# BOOKMARKS

## Innovative AI

Navigating the realm of advanced machine learning

## Trying new things can be scary and exciting all at the same time.

That was the case in October when we hosted the lecture, "Trice 100: The Name, The Legacy" in the historic Reading Room in Parks Library. It was a big effort with many moving parts. Literally. We brought in audio/visual equipment, a stage and podium, and reset the room to accommodate a crowd. Our team provided an alternate quiet zone for students who normally study in the Reading Room, and we hosted a public reception following the event. But, would people come? Scary.

The result? We provided a platform for those involved with a legendary part of Iowa State to share their stories. We packed the Reading Room with students and guests, including many alumni who hadn't been in our building in years. And we placed Jack Trice's letter on public display for what we believe to be the first time in history. Exciting!

If you couldn't join us for the lecture, held as part of Iowa State's commemoration of the 100th anniversary of Jack Trice's death, find us on YouTube to view a recording.

See page 16 for a glimpse of the related exhibit "Once, Twice, Trice: Students Tackle Naming Jack Trice Stadium" including a link to experience it virtually.

Guided by our new strategic plan, we'll continue to try new things, to innovate, and to evolve. Our cover story on the emergence of artificial intelligence and its incorporation into our information literacy instruction is a perfect example. Building on the cornerstone, laid at Parks Library 100 years ago this October, we'll stay true to our mission and values as we provide world-class collections, services, and technologies to meet the dynamic needs of users in our local and global communities. You can find details at www.lib.iastate.edu/about-us.

We're grateful for generous donors who make progress possible and inspire us to find new ways to help Iowa Staters flourish. We hope you'll visit us on campus and follow us via social media to stay connected between issues of Bookmarks. Find us on Facebook, X, and now on Instagram. We look forward to connecting.

Enjoy Bookmarks.

**Hilary Seo**
Dean of the University Library

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## SNAP SHOT

### INNOVATION LOCATION
By Jeff Kushkowski, business and economics librarian

My charge was clear: highlight the library's collections about entrepreneurship and innovation in one, easy-to-access location.

The challenge: the library has a robust collection of such books totaling more than 13,000 titles. Clearly, not all would fit in the cozy Fireplace Reading Room. My subject librarian colleagues provided a broad range of titles from their collecting areas, including biographies, books about inventions, and technology transfer. I contacted colleagues who coordinate entrepreneurship programs across campus and asked them to send me a picture of their bookshelves. From those pictures and recommendations I compiled an impressive list of titles about innovation, design thinking, and business startups.

The selected print and e-book titles represent some of the most compelling books about innovation and entrepreneurship in the University Library's collection. A companion Innovation Bookshelf guide provides access to related books by topic and includes predefined searches for specific titles in every college further tailoring lists for various users.

Questions, comments, and book suggestions for the Innovation Bookshelf located in the Fireplace Reading Room in Parks Library can be directed to kushkows@iastate.edu or 515-294-2408.

Learn more at:
instr.iastate.libguides.com/InnovationBooks

Photograph: Christopher Gannon

# LIBRARY BY THE NUMBERS

### FY23

**VISITORS**
5,240,593

**ITEMS IN OUR COLLECTION**
2,331,561

**CONSULTATIONS**
2,629

## NEARLY 1M DOWNLOADS

**#1** Out of our 309 published LibGuides, the Research Methodologies Guide is the most accessed. In the last fiscal year, it was downloaded more than 125,000 times.

In total, LibGuides (course guides, subject guides, and general-purpose guides) were downloaded more than 965,000 times.

## TECH LENDING BOOSTS ACCESS FOR ALL STUDENTS

This year saw a 12% increase in the number of users in the library equipment checkout program (2,038 to 2,286). The items checked out most frequently? Tech!

Specifically, laptops (6,758) and iPads (3,646) are the top two items reserved. In total, more than 10,470 items were lent during the past fiscal year.

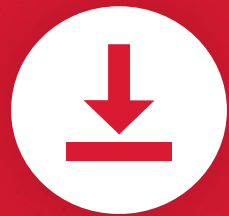## POWER-UP

In the last five years, the number of seats within arm's reach of a power outlet in Parks Library has risen from 45% to 70%.

## A BRIGHT FUTURE

In the last two years, Parks Library has gone from almost zero percent LED lights to 20% of its nearly 10,000 lights.

