NEW HAMPSHIRE
UNION LEADER
Open up New Hampshire.

IMAGINE • DISCOVER • EXPLORE • INNOVATE

WICKEDSTEM

Presented by

Southern New Hampshire University

JENNIFER MACDONALD from *ARMI/BIOFabUSA*

CARSON TAYLOR from *Epic Games/Fortnite*

RAINA WHITE from *Dartmouth Formula Racing*

COMMUNITY COLLEGE system of New Hampshire
CHOOSE COMMUNITY

Fidelity INVESTMENTS

NH TECH ALLIANCE

Society of SAME American Military Engineers Boston Post, Inc.

NHsaves Your Source for Energy Efficiency

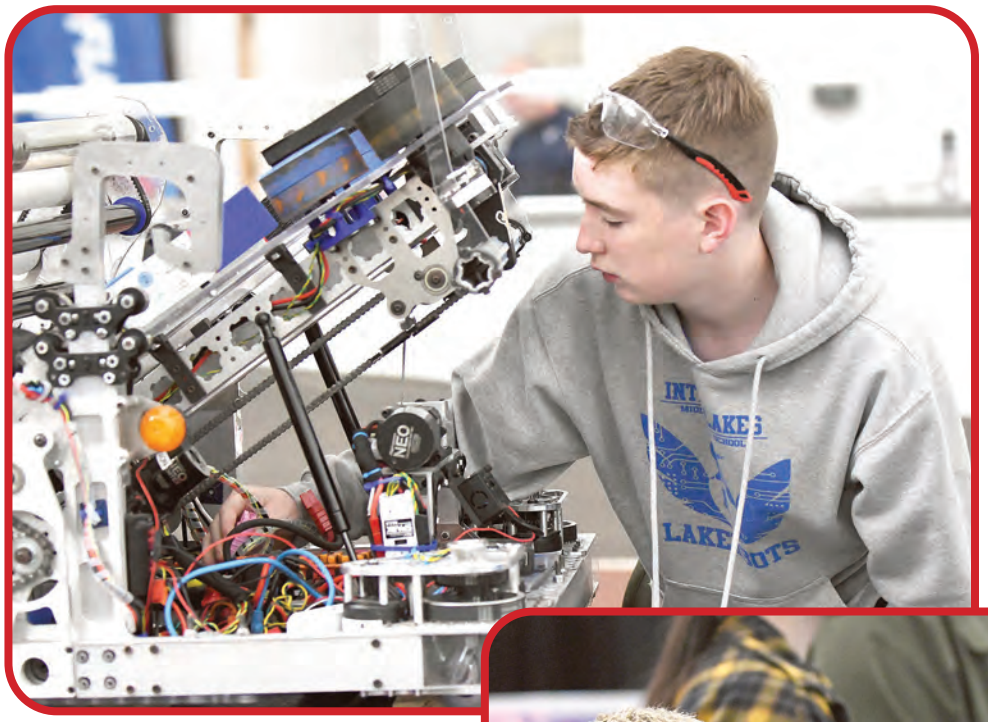
ReGEN VALLEY

TECH HUBS OFFICIAL DESIGNEE

DARTMOUTH ENGINEERING

NEW HAMPSHIRE ARMY NATIONAL GUARD

armi Advanced Regenerative Manufacturing Institute | biofabusa



Wicked STEM is packed with

- hands-on activities
- speakers & robotics
- college & career fair

Kids of all ages enjoyed the 2024 Wicked STEM Expo

LEFT: Bentley Kaik of the Inter-Lakes Middle School "LakerBots" team works on the school's robot to get it ready for the competion.

MIDDLE: Graham Mara watches a UR Robot work at the Manchester Community College booth.

RIGHT: Youngster Hollis Stoller of Bedford tries to get away from a dog-like robot named "Boxy."

JODIE ANDRUSKEVIC/UNION LEADER FILE PHOTOS

The 2025 Wicked STEM Northern New England STEM Expo is a daylong event connecting young people with the vast STEM community in New England. Save the date: **Saturday, Sept. 20**, from 11 a.m. to 5 p.m. at the Southern New Hampshire University Athletic Complex in Manchester.

The expo will include several featured speakers, hands-on activities, FIRST Robotics competition teams, and the interactive trade show floor with exhibitors and a college and career fair section.

Admission is free and the whole family is welcome to attend. More details and registration information is available at wickedstem.com.

See full event description, Page 13

Special Section Contributors

Cover Design: Elyse Thornton
Editor: Jennifer Lord

Editorial
Kathleen D. Bailey
Kaarin L. Clausen
Robert Levey
Darrell Halen

SESSION TOPIC: Dartmouth Formula Racing and Formula Hybrid

In college formula racing, the prize is experience

Dartmouth College Engineering Lab instructor will discuss the hands-on benefits of race car development, including getting in front of job recruiters who come to the competitions.

