

April 2023 / Vol. 28

STEAM NEWSLETTER

THE OFFICIAL NEWSLETTER FOR THE ILLINOIS DEPARTMENT OF
INNOVATION & TECHNOLOGY (DoIT) STEAM EDUCATION GROUP



Celebrate Innovation & Technology Month

Governor JB Pritzker has [proclaimed April 2023 as Innovation and Technology Month](#) in Illinois. This recognition provides a time to celebrate the significant contributions that technology and innovation make to the state's economy and society. The month is marked by a series of events and workshops that showcase the latest advancements and encourage collaboration between industry leaders, entrepreneurs, and innovators. It is an opportunity to recognize the state's thriving tech ecosystem and support the growth of technology-related programs, businesses, and startups.

The increasing daily influence in the use of artificial intelligence offers one example of the integral role education can play to build an environment that fosters development and responsible use. We encourage you to explore the resources and events such as those included in this volume and engage in discussions about technology innovation in your region.

The second [World Quantum Day](#) will be celebrated on April 14, 2023, and [National Quantum Coordination Office](#) (NQCO) offers [four ways to engage in World Quantum Day](#) activities. The [National Q-12 Education Partnership](#) has developed informal and formal learning opportunities for [Quantum Information Science and Engineering \(QISE\) learning](#). Q-12 created "[This is Quantum](#)," a marquee video made for World Quantum Day 2022, but is timeless and can be shared again for 2023. A recording and slides created in 2022 to introduce quantum information science and Quantum Resources are available on the [DoIT STEAM Quantum website](#).

Let off some STEAM with these fun activities!

• K - 4

[Climate Kids | What's the difference between weather and climate?](#)

• 5 - 8

[NASA-JPL | NASA Space Voyagers: The Game](#)

• 9 - 12

[TeachEngineering | Design Step 1: Identify the Need](#)

Educator's Corner

STEAM resources for in-person, hybrid, remote learning, and professional development

- [cK-12 | Adaptive Practice](#)
- [DoIT | Quantum Illinois](#)
- [National Q-12 Education Partnership | QISE Education Resources and Tools](#)
- [NASA | Classroom Combo: Spacesuit Science \(Pressure\)](#)
- [Smithsonian | Lights Out](#)
- [UIC | AI on the edge](#)
- [U of I - NCSA | Center for Artificial Intelligence Innovation](#)
- [U of I | Artificial Intelligence for Future Agricultural Resilience, Management, and Sustainability Institute](#)
- [U of I - Computer Science | Artificial Intelligence](#)
- [aiEDU | Intro to AI](#)
- [ISTE | Artificial Intelligence in Education](#)
- [NASA JPL | 18 Ways NASA Uses Pi](#)
- [ReadWriteThink.org | Teaching with Technology](#)
- [UIUC College of Education | How will Artificial Intelligence \(AI\) Power New Learning in Education?](#)

NEWS & EVENTS

Understanding the UN Report on Ozone Layer Recovery

“The ozone layer is slowly restoring itself and is expected to be on par with 1980 levels by 2066, according to a United Nations assessment of the goals set forth in the Montreal Protocol released this month.

Ozone is a naturally occurring gas comprising three oxygen atoms. The stratospheric ozone layer is essential in protecting humans and the environment from the harmful ultraviolet light from the sun.”



