elasticities of supply. We combine colony shipment data from 2007 to 2018 provided by the California Department of Food and Agriculture with projected prices from the California State Beekeeper's



ARTICLE

The Great Bee Migration: Supply Analysis of Honey Bee Colony Shipments...

By Goodrich, Brittney K ; Williams, Jeffrey C ; Goodhue, Rachael E...

Online PDF



ARTICLE

Genome Sequencing of Museum Specimens Reveals Rapid Changes i...

Cridland, Julie M ; Ramirez, Santiago R ; Dean, Cheryl A ; Scilligo, Amber ;...

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ARTICLE

Preliminary analysis shows that feral and managed honey bees in...

Geffre, Amy ; Travis, Dillon ; Kohn, Joshua ; Nieh, James...

Online PDF

AI for patrons – some other options



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AI in library discovery – how can it help our users?

- **Help with searching and finding**
 - Natural language searching
 - Chat-based search/conversational discovery, filtering
 - Automatic topic suggestions
- **Help with glanceability and selection**
 - Work summaries and meaningful explanations – structured and tailored to the user context
- **Help to be inclusive:** Suggestions for works with different viewpoints, languages and conclusions, or from other disciplines
- **AI can solve specific problems** (such as citation parsing with GROBID*)

*<https://grobid.readthedocs.io/en/latest/Introduction/>

Thank you!

katie.birch@clarivate.com