By Kaarin L. Clausen

AT COLLEGES and universities across the nation, teams of dedicated students participate in a campus activity that may be unfamiliar to many: building hybrid and electric cars from the ground up to be raced in intercollegiate competitions. One of these teams is located in our own backyard.

Dartmouth Formula Racing (DFR) — part of Dartmouth College's Thayer School of Engineering — annually designs, builds and drives a custom race car in the Formula Hybrid+Electric and Formula SAE competitions against both national and international rivals.

The team, led by advisors Raina White and Chuck Harrell, will be showcased at this year's Wicked STEM Northern New England STEM Expo on Sept. 20, in a presentation by White on the educational value of formula facing. White will highlight how students from various engineering disciplines collaborate on car development and racing events and are provided with a unique opportunity for valuable hands-on experience that enhances what is learned in the classroom.

Competing with electrical engines

Dartmouth Formula Racing competed in two events in 2025 — "Formula Hybrid-Electric" at the New Hampshire Motor Speedway in late April/early May and "Formula SAE Electric" at the Michigan International Speedway in June.

White said while competitions vary slightly year to year, the rules tend to remain the same. Each meet is comprised of three driving segments — acceleration, autocross and endurance — and two static events, featuring design and project management presentations.

"There are a lot of requirements that each car must meet, and they are nearly one hundred percent related to safety," said advisor White. "There's a hundred-plus-page rule book and a very rigorous inspection process that teams must pass to compete. During the first two days of competition, everyone is trying to pass their inspections, and they get scrutinized very carefully. Sometimes, as the technology evolves, there will be minor modifications to the competition requirements, but the rules are generally very stable."

White explained the different driving segments of the competition:

- The acceleration run is similar to a drag race and tests the powertrain of each car. Electronic timing systems measure how long it takes for the car to reach a specific speed or distance.
- The autocross portion of the competition consists of a winding, twisting course that tests the car's suspension, design and handling.
- The endurance event is similar to the autocross competition, however, cars must complete 44 laps, focusing not only on speed but the economics of their driving style. To finish this race, drivers must think strategically to prevent running out of gas or electric charge for their batteries.

DARTMOUTH FORMULA RACING

An up-close look at a Dartmouth Formula Racing car.

"Drivers are trying to get to the end without anything breaking or failing," said White. "The cars are very complex and designed to go to the limit. It's a good challenge."

The connection between engineering and racing

When Dorian Kolis began his first year at Dartmouth College, he never expected to spend his free time building cars. The biomedical and electrical engineering student — now entering his third year — was on a robotics team in high school and was looking for a similar team experience in college.

After hearing about DFR, Kolis said he began attending meetings and quickly realized that there was a lot of engineering experience to be gained from building and working on race cars. He's now one of DFR's core members and gains invaluable hands-on experience from the club that he wouldn't receive in the classroom. He's also able to use his engineering knowledge to hopefully build a winning car.

"The team is divided into subteams: mechanical, electrical and business," explained Kolis. "Every sub-team has at least one person with specialized knowledge in that area. My interest is in electrical engineering and design, and I was assigned to work on and learn about a specific board for the accumulator (battery pack)."

Kolis's work on the electric car is directly applicable not only to electrical engineering, but also to his biomedical research on electrical impedance — gaining information used for non-invasive medical applications.

It takes more than engineers,

See **Formula Racing,** Page T5

Formula Racing

From Page T4

however, to run a formula racing team.

"We need a lot of different people to run the team," said Kolis. "We need fundraisers who will work on raising money to fund the car as well as people to design the car and do body work. We also need artists to make posters and communications help for social media. We're always looking for people to do those sorts of things who aren't engineers. And while helping with the team, they might even think, 'Hey, why not try engineering, too?'"

DARTMOUTH FORMULA RACING

Members of the Dartmouth Formula Racing team get the car ready to race on track.

DARTMOUTH FORMULA RACING

Every fall, members of the Dartmouth Formula Racing team are tasked with different aspects of building a formula racing car, including engineering and design, body work, fundraising, marketing and more.

Everyone lends a hand in the pits

While the Formula Hybrid+Electric and Formula SAE events are competitive, White said there is an overall feeling of camaraderie among the teams. In addition to Dartmouth, high-ranking competitors frequently include Carnegie Mellon University, the University of Toronto, Massachusetts Institute of Technology and the University of Michigan. Each team's greatest competition, however, is itself.

"In the pits, everyone's willing to help each other out," said White. "No one's making money from this. We're there to learn. It's such a challenge to pass the rigorous rules, requirements and inspection process. Everyone's rooting for each team to just get through it. The competitions are incredibly collaborative; each team is trying to be successful and get on the track and race."

In addition to bragging rights, winners of both the driving events and engineering presentations often receive trophies, products or sponsorship money. But the biggest prize for each team is the hands-on experience.

"DFR is where students learn how to engineer," said White. "Dartmouth prides itself on providing a lot of hands-on experience. Students take the theories they learn and see if they actually play out in real life. If you don't participate in a project like this, you're missing out."

