

From Candle Wax to Code: MIT Media Lab Program Connects Space Research With the Next Generation

High school interns supported robotics, tested drone code, and designed 3D-printed awards while exploring research at MIT's Space Enabled Research Group.

CAMBRIDGE, MA, UNITED STATES, September 11, 2026 /EINPresswire.com/ -- Inside the MIT Media Lab, a summer internship showcase on Aug. 27 brought together an unusual mix of subjects: satellite propulsion, candle wax, robotics, computer coding, drone demonstrations and the reflections of high school students who had spent part of their summer working alongside a research team.

At the center of the event was the Space Enabled Research Group, led by Professor Danielle Wood, the group's founding director at the MIT Media Lab. Her research examines how space technology can be designed to improve accessibility, sustainability and social and environmental justice. The gathering also recognized five high school interns who contributed to work connected with Zero Robotics, an educational program that introduces middle and high school students to programming, robotics and space systems.

The students' participation was supported by the Academy of Aspire Intelligence, or AAI, a Boston-area nonprofit that coordinated student communication, educational logistics, family outreach and aspects of the event. The program culminated with student presentations, certificate recognition, interviews and a tour of the Media Lab research environment.

"Our research team asks how we can design space technology to increase accessibility, sustainability and justice," Professor Wood said in an interview at the event.



Interns, families and guests gather for a group photo following the internship showcase at the MIT Media Lab.

That mission spans work using satellite data and Earth observation to study drought, disasters and other problems on the ground, as well as research into making satellites and robotic systems safer and more environmentally responsible.

Exploring wax as a possible satellite fuel

Professor Wood said the group is exploring the possibility of using candle wax and beeswax as fuel for satellite propulsion. The research focuses in part on how wax can be manufactured into what engineers call a “fuel grain,” a tubular structure with an opening through the center.

To form the correct shape, melted wax must be rotated as it cools. Previous experiments, Professor Wood said, suggest the process may be easier in the microgravity environment of space because it can be performed at lower rotation rates than on Earth. The team is continuing experiments aimed at understanding how such fuel grains could be produced and eventually used in space systems.

The research reflects the Space Enabled group’s broader emphasis on systems engineering — designing technology not simply for performance, but with attention to the people, environments and institutions it may affect.

Professor Wood described systems engineering as a process of defining goals, understanding who a technology is intended to serve, building a design, testing it repeatedly and then examining how that design interacts with society and the natural environment.



Students and guests tour the MIT Media Lab during the internship showcase on Aug. 27, 2026.



Nuoyi Cao receives a certificate recognizing her contributions to Zero Robotics during her summer internship.

"Sometimes the testing fails. You try again," she said. "Then you ask how your technology design influences society, the natural environment, issues of social and environmental justice."

That iterative mindset also shaped the educational work highlighted at the event.

Through Zero Robotics, students write programs that can be used on robotic platforms, including robots associated with the International Space Station, drones and other flying systems. The program is designed to give younger students exposure to computer science, systems engineering, robotics and human-robot interaction in a context where software can be connected to physical machines and real-world experiments.

This summer, the high school interns supported several parts of that work.

Five students, five paths into research

The five students recognized were Nuoyi Cao of Weston High School in Massachusetts, Class of 2027; Diana Jingxuan Liang of Brookline High School in Massachusetts, Class of 2028; Jacqueline "Jianlin" Li of Phillips Academy Andover in Massachusetts, Class of 2027; Jalen Cai of Diamond Bar High School in California, Class of 2027; and Ho Lam "Allen" Liu of Magee Secondary School in British Columbia, Canada, Class of 2028.

Cao, Liang and Li attended the Aug. 27 event in person and presented aspects of their work. Cai and Liu could not attend, but were recognized as members of the internship team.

The students' assignments varied widely. Some worked on coding and testing. Others supported workshops, prepared commentary for competitions, studied research materials or helped demonstrate how student-written code could operate on drones. One of the most visible products of the summer was a set of 3D-printed trophies created for winning teams.