NASA: A Future Aircraft Design, Supercomputed

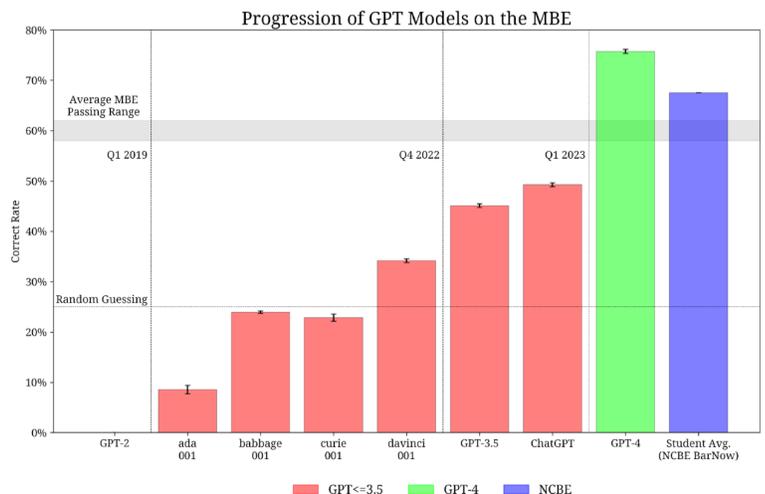


“No, it’s not hypermodern art. This image, generated by NASA’s high-performance computers, shows a Transonic Truss Braced Wing (TTBW) aircraft concept being tested in a virtual wind tunnel, showing how its wings interact with the air around them.

In this case, the dark red area along the front of the wing represents higher-speed airflow as the TTBW’s wings, which are thinner than those of today’s commercial airliners, pierce the air.. In flight, it could consume up to 10% less jet fuel than a standard airliner.”

Illinois Tech: GPT-4 Passes the Bar Exam

“Daniel Martin Katz, law professor at Illinois Tech’s Chicago-Kent College of Law, demonstrates that OpenAI’s latest deep learning model excels in complex legal reasoning and has profound implications for the legal system ... In a period of roughly four years, the leading large language model family (GPT) has progressed from zero percent on the Multistate Bar Exam for GPT-2 to nearly 76 percent on the Multistate Bar Exam in GPT-4.”



NEWS & EVENTS Cont.

Thu. March 30 | 6 pm - 8 pm | Rochester High School

Central Illinois STEM Fair

“This free regional event is open to students grades K-12, their families, teachers, and school administrators from all schools throughout central Illinois (not just Rochester). **Admission is free, but tickets are required.**”

Fri. March 31 - Sat. April 1 | 9 am - 4 pm | UIUC, Champaign

Engineering Open House: The Future, Today

“To our visitors we hope that EOH provides an outlet for everyone to explore engineering and STEM related fields. This year we welcome 200+ exhibits to EOH ranging from drone demonstrations to prosthetic hands and a wind tunnel demo.”



Application Due | Sat. April 1

Students for Innovation: Advocacy Day

“Students are selected through an application process to present in-person their innovative progress during a one-day event at the Illinois State Capitol in Springfield. We encourage all schools throughout Illinois to apply (Space is limited). Applications are due **April 1, 2023.**”



Tue. April 4 | 3:30 pm - 4:30 pm | Online

CS & STEM Networking Meeting

“Teachers, administrators, and curriculum stakeholders are invited to attend, as well CS & STEM educators of all experience levels and at all grade levels. Whether you’re just starting out or interested in taking your district’s CS & STEM program to the next level, this networking group will help you achieve your goals.”



NEWS & EVENTS Cont.

Wed. April 5 | 8:45 am - 3:20 pm | Online

6th Illinois Health Data Analytics Summit



“This virtual platform will bring leaders in healthcare, medicine, science, and business together to discuss the latest AI and machine learning trends in Healthcare. This year, we will focus on applications of rapidly emerging Generative Models and investigate how they can be leveraged to synthesize increasingly realistic and useful electronic health record (EHR) data, including images, sounds, and videos. We will discuss various deep generative model frameworks, their applications, and the risk of generative AI and its potential positive economic impact in accelerating healthcare-related predictive model development.”

Thu. April 6 | 5 pm - 6:30 pm | DeKalb Public Library

Teen STEM Café: Entrepreneurship, Innovation and Engineering Design



“Learn about innovation in the fields of toy design and candy making... At our monthly Teen STEM Cafés, we have short talks about STEM fields, related STEM activities and FREE Pizza from Hy-Vee! Family members are welcome.”

Tue. April 11 | 7 pm - 8 pm | Online



Life Support: What the International Space Station Teaches Us About Our Changing Earth (Exploring Space Lecture)

“In several decades of continuous presence on the International Space Station, we have learned surprising things about the engineering of systems that support human life... Spaceflight gives us the opportunity to understand climate change and mitigate its effects to improve the resilience of communities on our home planet.”

NEWS & EVENTS Cont.