That adds up to more than $25,000 of energy savings per year! Sights are set on converting lighting in the tiers in the coming years in hopes of saving an additional $30,000 annually.
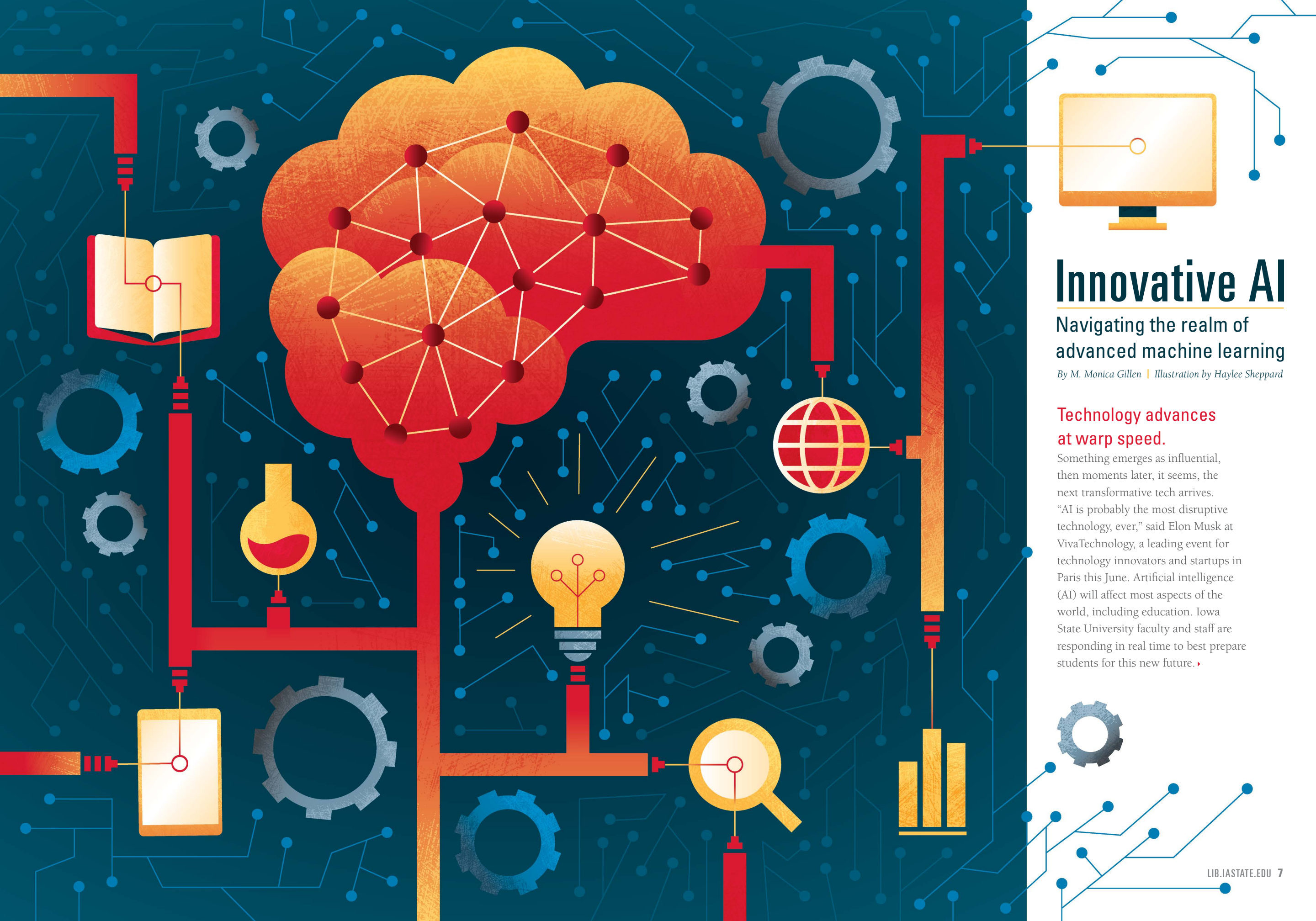
## WITH GRATITUDE

4% increase in donations to support the University Library. 15 scholarships awarded to student employees (2023-24 academic year).