Another competition perk is that students often catch the eye of recruiters who are searching for the latest talent to work at some of the nation's leading engineering firms.

"The number of companies at these competitions who hire students from this program on the spot is evidence to how invaluable this experience is for students involved in Formula, Hybrid and Formula SAE", said White. "They know that students finish projects like this with not only the theoretical knowledge from classes but also the experience about how to integrate that knowledge and deliver it into a working product. The recruiting there is intense."

Kolis said he is looking forward to working with the new team this fall and finding out who the new team captain will be.

"I like that I get to share a lab space and common project goal with a bunch of like-minded engineers who are all interested in learning how things work and how to build stuff," he said. "We all learn together while creating something really cool."

Hours for the Wicked STEM Northern New England Expo are 11 a.m. to 5 p.m. at Southern New Hampshire University on Sept. 20. Visit wickedstem.com for more details.

To learn more about Dartmouth Formula Racing, visit dartmouthformula.racing.

SESSION TOPIC: Transforming the future – Biomanufacturing and the future of ReGen Valley

Answering the call as a leader and mentor

Family physician, veteran, and COO of ARMI/BIOFabUSA will share her excitement for innovative work happening right here in the Manchester Millyard.

By Kathleen D. Bailey

DR. JENNIFER MacDonald remembers many things from her tour of duty with the National Guard in Iraq, but one event stands out. She was present at the opening of a school that — for the first time — offered science, technology, engineering and mathematics (STEM) education for girls.

MacDonald, a family practitioner, veteran and chief operating officer of the Advanced Regenerative Manufacturing Institute (ARMI), knows firsthand what it's like to carve your own path in a STEM career. She's determined that other young women, and young men, know the possibilities and rewards of these careers.

She will be a featured speaker at the Wicked STEM Northern New England STEM Expo to be held Saturday, Sept. 20, at the SNHU Athletic Complex in Manchester.

'A heart for service'

MacDonald's own path to medicine wasn't as easy as it could have been. She knew early on that she had "a heart for service," later paired with a love for science. "But when I was young, I never felt a science or medicine career was open to me," she said, adding, "I had no female role models."

MacDonald had to find her own way into medicine. But once she did, the mentors showed up. "Once I expressed an interest, I was able to connect with others, and to build a network," she said.

She decided to specialize in family medicine. "I chose it specifically because it's the one place where you can engage patients on their entire story," she recalled. "I could partner with a family member on determining a solution."

In addition to serving patients, MacDonald developed a passion for serving her country. It began when she was a teenager in Minnesota and she saw the National Guard assisting the community with a flood. She recalled, "I would never forget the image of those service members assisting our community. The moment I turned 18, I enlisted."

MacDonald went on to serve 11 years, including a deployment to Iraq in 2009. "I saw the beauty of the country first-hand," she said, adding, "that's not what people usually 'lead' with."

She also met with the young people and saw the hope they had for rebuilding their communities, she said.

Her main job was in the base clinic, where she focused on the soldiers' well-being, including the intersection of physical and mental health. This later informed her work in family medicine, she noted.

When she was tapped to be the senior medical adviser to the Veterans Administration, she saw first-hand the commitment veterans have to one another. "They are committed to each other as a community. Again, it's not what usually 'leads,'" she observed.

"They have a very deep commitment, and they want to see each other taken care of," she said of veterans. But due to the demands of their service, they often have more health issues than the average person, she added.

An invitation to ARMI

MacDonald was invited to tour ARMI by founder Dean Kamen. They "knew a lot of the same people," she said. She toured the Millyard facility near the end of 2022 and knew the same day that she wanted to be involved. "I called my husband first," she said. "Fortunately, I have a very loving husband." Her spouse supported the move, and the couple relocated from Washington, D.C. to Manchester.

MacDonald found that ARMI's goals mirrored her own. She's impressed with how Kamen has engaged 80,000 teenagers with his FIRST Robotics program, often a gateway to STEM careers. The company has a registered apprenticeship program, which exposes youth to the world of biomanufacturing, and also offers college curriculum.

Breakthrough work at ARMI

ARMI is a nonprofit umbrella covering three entities: BioFab, a public-private partnership with more than 170 partners; ARMI Bioindustries, the development and manufacturing arm; and NextFab, dedicated to finding tech solutions to healthcare.

The developments at ARMI are a good fit for the Millyard itself, which features beautifully rehabbed buildings from the Amoskeag Mills' heyday. "It's about restoration," MacDonald said. "We are aiming to make everything new again."

As chief operating officer, she has a first-hand view of the discoveries being made by the companies' other scientists. They recently saw a breakthrough in Type 1 juvenile diabetes, she said. "At ARMI, we have developed a process to manufacture standardized bioengineered pancreatic islets," she said. Pancreatic islets are important in the metabolism of glucose.