Cao, a rising senior, took primary responsibility for the trophy design.

She described the work as a process of turning "an imagination or an idea into an actual tangible product." Rather than stopping at appearance, however, the design also had to solve a logistical problem.



Jacqueline (Jianlin) Li receives a certificate recognizing her contributions to Zero Robotics during her summer internship.

Some winning teams were geographically dispersed and could not receive the awards in person. Cao and the team therefore developed a trophy that could be separated into pieces, shipped and assembled by recipients themselves.

The decision transformed a practical shipping challenge into an engineering exercise. Cao compared the reassembly concept to a Lego set and said it gave participants an opportunity to engage with a physical construction process in addition to the coding work that had defined much of the robotics competition.

"I've already had this aspiration and dream to become a mechanical or aerospace engineer," she said, describing the internship as a way to continue exploring that path.

Cao also helped prepare for the finals event, including brainstorming commentary and short lines intended to keep younger students engaged through a competition lasting several hours. That part of the work, she said, required close collaboration with other interns as they developed material that could make the event more energetic and accessible to the audience.

Learning to explain technology, not just understand it

Li, also a rising senior, worked heavily on the presentation and communication side of the program.

Her role included organizing material for live presentation, preparing lines and one-liners, and finding ways to keep middle school students interested during a long competition. She also examined participant code so she could identify distinctive features of different teams' strategies and explain them accurately during live commentary.

"I've never done deep, complicated coding prior to this," she said.

Analyzing the code, she said, was one of the more difficult parts of the internship. But the challenge also served the purpose she had hoped the experience would fulfill: giving her a window into an unfamiliar research environment.



Diana Jingxuan Liang receives a certificate recognizing her contributions to Zero Robotics during her summer internship.

Unlike some students who enter research programs with a clear academic direction, Li said she is still exploring.

"I don't think I have a clear path for myself," she said. "It's always good to get to know how people do things in different areas of study."

Her takeaway for other students was not that they need to choose a specialty early, but that they should be willing to enter unfamiliar environments and learn from them.

"You don't have to start early," she said. "You can always catch up."

Li's parents, who attended the event, said they viewed the internship less as a decision point about a future career than as a valuable experience in itself. They said they were pleased to see her enjoying the work and supported her willingness to explore different interests.

Discovering an interest in STEM through hands-on work

Liang's experience followed a different path.

A rising junior, she worked on code testing, finals preparation and student workshops. She also helped support activities for students connected with the 7uice Foundation, the nonprofit founded by Boston Celtics star Jaylen Brown.

Liang said she and Cai, who participated remotely in parts of the work, learned and tested code intended for younger students to use with drones. Neither had extensive prior programming experience, she said, so the assignment required them to learn together while also identifying potential problems.

Cai, Liang said, discovered issues in existing code and on the program's website that the team was then able to address.

Liang also took responsibility for workshop activities involving roughly 50 high school students.

The work changed her perception of STEM.

"Before, I absolutely knew nothing about STEM," she said. "But now, learning more about this field, I think I am more interested in this."

She said one of the things that surprised her most was the research culture inside the Media Lab. She expected technology-focused work, but found researchers discussing questions involving people, ethics and public impact as well.

"The environment was amazing," she said. "They're really willing to share their research."

Interns make contributions beyond the classroom

The interns' work also included helping with hands-on workshops at MIT for local students and visitors from around New England. Professor Wood said the interns supported activities such as rocket launches and other educational exercises, and helped demonstrate how younger students' code performed on drones or other flying robotic platforms.

Professor Wood specifically thanked AAI for supporting the interns and helping make their participation possible.

"This summer, we were so happy to collaborate with the Academy of Aspire Intelligence," she said. "These interns made several really important contributions."

AAI's role extended beyond placing students in the program. The organization helped with student contact, educational coordination, family communication, presentation preparation, event organization and media logistics, supporting the students from their internship participation through the final showcase.