# Innovative AI

## Navigating the realm of advanced machine learning

*By M. Monica Gillen  |  Illustration by Haylee Sheppard*

### Technology advances at warp speed.

Something emerges as influential, then moments later, it seems, the next transformative tech arrives. "AI is probably the most disruptive technology, ever," said Elon Musk at VivaTechnology, a leading event for technology innovators and startups in Paris this June. Artificial intelligence (AI) will affect most aspects of the world, including education. Iowa State University faculty and staff are responding in real time to best prepare students for this new future. ▸
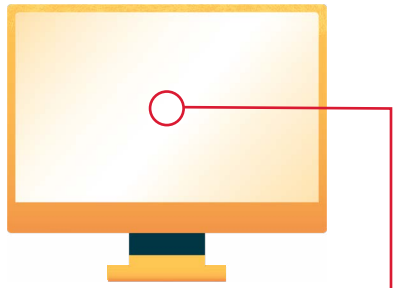
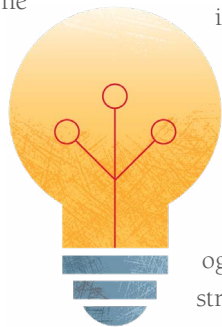Artificial intelligence (AI) is an advanced computer program designed to interact with humans and imitate or simulate human behavior. It can generate text for everyday things like writing papers, answering questions, solving equations, even following a recipe. Other AI applications can generate images, audio, and music.

So, what is a computer program? Programs give instructions, like those you might offer a person learning to make a peanut butter and jelly sandwich. You gather the bread, peanut butter, jelly, and a knife, and in a few basic steps, you have lunch. With computer programs, code is used to give instructions. Imagine searching the internet for suggestions: restaurants near me. The search engine, like Google or DuckDuckGo, uses computer programs to comb through an immense amount of information to find relevant results near your location.

ChatGPT is a widely known AI application used for generating content based on context and past conversations built into the language model. A CEO or a college student could prompt an AI application to write a letter or generate presentation talking points. The user starts a chat by typing desired information: welcome new employees; apply for a job. The application produces a response, and if the tone doesn't quite match the speaker's, the user can fine-tune it.

▶ The University Library has taught information literacy for 133 years via Library 160. The course has been modernized to include new processes, terms, and technologies — including AI.

*Photograph: Christopher Gannon*

## INFORMATION DISCOVERY

Instruction librarians and staff of the University Library have taught students about information literacy for 133 years through Introduction to College Level Research, known as Library 160. The course remains agile with content refreshed and modernized as needed, to embrace new processes, terms, and technologies—like AI.

Rano Marupova is the lead of the University Library instruction services unit. She enjoys exploring a variety of AI applications like ChatGPT, Bard (Google's version), and Adobe Firefly for image generation. She recognizes students will use AI tools in their coursework and stresses that instructors need to teach with this in mind.

> "
> As educators, we must teach our students how to use these tools critically and ethically… it naturally aligns with the major course learning objectives of our information literacy course."
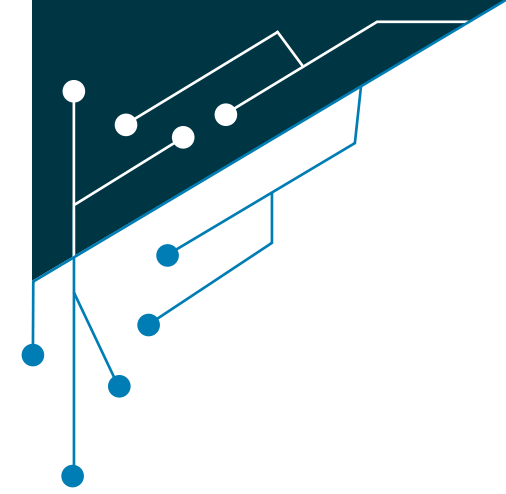>
> ▲
> **RANO MARUPOVA**
> Lead, Instruction Services

"Due to AI's ability to quickly respond to user queries and create content, students will use these tools in their coursework," Marupova said. "As educators, we must teach our students how to use information generated by these tools critically and ethically, and it naturally aligns with the major course learning objectives of our information literacy course."

The library's team of information literacy instructors conveys a clear message to students that they need to evaluate all information they discover to ensure it's accurate and credible, regardless of the source. This semester the Library 160 curriculum will introduce AI in the ▸