The scientists at the complex are also doing "innovative work" on organ replacement therapies, she said. It's precision manufacturing of cell-based therapies, according to her. "We can prevent the need, or we can treat the need," she said. A Manchester company, United Therapeutics, is leading the way, she added.

MacDonald emphasized that ARMI's successes are the result of a group effort.

Reaching young students

For young people, MacDonald said she wants to see a "stackable" experience: learning STEM concepts in elementary school and building on them in middle and high school for a possible career.

MacDonald is no stranger to Wicked STEM — she was the keynote speaker two years ago. She said, "I am impressed with the invitation the event gives to attendees. It's not just a one-time thing. We offer them a pathway, and I'm thrilled to be a part of it."

Hours for the Wicked STEM Expo are 11 a.m. to 5 p.m., and admission is free. For more information and to register, visit wickedstem.com.

EXPO SPEAKER

SESSION TOPIC: Careers and trends in the video game industry

Working the business side of gaming

Senior project manager at Epic Games will discuss his business role with the popular video game Fortnite and give students some tips on how they can experiment with game design on their own.

By Kaarin L. Clausen

IN 2024, CARSON TAYLOR was at a crossroads. The Lebanon resident needed to make a decision — continue traveling weekly from New Hampshire to New York City for his job at Samsung or look for another position in the gaming industry that would allow him to live in New Hampshire and work remotely. He trusted his instincts and opted for the latter.

After some job hunting, Taylor said he landed a position with Epic Games — one of the world's leading video game and software developers. As one of their senior project managers, Taylor would continue living in the Granite State while working on one of the most successful multiplayer games of all time: Fortnite.

He found his dream job and will be sharing the story of his professional journey during the Wicked STEM Northern New England STEM Expo at Southern New Hampshire University on Sept. 20.

IGDB.COM

This press kit photo from igdb.com shows gameplay in the popular video game Fortnite.

Combining two passions

Taylor said his love for video games began at a young age while living in Texas. His parents encouraged his interest in gaming by enrolling him in summer camps that focused on programming and game development.

By high school, Taylor said he was intent on pursuing a career in the gaming industry and enrolled at the University of Texas, once again focusing his studies on game development. Throughout college, he gained as much experience as possible through a host of internships, part-time gaming work and creation of his own video games.

It paid off — the day after his college graduation, Taylor said, he began his professional career at EA (Electronic Arts), a global leader in digital interactive entertainment.

While working in subsequent positions for Zynga and other gaming studios, Taylor said he developed an interest for the business side of the gaming industry. He realized that to understand the world of gaming finance, he needed an MBA. After applying and being accepted into the Tuck School of Business at Dartmouth College, he made the move to Hanover, where he began the next leg of his professional journey in the video gaming realm.

"I've always been very much in love with gaming and wanted to become a leader in the industry," he said. "I decided to use business school as a way to do that."

He's now using his business acumen with one of the world's most popular video games. Initially released in July 2017, Fortnite has soared to the top of the gaming stratosphere and is enjoyed by 650 million players globally as of early 2025. And there are no plans for the game to slow down.

A simple but alluring concept

The premise of Fortnite is simple. It's a free-to-play multiplayer game developed by Epic Games with three variations of play. The most popular mode is Battle Royale, in which 100 players fight to be the last one standing on a shrinking map. Players usually purchase Battle Passes, which allow them to overcome extra challenges and earn rewards such as outfits for their avatars (characters) or points to move to the next level. Each Battle Pass is valid for a specific "season," which lasts for 10 weeks.

Many of the basics of gameplay can be found on the FAQ page at fortnite.com.

Although Fortnite play is free, extras such as the Battle Pass or cosmetics for game characters are paid for with V-Bucks, Fortnite's in-game currency. Players can purchase new outfits, gliders, backpacks and pickaxes for their characters — many based on current celebrities in pop culture. Taylor said Fortnite earns its money through these microtransactions.

Within the primary game of Fortnite are subgames created by third-party developers, and it is Taylor's job to build a sustainable economy for these developers within the Fortnite ecosystem. It's not as complicated as it sounds.

"One way to think about my job is this," he explained, "for every dollar that somebody spends in Fortnite to buy V-Bucks, Epic shares some of that with the game developers. My job is to figure out how much money those developers make versus what we keep and how that money is distributed."

To further help define his role, he compares his work at Fortnite to the premise of YouTube.

"Another example I some-

See **Video games,** Page T9

Video games

From Page T8

times use to describe my work is that we want Fortnite to be the YouTube of games," he continued. "A lot of my job is trying to figure out how the 'YouTubers' (or third-party game developers within Fortnite) make money."

Taylor said that when he tells people he works in the gaming industry, it's a common misconception that he's a software engineer or game developer. In actuality, there are myriad positions at companies like Epic Games.

"There's a wide array of careers to be found in the video game industry besides writing code. Artists, animators, writers, video game testers ... marketing, project management, data analysis, licensing of intellectual property — those are just some examples."