Tue. April 11 | 3 pm - 4 pm | Online



Using Rockets to Investigate Forces and Motion / Cultivating Learning

“With the launch of the Artemis missions, student interest in rocketry and space exploration is steadily growing. Looking for curricular connections to rocketry but aren’t sure where to begin? Join educators from the National Air and Space Museum to explore a variety of ways to use rocketry to teach your students about forces and motion. Participants will explore the How Things Fly website, learn about rocketry activities for a variety of grade and skill levels, and build their own simple straw rocket. Leave with ready-to-use activities and resources and suggestions for scalability and adding technology.”

Wed. April 12 | 6 pm - 7:30 pm | UIS Student Union

Ethical Artificial Intelligence: An Industry Perspective

“In this talk we will discuss different conceptions of Ethical AI from the perspective of these parties. In particular, we will look at risks associated with algorithmic decision making, the practical tradeoffs between performance and explainability, and how those risks and tradeoffs impact people as we work towards understanding ethical AI as a stochastic process.”



Wed. April 12 | 6:30 pm - 8:30 pm | DeKalb, IL

STEM Café: Why an Acre Matters: How Digital Technology is Transforming Agriculture



“Hear from a John Deere product manager and an engineering manager to learn about the development of precision digital technology over the past two decades. Learn how new technologies, such as autonomous tractors, weed-targeting computers and precision fertilizer applicators, are helping farmers get better results while using fewer chemicals, helping to reshape America’s acres.”

NEWS & EVENTS Cont.

Fri. April 14 | 9 am - 1 pm | Chicago

Student Research Showcase



“The 5th Annual Student Research Showcase celebrates 30 students as they share their mentorship experience and innovative research through the Mentor Matching Engine. During the 2022-23 school year, students across the state of Illinois have identified research questions in a variety of fields including STEM, Social Sciences, Arts, Humanities, and more. In partnership with professional mentors on the Mentor Matching Engine, they have developed their ideas, refined their skills, and created innovative solutions. Join ISTC Education in person to celebrate our students!”

Fri. April 14 | 4 pm - 6:30 pm | Materials Research Laboratory, Urbana

World Quantum Day



“Join the [Illinois Quantum Information Science and Technology Center](#) (IQUIST) for an evening filled with quantum information science-based activities and events.” “[This is Quantum](#) is a marquee video made by the [National Q-12 Education Partnership](#) for World Quantum Day 2022, but is timeless and can be shared again for 2023 and beyond.” Additional resources can be found [here](#). The educational webinar “What is quantum science and why should I care?” hosted by DoIT recording and slides from 2022 can be found [here](#).”

Fri. April 14 | 9 am - 9:30 am | Online  Smithsonian

Flights of Fancy Story Time: Hare and Tortoise Race to the Moon by Oliver J. Corwin

“Join us for Oliver J. Corwin’s twist on the classic tale as Hare and Tortoise to the Moon with rockets! Take a closer look at examples of rockets that have been built for different purposes and then create your own rocket design.”

NEWS & EVENTS Cont.

Apply by Mon. April 17

The Genes in Space Journey / 2023 Contest



The Challenge:

“Students in grades 7 through 12: design DNA experiments that address a challenge in space exploration.

Life on Earth has evolved under the effects of our gravity and the protection of our atmosphere. Human space exploration opens up amazing new opportunities for life, and serious challenges too.”

Tue. April 18 | 5:45 pm - 7:45 pm | Online  Smithsonian

The Sun: Front and Center - A Grand Tour of the Solar System

“The Sun, the 4.5-billion-year-old star at the center of the solar system, is the glue that holds it together, and its activity provides a protective bubble that shields the planets from damaging galactic radiation. Astrophysicist and cosmologist Hakeem Oluseyi shines a light on this special star.”

Wed. April 19 | 2 pm - 7 pm | IATP, Springfield

Illinois Assistive Technology Program Open House

“Join us for an Open House to visit with staff, see a wide array of Assistive Technology (AT) devices, and learn more about our new programs and existing services.

Tour our new building and visit our:

- Expanded Demonstration Center
- Interactive Smart Home
- Accessible Tech Kitchen
- IATP Makers Fabrication Lab

To help us with our planning, please R.S.V.P. by calling (217) 522-7985 or email iatp@iltech.org.”

NEWS & EVENTS Cont.