# From ABC to AI
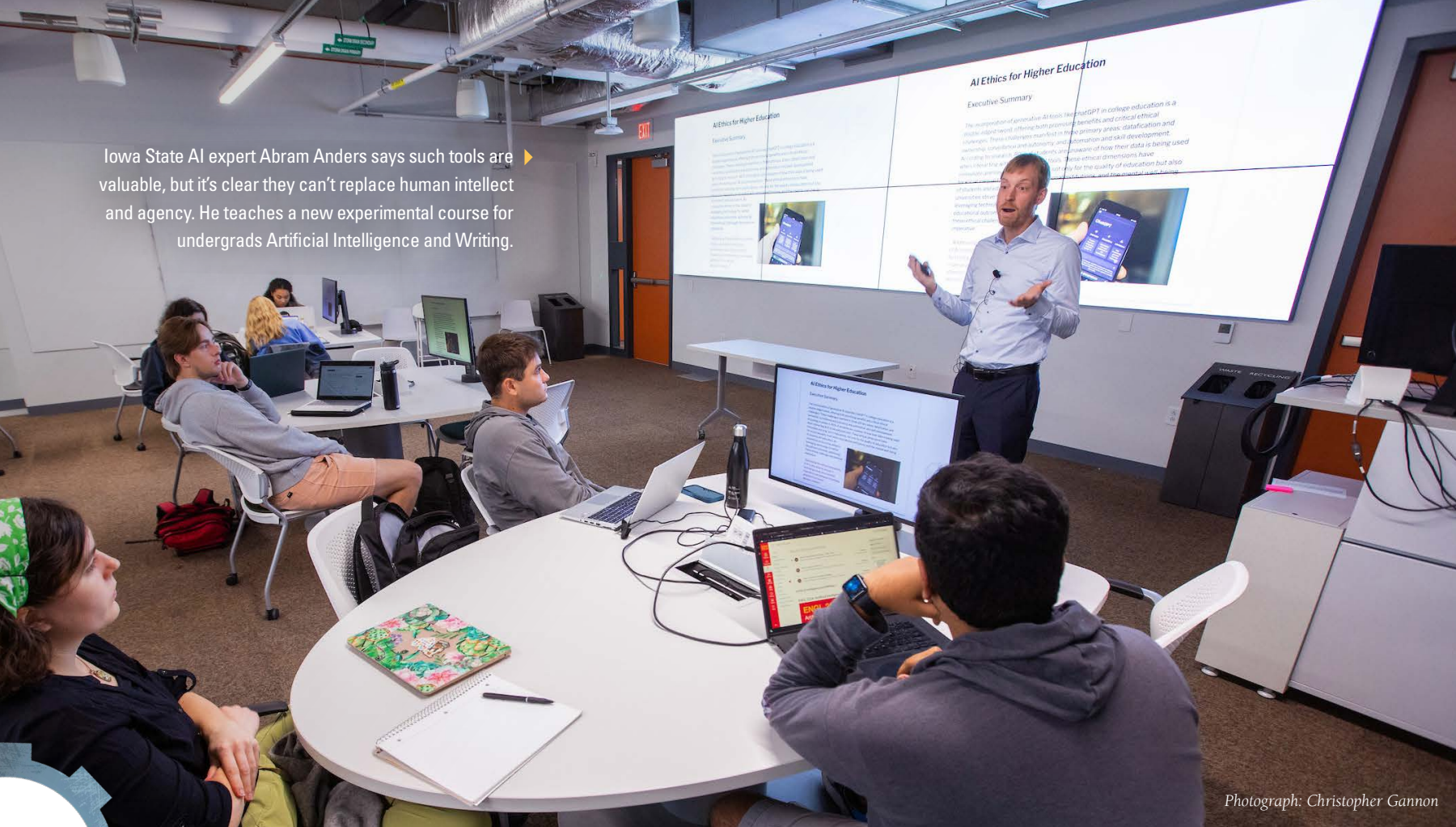
John Vincent Atanasoff (1903-1995) links the ones and zeros from the origin of the computer to artificial intelligence. In 1939, Atanasoff received a $650 grant from then Iowa State College to begin constructing the computer he'd been imagining for years. He and student, Clifford E. Berry, developed the ABC computer. Many of the ideas used in modern computing started with Atanasoff and Berry.

Iowa State AI expert Abram Anders says such tools are valuable, but it's clear they can't replace human intellect and agency. He teaches a new experimental course for undergrads Artificial Intelligence and Writing.

*Photograph: Christopher Gannon*

context of evaluating information. Google, Bing, or DuckDuckGo may seem smart and reliable; however, the search engine doesn't get to decide what's valuable. It's up to the student or researcher to appraise and inspect the results.

### EXPLORING INNOVATIVE TOOLS

Abram Anders, associate professor and interim associate director of the Student Innovation Center, started watching and experimenting with early AI tools in 2022. Now he uses them to do things like generate ideas and outlines for research. This semester, Anders is teaching an experimental course, Artificial Intelligence and

> " … the best way to experience AI tools was through creative challenges to help students take a lead role in exploring and evaluating successful uses."
>
> **ABRAM ANDERS**
> Associate professor of English

Writing (English 222X). As in Library 160, he will address the ethical and reliability concerns of the technology in the context of AI used in coursework.