He stressed that no matter what a young person decides to study in college, they can apply their education and knowledge to a career in gaming.

"I didn't know anything about business when I started working in gaming," Taylor recollects. "Going to business school allowed me to see the bigger picture regarding how a company should be run and how to make financially motivated decisions. I then applied all that I learned within the context of gaming companies."

Taylor's interest in business began early in high school. As a self-proclaimed "armchair CEO," he spent a lot of time considering the ins and outs of running a video game business. This curiosity has been a driving force throughout his professional career, and he encourages all young people to "get curious" regarding their interests. Taylor credits business school with teaching him how to think on a grander scale — to take on larger and more complex challenges and topics within a company and think more critically about the industry.

Looking under the hood

For young people with an interest in gaming careers, the task of where to begin might seem insurmountable. But Taylor suggests that learning about the video game industry is more accessible than ever. It just takes a little research.

"It's never been easier to look under the hood of games you like to play," he said. "If you love gaming and are thinking about it as a career, think about the games you play and try to understand how they work technically. I always looked at games from a business side. You

See **Video games,** Page T10

CARSON TAYLOR

Carson Taylor, a senior project manager with Epic Games, on a work trip to Asia last year.

Video games

From Page T10

also can read developer blogs or watch YouTube videos about how the game was made."

Taylor also encourages gamers to experiment in creating their own games and explained that it's never been easier to do so.

"Platforms like Fortnite are a great way for young people to start making their own games. The barriers for entry are very low. Even the full-blown game engines are simple to use and usually free. There's very little preventing you from making the kind of game you want."

For gamers wanting to experiment with game creation, there are several points of entry. If players don't want to develop a brand-new game, most modern games allow them to "mod" (modify)existing games to create their own versions. Taylor suggests using the game's maps, becoming an editor to a favorite game and publishing something that can be shared in fan forums.

What's next for Fortnite?

In the video game industry, there is one aspect that's for certain: change. Game developers are constantly evolving to expand their offerings and updating current games to retain the public's interest. Taylor said Fortnite will also continue to change with the times.

"I think AI will play an increasingly large role in Fortnite's future," he said. "It will change how games are developed as well as the user's experience. User-generated content (USG) is also becoming a massive part of the industry, similar to what we saw with the rise of video on YouTube and TikTok."

Taylor also predicts that there will be a drop-off on the creation of AAA games — the industry's term for a big-budget blockbuster. Examples would be "Grand Theft Auto" and "The Last of Us."

He explained that these multimillion-dollar games have become untenable for the industry, in that they are low-risk yet expensive to complete. As a result, it's becoming difficult for companies to justify their creation, and they've had to start adjusting.

He said the new trend is to develop games created by small- and mid-sized teams that are not under the pressure cooker of a huge up-front cost.

"Every year, there are small games that out-earn the big-budget games," Taylor explained. "That's the perfect encapsulation of how creative individuals can dominate the second-largest entertainment industry in the world. User-generated content is the future of gaming, and gaming is the future of digital connection and media.

"Fortnite is more than a game. It's an open medium of expression that connects friends, entertainment and creator-made experiences into a shared social environment. This is the perfect role for me. I love what I do."

Hours for the Wicked STEM Expo are 11 a.m. to 5 p.m. and admission is free. For more details about th expo, visit wickedstem.com. For more information about Fortnite, visit fortnite.com.

> *"User-generated content is the future of gaming, and gaming is the future of digital connection and media. Fortnite is more than a game. It's an open medium of expression that connects friends, entertainment and creator-made experiences into a shared social environment. This is the perfect role for me."*
>
> **CARSON TAYLOR**
> senior project manager with Epic Games

INDUSTRY COMMENTARY from the NH Tech Alliance

NH's tech economy: Building strength, shaping the future

■ **By the numbers:** Tech credentialing company CompTIA estimates New Hampshire's tech sector delivered $12.3 billion in direct impact last year.

By Julie Demers
New Hampshire Tech Alliance

HERE IN New Hampshire, technology isn't a niche — it's a backbone. According to CompTIA's most recent "State of the Tech Workforce" report, net tech employment in the Granite State totals 57,031 people, representing 7.7% of our workforce — one of the highest concentrations in the country. That critical mass powers start-ups, fuels established employers, and increasingly underpins every sector of our economy.

Julie Demers

CompTIA is a vendor-neutral credentialing organization for technology workers. According to its website, CompTIA has awarded more than 3.6 million globally recognized certifications to tech professionals across the full range of employers and industries.

The economic stakes are just as clear. CompTIA estimates New Hampshire's tech sector delivered $12.3 billion in direct impact last year. That is value created by builders — software engineers, IT leaders, cybersecurity experts, cloud architects, and data scientists — and by the professionals who market, sell, and manage the technology that keeps our companies competitive. When technology thrives, New Hampshire grows.