Thu. April 20 | 1 pm - 4 pm | Streamed Online

Innovation Day

Listen to stakeholders in Illinois celebrate Illinois innovation and engage in a statewide policy discussion around emerging technology that will cultivate curiosity and leverage investments. Through discussions on topics such as artificial intelligence and quantum computing, you can learn more about the next steps on ways to strengthen development and pipelines in science, technology, engineering, arts, and math.

Fri. April 21 | 9 am - 5:30 pm |

Northwestern Pritzker School of Law, Chicago

IMPACT Series: How ChatGPT and Generative AI Will Change Legal Services

“Introducing a new joint Executive Education series created by Northwestern Pritzker School of Law and McCormick School of Engineering designed to help law firm leaders, lawyers, and other legal professionals understand and make the most of the computational technologies that are transforming the delivery of legal services.”

Northwestern
PRITZKER SCHOOL OF LAW

Sat. April 22 | Illinois Wesleyan University

7th Annual Celebrating High School Innovators competition

Watch the final round competition presentations. “The competition identifies, fosters, and celebrates high school students whose contributions are exceptional and inspirational. Current 9th through 12th grade students were eligible to apply in five areas:

- Arts, Media & Literature
- Business Entrepreneurship
- Health & Nutrition
- Social Entrepreneurship
- Science, Technology, Engineering & Math (STEM)”



NEWS & EVENTS Cont.

Thu. April 27 | 3:30 pm - 4:30 pm | Online



Artificial Intelligence in Your Classroom

“Artificial intelligence is here, and unlike what you’ve seen in the movies, AI isn’t coming to destroy humans – it’s coming to disrupt our classrooms... Join us as we cut through the AI buzz and examine the implications of artificial intelligence in an education setting. In particular, we’ll focus in on how recently released and forthcoming AI tools could impact how students learn and create going forward, as well as how educators can stay ahead of the curve with ready-to-use AI resources.”

Thu. April 27 | 9:15 am - 1 pm | Chicago



ILLINOIS
SCIENCE &
TECHNOLOGY
COALITION

STEM Challenge Showcase

“The 10th Annual STEM Challenge Showcase celebrates 20 student teams as they share their mentorship experience and present their innovative solutions to pressing industry challenges. Over the past 4 months students have teamed up with experts in the field to collaborate on an authentic industry challenge. Students and their mentors have worked to collaborate, design, prototype, iterate, synthesize, and ideate to determine the best solution. Join ISTC Education for an in-person celebration as we hear from students across Illinois.”

Sat. April 29
Illinois Institute of Technology



Chicago Student Invention Convention

“The Chicago Student Invention Convention is a program that typically runs for 10 weeks and engages K-8th grade students in an invention curriculum.” April is scheduled for competition and awards, including in-person showcase and awards ceremony scheduled at IIT in Chicago.

NEWS & EVENTS Cont.

Sat. April 29 | 10 am - 4 pm | College of DuPage

STEMCON



“STEMCON is a public outreach event designed to inspire and educate K-12 students in the fields of science, technology, engineering, and mathematics. This family-friendly event encourages scientific discovery through hands-on activities and demonstrations while providing the opportunity to learn about scientific careers from actual researchers, industry representatives and STEM educators.”

Challenge Open | March 1 - May 15

NASA Aeronautics Dream with Us Design Challenge



“Students ages 13-18, come dream with NASA Aeronautics and help us envision and market a more sustainable commercial aircraft. Put together your dream team of 2-4 participants and build a marketing plan to help convince a team of NASA experts that your design for a commercial aircraft should be chosen as the best sustainable design.”

July 17 - 21 | University of Chicago Data Science Institute

AI & Science Summer School 2023



“The AI + Science Summer School will be held from July 17th – 21st, jointly hosted by the Data Science Institute (DSI) and the Institute for Mathematical and Statistical Innovation (IMSI) at the University of Chicago. This year’s speakers will focus on applications of AI and Machine learning in core areas of domain science – materials and chemistry, physics, climate change and biology. The goal of the program is to introduce a new generation of diverse interdisciplinary graduate students and researchers to the emerging field of AI + Science. We also hope this program can build community and spur new research directions focused on AI-enabled scientific discovery across the physical and biological sciences.”