"By January of 2023, I realized it would be extremely valuable to develop a course like English 222X to get at the forefront of this emerging technology," Anders said. "As I surveyed the emerging pedagogical literature, I became convinced the best way to experience AI tools was through creative challenges to help students take a lead role in exploring and evaluating successful uses."

Anders said his students can fully engage with artificial intelligence for his course, but makes it clear to them this expectation will vary from course to course and instructor to instructor. Some may not permit their use at all.

### PIONEERING PROGRAMS

The Center for Excellence in Teaching and Learning (CELT) added AI in Teaching to their online resources for Iowa State instructors. The center offers tools for syllabi and assignments to ensure students understand instructor expectations regarding AI tools.

The new Translational AI Center at Iowa State serves as the scientific hub for the technology on campus, bringing together core Iowa State artificial intelligence researchers and subject matter experts interested in applying new technologies to their work.

And the Department of Computer Science launched a Master of Science program in artificial intelligence in 2021 — the first of its kind in Iowa. Students learn to enable computers to understand, make predictions, and consider broader applications of AI technologies.

Anders encourages others to join the fun and engage with AI tools.

> "When you work with AI tools, it quickly becomes clear they are valuable and fun, and they cannot replace our own human intellect and agency," Anders said. "It's one thing to imagine and another thing to experience." ●

Artificial intelligence (AI) is an advanced computer program designed to interact with humans and imitate or simulate human behavior. It can generate text, audio, music, and images like the images above.

**1, 2, 3, or 4?**
Three of the cardinal images above are generated by AI through Adobe Firefly. One is a real photo. Can you spot the real photo from these four options? (Answer below).

# LIVE TO GIVE

**Larry Hejlik likes to joke that he didn't work at Harley-Davidson, he retired there.**

The Cyclone engineer ('72 engineering operations, master of industrial engineering '79) says his position with the leading motorcycle manufacturing company in the U.S. met all his criteria for a dream job.

Mentor young engineers and work with fun people? Check. Focus on design from the user's experience? Check. Work in product liability? Check. Self-directed? Check.

"When I took the job at Harley, I planned on being there for maybe 10 years and ended up staying until I retired 18 years later. I enjoyed the people I worked with and the work itself," Hejlik said.

Prior to his work at Harley, Hejlik worked at Iowa Mold Tooling Co. in Garner, Iowa, working his way up from a design engineer to the vice president of engineering. He also worked a stint as an instructor at Iowa State in the late 1970s while he pursued his masters. He graduated with two of his brothers on the same day in 1979 — a family accomplishment never before documented at Iowa State.

Hejlik did a lot of teaching throughout this career.

"I encouraged young engineers to expand their viewpoint, and to focus on how their design affects the overall machine," Hejlik said. "Once they realized their designs had to work, be manufactured cost effectively, and not detrimentally impact the rider experience, it's like a light bulb went off." ›

While working at Harley-Davidson, Cyclone engineer Larry Hejlik was expected to ride every bike the company made. He was principal engineer for the leading motorcycle manufacturing company in the U.S. and built the foundation for his career while studying in the stacks at Parks Library.

By Melea Reicks Licht
Photograph by Christopher Gannon, edited by Haylee Sheppard

## LIVE TO RIDE, RIDE TO LIVE

To best understand the design of Harley-Davidson motorcycles, Hejlik was expected to ride them. All of them.

"I had only ridden a Harley-Davidson once before I got this job and part of the requirements was to ride every bike the company made. Not only that, we had to learn about the competition so I rode those as well," Hejlik said.

Dream job, indeed. His favorite?

"The Softail, which I ended up owning, and the touring bikes. Those are very, very comfortable for long trips. They are designed to protect you in some nasty weather, too," he said recalling one memorable ride in a Milwaukee snowstorm.

Hejlik put his knowledge and experience to work for Harley as a principal engineer advising his colleagues on product liability and how to communicate about function and design from the legal standpoint. He became the company's go-to-guy for investigating accidents and testifying on Harley's behalf in legal disputes.

## LAYING THE GROUNDWORK AT PARKS

Hejlik said he used the product liability work he created as an Iowa State student as the foundation for his career.

"I used my research paper all the time. I handed it out to all my young engineers," Hejlik said. "It focused on the impact of product liability on small manufacturing facilities and had many relatable concepts."