Our wage story highlights the opportunity. The median tech wage in New Hampshire is $110,434 — about 110% higher than the state median — providing strong, family-sustaining careers across New Hampshire. Even after adjusting for cost of living, tech roles retain a robust premium. For students, career changers, and mid-career professionals, these jobs reward skills, credentials, and continuous learning.

New Hampshire's tech market is distinctive for its breadth. CompTIA's report shows employment is anchored by both tech companies themselves and large numbers of tech workers embedded in other industries. The top sectors driving demand include professional and scientific services, finance and insurance, and the public sector. This mix diversifies opportunity, spreads innovation, and helps companies of all kinds modernize operations, secure systems, and harness data and AI.

We should also be candid about the headwinds. Like the national picture, New Hampshire experienced a modest dip in net tech employment in 2024. But CompTIA projects the state will return to growth in 2025, adding more than 1,200 new jobs. In a market where employer needs are shifting rapidly — from cloud modernization to cybersecurity resilience and AI adoption — the ability of our ecosystem to retrain, upskill, and attract talent will determine how quickly we rebound.

On AI specifically, the signal is unmistakable. New Hampshire employers posted 1,658 jobs in 2024 requiring AI skills, with nearly 14,000 total tech postings statewide. Companies aren't just curious about AI — they're hiring for it.

EVENTS UNITED

One program the NH Tech Alliance participates in annually is the Product of the Year competition. Here, Matt Harris of Geophysical Survey Systems gives a presentation on Flex NX, which went on to win Product of the Year in 2023. The 2025 Product of the Year event is scheduled for Nov. 20 in Concord. Visit nhtechalliance.org to learn more.

That's why the New Hampshire Tech Alliance recently launched the NH AI Task Force — to bring together leaders from industry, education, health care, and government to guide how our state adopts and advances AI. This collaborative effort ensures New Hampshire not only meets employer demand but does so responsibly, equitably, and with long-term growth in mind. Building AI fluency across our workforce, from software teams to front-line managers, will be essential for productivity gains and new product development.

At the Tech Alliance, our mission is to make this opportunity tangible. That means helping employers access the talent, training, and peer networks they need to execute digital strategies. It means giving students and career changers clear on-ramps into high-growth roles supported by credentials and real-world experience. And it means amplifying the stories of New Hampshire innovators so capital, customers, and collaborators see what's possible here.

The call to action is straightforward:

• Invest in people. Support apprenticeships, certificate pathways, and upskilling for incumbent workers — especially in cybersecurity, cloud, data, and AI.

• Modernize, securely. Every organization is now a tech organization. Prioritize cybersecurity and resilient infrastructure alongside experimentation with AI and automation.

• Build the ecosystem. Join industry groups, mentor founders, and partner with our colleges and training providers. A connected community accelerates learning and reduces hiring friction.

New Hampshire already ranks among the top states for tech workforce concentration — proof that we can punch above our weight. If we double down on talent, trust, and collaboration, we won't just participate in the next wave of innovation — we'll lead it, from right here at home.

◆

Julie Demers is executive director of NH Tech Alliance.

SESSION TOPIC: The human skills that make AI matter

AI filters data; people decide what matters

North Light AI president and CEO wants students to better understand the intersection of AI and human curiosity, creativity and business acumen.

By Robert Levey

MIDDLE and high school students will have the chance to connect with the region's vast Science, Technology, Engineering and Math community at the Wicked STEM Northern New England STEM Expo on Saturday, Sept. 20, at Southern New Hampshire University.

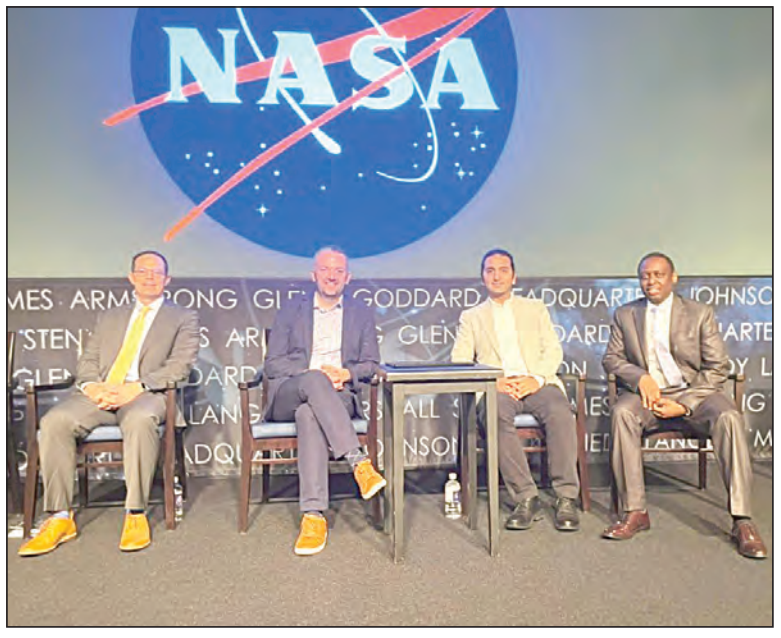
In addition to products, hands-on activities, and networking opportunities, Wicked STEM will feature several speakers, including Andrew Mitchell, president and CEO of North Light AI, whose topic is "The Human Skills That Make AI Matter."