STEAM Resource Spotlight

Earth Day - April 22, 2023

Earth Day Action Toolkit



“This year, we rally behind the theme ‘Invest In Our Planet’, which highlights the importance of dedicating our time, resources, and energy to solving climate change and other environmental issues. Investing in our planet is necessary to protect it and the best way to pave a path towards a prosperous future.”

Celebrate Earth Day With Education Resources From NASA

“Explore these lessons and activities from NASA/JPL Edu to engage students in Earth Day on **April 22**. Get notified about upcoming events and the latest news from the education team at NASA's Jet Propulsion Laboratory.”



The NASA Pi Day Challenge

“You may already know all about the mathematical constant pi (π) and how it can be used to calculate things like the circumference of a circle or the volume of a sphere. But did you know pi is also used all the time by NASA scientists and engineers to explore other planets?

In this challenge, you can solve some of the same problems NASA scientists and engineers do using pi!”

World Intellectual Property Day – April 26, 2023

Women and IP: Accelerating innovation and creativity

“In 2023, we celebrate the ‘can do’ attitude of women inventors, creators and entrepreneurs around the world and their ground-breaking work.



Women in all regions are shaping the world through their imagination, ingenuity and hard work, but often face significant challenges in accessing the knowledge, skills, resources and support they need to thrive.”

STEAM Resource Spotlight

NIH | STEM Teaching Resources



“The free K-12 STEM education materials on this site are provided by the institutes and centers within the National Institutes of Health (NIH) and NIH grantees, including [Science Education Partnership Award \(SEPA\)](#) recipients.”

IMSA | Summer Professional Development

“From early childhood to grade 12, there’s a program for everyone! Learn more about in-person summer professional development opportunities at IMSA. The IMSA Little STEAMers, IMSA Fusion, and Problem-Based Learning Series focus on how educators can teach curriculum in a way that follows core competencies which include inquiry-based, problem-centered, competency-based, and integrative teaching and learning. The IMSA Team follows participants’ progress and are available to answer questions along the way.”



NIU STEAM – Summer Pre-college Experience Programs

“[NIU STEAM](#) provides students, educators, and community members with experiences that increase individual STEM/STEAM knowledge and skills. This summer, NIU STEAM is offering two pre-college experience programs for eligible students at Northern Illinois University’s main campus in DeKalb.



NIUSTEAM

- [Huskies BELONG](#): Open to high school students graduating in 2024 who have a documented disability impacting their education, who intend to go to college and are interested in STEAM careers.
- [Food and Nutrition Science](#): Open to high school class of 2024 and 2025 students interested in food and nutrition science careers.” **Apply by April 15.**

Both of these programs are available to eligible students at NO COST to the student.

The 'A' in STEAM

"Arts foster scientific success" -Dr. Temple Grandin

This series is dedicated to showing how art and creativity play a crucial role in our society on its own and even within the STEM fields. There's a great deal of artistry that goes into our favorite products and media we consume that make our lives easier, or at least a bit more enjoyable, and teach us valuable lessons about history.

NEA Art Works Podcast

"The agency's podcast series contains audio interviews with arts leaders from across the country on arts issues of interest. Recent interviews include curator Amanda Burdan of the Brandywine Museum of Art on the Votes for Women: A Visual History exhibition; visual artist and disability rights advocate Gordon Sasaki on the importance of the Americans with Disabilities Act; and Randall Kline, executive artistic director of SFJAZZ, on their new approach to the performing arts during a pandemic."

Recent Podcasts

[All Podcasts](#)



Mar 14, 2023
Bushra Rehman
Author



Mar 06, 2023
Janis Burley Wilson
President/CEO and Artistic Director of the August Wilson African American Cultural...



Feb 28, 2023
Louis Hayes
Drummer and 2023 NEA Jazz Master

UChicago scientists develop new tool to protect artists from AI mimicry

"A new tool allows artists to upload digital images with slight changes that are nearly invisible to the human eye, but confound AI art generators searching for references..."



Now, a team of University of Chicago computer scientists have built a tool that protects artists from the absorption of their style into these AI models. Called Glaze, the software "cloaks" images so that models incorrectly learn the unique features that define an artist's style, thwarting subsequent efforts to generate artificial plagiarisms."



<https://doit.illinois.gov/initiatives/doit-steam.html>



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