It was in the stacks of Parks Library that Hejlik wrote his paper, A Products Liability Study, one weekend at a time, while working for Iowa Mold Tooling.

> ❝
> "The library covers all facets of students… I knew a gift to the University Library would impact many students across all curriculums."
>
> ▲ **LARRY HEJLIK**

"I spent every Saturday and Sunday in the stacks reviewing journals for three months," Hejlik said. "Every night I'd work on the paper from home, and every weekend, I'd return to Parks to work on the paper again."

That's one of the reasons Hejlik became a donor to the University Library. He understands the importance of having a designated space to study and focus. He made a gift to fund a group study room in Parks Library this summer, as did his daughter Carrie Naber ('04 marketing) and her husband Steven ('02 civil engineering) as part of the Iowa State University Foundation Forever True campaign.

The group study room is part of the Collaboration Corridor, which opened in 2019. The $1.2 million project is part of a multi-phase plan to revitalize and re-envision Parks as a 21st century hub for student learning. The corridor includes seven new technology-equipped collaboration rooms and increased individual study spaces. Supported by a grant from the Roy J. Carver Charitable Trust of Muscatine, Iowa, and major gifts from Linda and Richard Soukup, Carrie and Steven Naber, and Lois and John Mather, along with hundreds of other alumni and friends, the project has one group study room remaining for a naming opportunity.

"It's not unusual to find our co-lab spaces busy with students any time the library is open, day or night," said Hilary Seo, dean of the University Library. "Thanks to gifts like Larry's we are able to better fulfill the needs of students, faculty, and staff while providing an inspiring and welcoming space."

## JUST AROUND THE BEND

Hejlik still owns, rides, and enjoys his light blue 2005 Softail FXST he purchased during his early days at Harley. He took a ride through Iowa State's campus this fall. He said he's enjoyed seeing the impact of his gift at Parks providing students a place to learn, collaborate, and study.

"For people not yet actively giving, I'd encourage them to explore causes, do some research, and find something that interests you, then just do it," Hejlik said with a smile.

And, he's got just the place for you to conduct your research. ●
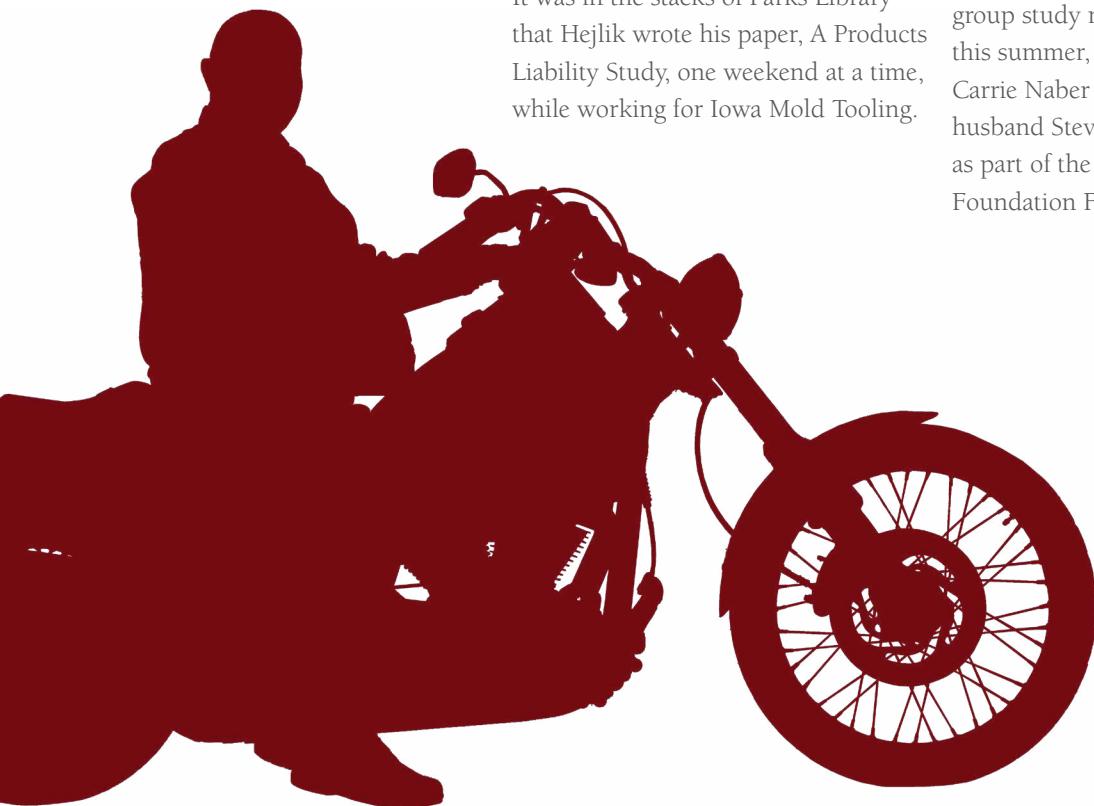
## OPPORTUNITY KNOCKS