"Picture a student using AI to prepare a science project," he explained. " The system might suggest experiments, but it can't know which one sparks the student's curiosity or how to share it in a way the judges will connect with."

According to Mitchell, AI highlights the ongoing importance of human curiosity and storytelling skills, which will be central to his message at the expo. "AI can create and filter information at scale, but it doesn't know what matters until people decide," he added.

At North Light, he said they help people and organizations put AI to work in practical ways. Sometimes, this help means creating new things, such as training programs, automated workflows, or even new products.

"Other times, it's about curation, which means cutting through the noise to find what matters most — whether that's the right grant, the right data point, or the right opportunity," he said.



NORTH LIGHT AI

North Light's leadership team, from left, Peter Zaimes, Andrew Mitchell, Dr. Roozbeh Ghasemi and Dr. Khole Gwebu, presented with the New Hampshire Aerospace and Defense Consortium to NASA in Washington, D.C. The presentation was on Prime Ready, a tool North Light is building with NHADC that involves the intersection of AI and advanced manufacturing.

While AI can surface opportunities, he said people decide which ones fit their respective missions. "In education, AI can suggest learning pathways, but it is the teacher's empathy and communication that help a student succeed," he noted.

He said this success hinges on an individual's ability to think creatively, practice empathy, communicate, and problem-solve, which he emphasized should not be considered "soft" skills.

"They are the edge that makes AI effective," said Mitchell, who will also discuss this topic in his talk. "I want students to leave knowing their human skills are not being replaced by AI — they're becoming more valuable, especially in the long run."

In terms of its usefulness, Mitchell said most people tend to still conceive of AI as a text or image generator, whereas one of its greatest strengths is helping filter and organize information.

> *"I want students to leave knowing their human skills are not being replaced by AI – they're becoming more valuable, especially in the long run."*
>
> **ANDREW MITCHELL**
> North Light AI president and CEO

"It can sift through huge amounts of information and point us to what matters most — whether that's the right grant, the right training resource, or the right data," he said.

Regarding AI's future, Mitchell said young people should not be intimidated by it, as he said this technology is something they will help shape.

"The future of AI is not just about people who can code," he said. "It is also about people who can create, curate, and connect — that means artists, teachers, entrepreneurs, nurses, and students … It's really about anyone who brings their own perspective."

Curiosity is also key. "Keep learning and use AI responsibly,

See **North Light,** Page T13

North Light

From Page T12

and you will be ready not just to adapt to the future, but to help create it," he said.

As for the future of North Light, which was founded in 2024 in Durham, Mitchell said their focus is on making AI useful rather than flashy.

"We aren't chasing the newest tools just for the sake of it," he said. "Our goal is to help people and organizations do their work better."

Wicked STEM takes place on Saturday, Sept. 20, from 11 a.m. to 5 p.m. at the SNHU Athletic Complex Main Campus in Manchester. To learn more, visit wickedstem.com.

To read more about North Light AI, visit northlightai.com.

> *"Keep learning and use AI responsibly, and you will be ready not just to adapt to the future, but to help create it."*
>
> **ANDREW MITCHELL**
> North Light AI president and CEO

NORTH LIGHT AI

The group pictured features some of the summer interns working with North Light AI on a variety of real projects for experiential learning in the field.

REAL WORLD IMPACT: Engineers Without Borders in Uganda

EWB installs water wells in rural African villages

Sept. 17 fundraiser: Proceeds from the dinner event with live music at North Aleworks in Manchester will benefit the clean drinking water effort in Uganda.

By Darrell Halen
Special to the Union Leader

A GROUP of local engineers and students plan to travel to Uganda this January and use their skills to provide something special to villagers that many Americans take for granted: clean, accessible drinking water.

Members of Engineers Without Borders N.H. Professional Chapter, working with students from the EWB student chapter at the University of New Hampshire, will install two wells, in the villages of Butooli and Dema in the eastern part of the country, during their two-week trip.

Since January 2018, eight wells have been successively installed by the N.H. Professional chapter, according to engineer Gina Panik, who serves as the group's webmaster.

The villagers who benefit are typically subsistence farmers who live off what they can grow in remote areas where there is no access to electricity or running water, according to Panik.

"Imagine spending half your day just hauling water back and forth from a swamp — it'd be hard to find time for food and other necessities, still get an education," she said. "It is hard to put into words how little these people have."

Multiple trips, one goal

The work in the African nation is part of the International Community Program of Engineers Without Borders USA, based in Denver, Colorado.