For AAI, the event represented the type of bridge the organization seeks to build between teenagers and advanced educational opportunities: not simply observing research from a distance, but taking part in concrete tasks with deadlines, collaborators and public-facing results.

Why communication and mentorship matter

One educator attending the event said communication itself is part of the educational value.

A student may have a strong technical idea, he said, but still need to learn how to explain its purpose and value to other people. Presenting to peers and adults can push students beyond their comfort zones, but that discomfort can be an important part of learning.

The educator said schools remain important not only because they provide academic fundamentals, but because they give students opportunities to develop the ability to communicate ideas.

He also emphasized mentorship, describing it as a way for young people to turn ideas into action. A mentor can provide technical guidance, but also challenge assumptions, ask questions and hold a student accountable as a project develops.

Having a mentor, he said, is most valuable when students feel able to speak openly, share unfinished ideas and accept questions or criticism.

That philosophy was reflected in Professor Wood's own advice to young researchers.

“The most important lesson for any young person getting involved in research is that it’s okay to fail and just not to give up,” she said.

Professor Wood recalled being an intern herself around 2005 and finding programming and engineering difficult. She considered giving up, she said, but continued through graduate study, eventually earning a master’s degree and doctorate. Later mentorship helped her return to questions she still wanted to understand.

“It may be hard,” Professor Wood said, “but as a team we can do well, and you’ll learn gradually.”

Opening doors to fast-changing fields

That message carries particular weight at a time when schools, universities and employers are placing growing emphasis on artificial intelligence, robotics and other rapidly developing technologies.

For teenagers, however, exposure to those fields can still vary considerably. Some students arrive at high school with years of coding experience, while others may first encounter programming through a summer workshop or internship.

Programs such as Zero Robotics can help lower that threshold by giving students a concrete challenge and a visible outcome.

At the MIT event, the range of intern responsibilities also underscored that technical programs do not consist only of technical jobs.

Designing a trophy required engineering and logistical thinking. Testing drone code required patience and problem-solving. Hosting a competition required communication. Supporting workshops demanded organization and the ability to work with younger students. Explaining research to an audience required students to understand not just what a project did, but why it mattered.

Together, their experiences illustrated several different ways a short-term program can influence a student: confirming an existing ambition, opening a new possibility or simply making an unfamiliar field feel more accessible.

A look inside the Media Lab

Audience members also described the event as an opportunity to see parts of the Media Lab that are not ordinarily encountered by the general public.

One local attendee, Haley, said she was interested in seeing what MIT had to offer and learning more about the high school interns’ summer experience.

She described the visit as productive because it exposed her to research areas including prosthetics, biotechnology and urban-focused projects.

The event included a tour of the MIT Media Lab, research presentations, student reports, certificate recognition, media interviews and photographs with students and their families. Participants had opportunities to see the research environment firsthand and interact with people working on projects there.

For the students, the certificates marked the conclusion of a summer experience. For the organizers, the larger goal was to demonstrate what can happen when teenagers receive early access to research environments and are trusted with real responsibilities.

From an idea to something that works

The Space Enabled group's wax-fuel research offered one example of how scientific work can begin with a deceptively simple material and expand into questions about manufacturing, satellite systems and environmental responsibility.

The interns' work offered another: a reminder that the path into those fields can begin with a first coding test, a workshop, a microphone at a student competition or a 3D-printed trophy that has to be redesigned because the winners live too far away to collect it in person.

What matters is creating an environment where students have the opportunity to try, ask questions, work with mentors and continue learning after something goes wrong.

For AAI, which supports interdisciplinary learning, research experience, innovation education and personal development for young people, the Aug. 27 gathering also served as a model for connecting students with institutions and researchers they might otherwise know only from a classroom, a website or a social media post.

BIMC

Boston International Media Consulting, Inc

[email us here](#)

This press release can be viewed online at: <https://www.einpresswire.com/article/940836746>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2026 Newsmatics Inc. All Right Reserved.