There is one co-lab group study space in the Collaboration Corridor of Parks Library, available for a naming opportunity. For information on this and other ways to support the University Library contact Shelly Jordan, senior director of development, at sljordan@iastate.edu or (515) 620-2323.
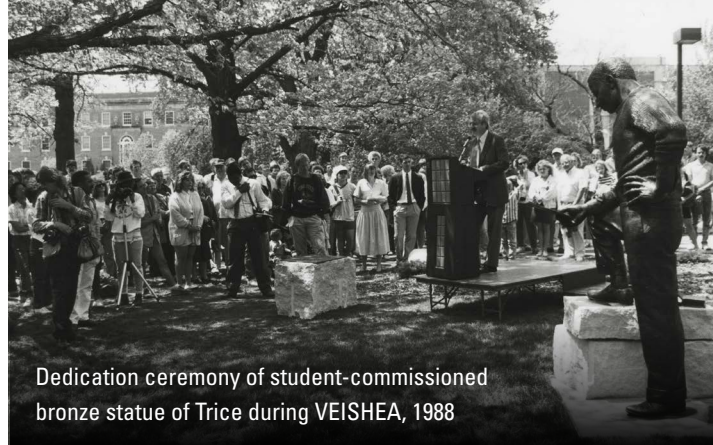
# ONCE, TWICE, TRICE:

## Students Tackle Naming Jack Trice Stadium

Curated by Greg Bailey and Rebecca Wells, ISU Special Collections and University Archives


Dedication ceremony of student-commissioned bronze statue of Trice during VEISHEA, 1988

Jack Trice was the first Black student-athlete at Iowa State University. He was a student of animal husbandry, a member of Alpha Phi Alpha, and on the Cyclone football and track and field teams. Trice aspired to use his education to help Black farmers in the South. He suffered severe injuries in his second collegiate football game and died in Ames on Oct. 8, 1923. He was 21.

The exhibit, "Once, Twice, Trice: Students Tackle Naming Jack Trice Stadium" tells the epic story of how students rallied together across three decades to compel university administration to name the football stadium in honor of Trice.

Scan to experience the online exhibit including student-designed promotional materials, official regent and student government documents, historic images, and audio from related events. The online exhibit was developed by the library's digital scholarship and initiatives department. The physical exhibit is on display on the first floor of Parks Library through the end of 2023.

◀ *(Document)* "Passed" Government of the Student Body Senate Resolution, 1974

◀ *(Top button)* "We'll carry on the torch of Jack Trice" button

◀ Jack Trice stadium dedication football game program, 1997

◀ "Meet me at Jack Trice Stadium" button

Images: ISU Library Special Collections and University Archives

## TRICE 100: THE NAME, THE LEGACY

Visit the University Library YouTube channel **@ISU_Library** to watch the lecture "Trice 100: The Name, The Legacy" presented by George Trice, executive director and president of the Trice Legacy Foundation, and Jill Wagner, Iowa State student body president from 1975-1976 to hear more about student-led efforts that made Iowa State history.

# Ask an Expert

Curious about how best to display your collections, care for family heirlooms, or handle historic photographs? Submit your question for our expert archivists, conservators, and preservation staff by emailing **libexpert@iastate.edu.**

## HILARY ASKS: CAN I USE PLASTIC BAGS TO STORE COLLECTIBLES?

We often think of plastic bags as being impervious to the elements and long-lasting. This is true to an extent, and the environmental impacts of plastics is a discussion for a different post. However, plastic bags are ubiquitous, and some are great for long-term storage of collectibles.

There are several types of plastic bags available, and while many may look similar to each other, materials and processing methods vary to produce results that behave very differently. For example, polyvinyl chloride (PVC) is a rigid material that's used in myriad ways, including plumbing pipes, window and door frames, medical devices, shower curtains, flooring, toys, imitation leather, bottles, cable insulation, etc. It can be used to make photo storage sleeves, but the materials that are added to PVC to make it soft and pliable (called plasticizers) off-gas volatile chemicals over time and cause harm to collection materials. Plasticizers can migrate to other plastic materials nearby, causing them to soften when they otherwise wouldn't. And as plasticizers migrate out of their original application, the material left behind becomes increasingly brittle.