Members of the New Hampshire chapter, which was founded 10 years ago, raise money on their own for the wells. A well costs approximately $12,000.

Each water well project requires three trips, each with a particular focus: assessment, implementation, and monitoring. Reports required for all trips must be approved by the EWB organization.

Villagers generally speak Lusoga. An in-country partner to EWB, the Busoga Volunteers for Community Development, provides guides and translators. Their participation, according to Panik, is very important for a project's success.

The N.H. chapter has approximately 20 members. Typically, six to eight people will go on a trip, including students. A company in Uganda is hired to do the well drilling.

Different materials in the well pump have limited life spans, according to Panik. For example, the rubber seals in the pump should be replaced at least every five years. Without breakage, the pump should last at least 20 years, Panik said.

"We provide training to community members on how to maintain the well. Specifically, how to replace certain parts which are likely to break over time. We provide testing of the well during implementation and monitoring to make sure the water is good," she said.

Motivated to make change

The New Hampshire teams who have traveled to the villages, Panik said, come away with an appreciation of the daily luxuries Americans are accustomed to — specifically clean water.

"Until you visit you can not truly understand how little these people have. And yet it is incredible that they still provide hospitality when we visit them. Joy, dancing, food … even though they have so, so little. But the possibility of clean water gives them so much hope."

She and other EWB members are motivated by their ability to make change through their organization.

"By volunteering a portion of our time and working together, we are able to make this tangible change in the lives of people who have so many more struggles than we do," she said. "These people suffer so much because of the diseases caused by unclean water and the time that it takes to carry it. We are proud of the changes we have been able to make in their lives."

Dave Hawk, a mechanical engineer and N.H. professional chapter member, traveled to Uganda in 2019 and 2020 for installation and monitoring work.

Members bring along water testing kits, and water is tested to make sure things such as E. coli, total coliform and heavy metals are at safe levels, he said.

"To know that we are helping communities that are pretty rural, along dirt roads and far from local high population centers, helping thousands of people who need access to good, healthy drinking water that they can maintain access to on their own is empowering," Hawk said.

See **Drinking water,** Page T15

ENGINEERS WITHOUT BORDERS NH

Mechanical engineer Dave Hawk, left, and Devan Sack, a UNH student at the time, conduct water testing in Uganda on a monitoring trip in 2020.

Drinking water

From Page T14

EWB's work, he said, "can mean that people will have a better and healthier life, which is really satisfying to provide."

Through collaboration, the N.H. professional chapter and the UNH chapter can expand well implementation capacity, Hawk said.

Incredibly grateful villagers

Civil engineer Patricia Shedd, a single mother of two, was looking for a way to help others when she was about to become an empty nester. Shedd, the N.H. professional chapter's treasurer, has made three trips to Uganda.

"I wanted to give to people who really needed the biggest boost, to just better their lives. There is so much need in the country," she said.

She has used some paid time off at work to travel, and like other chapter members, paid for airline flights, lodging and transportation out of her own pocket — in keeping with current chapter philosophy.

ENGINEERS WITHOUT BORDERS NH

Members of Engineers Without Borders from New Hampshire pose with villagers on a past trip to Uganda.

Part of her work has been conducting health assessments in villages before and after a well installation.

"It gives us some knowledge of the impact we're making," she said.

Shedd said young children seem to be the segment of a village's population who most readily accept a new well in their community.

But during one trip, she said, she was approached by an older gentleman who told her he had drank water from an "old water source" after working in a field instead of making a long walk to the EWB-installed well. He had become sick, and acknowledged to her the benefit of having the well in his village.

"(He) was very grateful for what we had provided," she recalled, "(which) made us feel good."

Gratitude for EWB's good work is a strong sentiment in the villages.

"They're always grateful. They always take care of us when we're there," Shedd said. "These are people who don't have a lot. For them to feed us … is a huge deal. You can tell how incredibly grateful they are. They take time out of their day. They spend time with us. Of course, they're interested in what we're doing (while) the wells are going in. You can see the gratitude, whether or not they can speak the words. They're always there to give you a warm embrace and a hug. You can just tell they are very grateful for what they are being p rovided."

For Shedd, being able to witness the positive changes in the villages over the years makes the organization's work worthwhile.

"Clean water — we don't even think about it. Being able to provide that is fulfilling and exciting and I love to go back and see the villages and the children," she said. "They recognize us when we're coming in."

How to help the cause

The Engineers Without Borders N.H. Professional Chapter is holding a fundraiser on Wednesday, Sept. 17, at Great North Aleworks, 1050 Holt Ave., in Manchester. The event is from 4:30 to 7:30 p.m.

Tickets cost $20 per person and include one beverage, pizza and snacks. There will be live music, brewery tours and more. All ticket proceeds will help provide clean drinking water to villages in Uganda. Guests under 21 are admitted free.

Tickets can be purchased at square.link/u/Mzw41ni7.

To learn more or to make a donation, visit ewbnh.org.