Because plastic bags are pliable, it can be difficult to know whether any given bag has additives in it. So, reach for chemically stable materials, including:

**LISA MUCCIGROSSO**
Collections Conservator, Preservation

• Archival polyester (PET), also called Mylar and Melinex.

• Polyester films are great for document and photo sleeves, and it comes in larger sheets or rolls for encapsulating large items like posters and wrapping around items rolled onto tubes.

• Polyethylene (PE). This flexible, inert plastic is mostly transparent and is made into bags of all sizes, with and without zipper locks.

• Polypropylene (PP). Similar qualities to PE.

For the home collector, using the right storage materials is a great step to ensure your items last longer. We're happy to help you locate suppliers of archival materials to use in your personal heritage projects!

## FRESH PLACES TO MOVE, STUDY, RECHARGE AT PARKS ▶

Forty sled chairs equipped with springs and moveable bases are part of a recent update to the second-floor bridge of Parks Library. For some students, moving helps them concentrate. Having the ability to bounce in a chair or stand at a desk can help them maintain focus. New carpet, tables, office chairs, and adjustable-height desks for standing round out the other enhancements. The upgrade boosted seats in the area within an arm's reach of power from 16 to 60. Subtle Cyclone colors outfit the furnishings, and the ottomans are covered with whimsical wildlife prints by the late American artist Charley Harper. The updated space and furnishings were funded by generous University Library donors.

## ◀ ISU REPAIR CAFÉ SERVES UP SELF-RELIANCE

Numerous volunteers assembled at Parks Library on Oct. 24 to help repair items free of charge for scores of members of the Iowa State community. The Repair Café provides a way to reduce waste, share tools and resources, teach basic maintenance, and help build self-reliance skills. More than 40 items were repaired by 23 volunteers over four hours as part of the inaugural event co-hosted by Ames Repair Café, the Department of Industrial Design, and the ISU Office of Sustainability. Repaired items varied including bikes, clothing, small electronics, laptops, jewelry, earbuds, and a unicycle. Based on demand, organizers are planning future Repair Café events on campus.
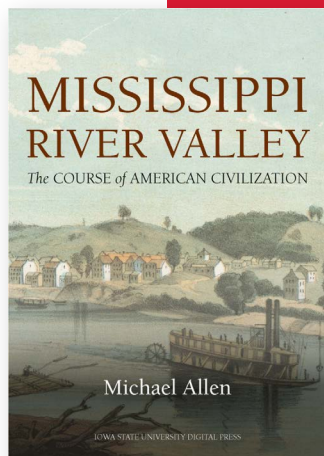
## ◀ RECENT RELEASE: OPEN ACCESS VIA ISU DIGITAL PRESS
### Mississippi River Valley: The Course of American Civilization

The Mississippi River Valley has played a huge role in the evolution of American history and culture, from the time of the Mississippian mound builders, through European colonialism, the early American republic and Civil War, to the modern-day civil rights movement. In this wide-ranging work, historian Michael Allen examines America's great river valley through the lenses of history, economics, folklore, literature, movies and television, and music — country, blues, gospel, jazz, and rock and roll.

**MISSISSIPPI RIVER VALLEY**
*The COURSE of AMERICAN CIVILIZATION*
Michael Allen
IOWA STATE UNIVERSITY DIGITAL PRESS

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*— library —*
# HISTORY
# 101

It begins with 1923 etched in Bedford limestone.

The cornerstone of Parks Library, designed by architecture firm Proudfoot, Bird & Rawson, was laid on Oct. 11, 1923. On that Thursday morning, classes were shortened so students could attend the ceremony. As was customary, newspapers of the day and other Iowa State-related artifacts were placed in a steel box and sealed inside. Passersby can find the cornerstone on the northeast face of the original building, disguised by a Honeysuckle. The structure is Bedford limestone with a footprint of 176 by 130 feet and cost about $400,000. With approximately 35,000 square feet over three levels, it took about $11 per square foot to build and was completed in 1925.

**Look for details on the University Library's centennial celebration to be held Fall 2024 – Fall 2025 in future issues of Bookmarks.**



> " In the opinion of expert architects, the new Iowa State library will be the finest piece of architecture in the state."
>
> **PRESIDENT RAYMOND PEARSON**
> (1873–1939)

Images: ISU Library Special Collections and University Archives

**GET CONNECTED**