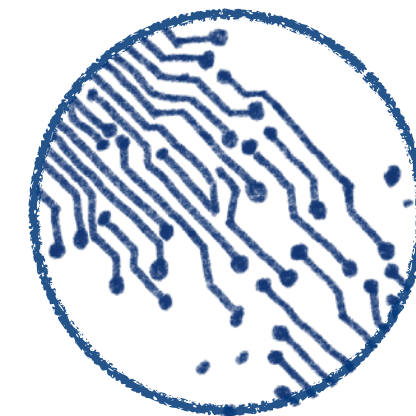


Stories of Women in STEM

ARTIFICIAL INTELLIGENCE



Smithsonian
Science Education Center



The Smithsonian Science Education Center (SSEC) is an education organization within the Smithsonian Institution. The SSEC’s mission is Transforming K–12 Education Through Science™ in collaboration with communities across the globe. SSEC promotes innovative, experiential, and integrated inquiry-based K–12 science, technology, engineering, and math (STEM) teaching and learning; ensures all students and teachers are included in STEM opportunities and recognize themselves in STEM; and advances STEM education for a more sustainable future. The SSEC achieves its goals by developing exemplary curriculum materials and digital resources; supporting the professional growth of K–12 teachers and school leaders; and conducting outreach programs to help schools, school districts, state education agencies, and ministries of education implement transdisciplinary, inquiry-based science education programs. The Smithsonian Science Education Center values the teaching and learning of science in a world of unprecedented scientific and technological change.

The Smithsonian Institution was created by an Act of Congress in 1846 “for the increase and diffusion of knowledge. . . .” This independent federal establishment is the world’s largest museum, education, and research complex and is responsible for public and scholarly activities, exhibitions, and research projects nationwide and overseas. Among the objectives of the Smithsonian is the application of its unique resources to enhance elementary and secondary education.

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Introduction

Dr. Carol O'Donnell

Douglas M. Lapp and Anne B. Keiser
Director of the Smithsonian Science
Education Center

Growing up in inner city Pittsburgh in the 1960s and 70s, I was always tinkering—designing something new and putting my “inventions” in a little notebook. I also loved observing the world around me. In my small backyard, I was always experimenting—studying native plants during the day and observing the stars at night. I didn’t know much about what it meant to study science, technology, engineering, or math (STEM) back then. I just knew that I loved making, testing, experimenting, inventing, and solving problems. In high school, I got my first job at a library, as a page. I would put books back on the shelf when people returned them, fix books that were broken, and help people find titles that interested them.



Dr. Carol O'Donnell

Books played such an important part in my life, and it was through books that I was first introduced to what it meant to be a “real scientist.”

I don't recall having any women scientists in my life, though—at least, not until I went off to college. That's when I got my first full-time job at the Gastroenterology Lab at the university hospital. Mary Mylo was the lab's director, and I will never forget her. Other than my mother, Mary Mylo was my first real science mentor. I also had another job in college working in a museum—the Carnegie Museum of Natural History in Pittsburgh. (I worked a lot back then!) The museum had just built the Benedum Hall of Geology and the Hillman Hall of Minerals and Gems. I fell in love with the history of our planet, and went on to get a bachelor of science degree in education and a master of science degree in geosciences, with a focus on planetary geology. I loved science, and I loved teaching about science even more. I started my professional career teaching science to elementary school students in Virginia. I did that for almost a decade, before I had my own four children. I also taught astronomy for the Physics Department at The George Washington University, where I got my doctorate. I helped students learn about our solar system, study our sun and moon, and discover new stars and galaxies in our universe.

After I completed my doctorate, I helped the university transform the teaching and learning of astronomy and physics courses so that they were more hands-on, real-world, and experiential, rather than just lectures.

I am so glad I had these experiences when I was young. They have shaped who I am today. Now I direct the Smithsonian Science Education Center at the Smithsonian Institution. The books and the stories of women in STEM, the STEM mentors and role models I met along my journey, and the hard work—they all helped me achieve my goals.

As a young girl, it is so important to see yourself in the role models around you and in the stories you read. Some people call this the See/Do theory. If you can see yourself in others, then you will believe you can do it too. That is the purpose of this book.

I hope when you read the stories of these amazing women, you can see your future self. Then, strive to be the best you can be. Who knows? One day you might—like Ada Lovelace, Cecilia Garraffo, Regina Barzilay, or Randi Williams—do STEM too.



Introduction to Artificial Intelligence

Have you ever typed a text and saw the next word you were about to type appear? Have you opened a streaming service and it shows a list of movies and television shows you may like? Do you wonder how you get up-to-date traffic alerts on Google Maps? Or think about how X-ray scans get a clear image of what is inside your body? These are all examples of artificial intelligence.

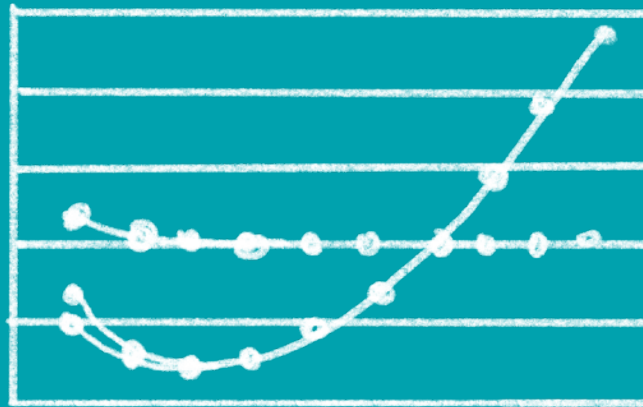
Artificial intelligence (AI) is technology that enables computers and other machines to perform tasks we normally associate with human behavior and intelligence. Some of these functions include problem-solving, decision-making, creativity, and independence.

The idea of AI has been around for decades. Alan Turing was a British mathematician who created the Turing Test in 1949. It's a test of a machine's ability to exhibit intelligence that is equivalent to that of a human. Since then, the field of AI has grown and changed. New discoveries have been made, and we continue to learn more.

AI is also changing careers, such as software engineer, data scientist, robotics engineer, and AI ethicist. While the term "artificial intelligence" was created in the 1950s, the foundations of AI have gone back centuries. The women in this book shows us that their contributions in AI have had an impact in the past, the present, and our future.



PAST



Ada Lovelace



Ada Lovelace

“when society tells you “no” at every turn, nothing can contain a curious mind that is always asking “why.””

Ada Lovelace was brilliant at a time when girls were not allowed to go to school, a mathematician when universities did not admit women, and a computer programmer before computers even existed. Her path was not simple, but her story shows that even when society tells you “no” at every turn, nothing can contain a curious mind that is always asking “why.”



Ada Lovelace



Born in London in 1815, Ada's childhood was complicated. Her father was Lord Byron, one of the most famous poets in history. Her mother, Anne Isabella Milbanke, was a progressive woman who founded an innovative school and campaigned to end slavery around the world. Soon after Ada was born, her mother took her to live with her grandparents. Her father, who lived a chaotic life, asked people to check in on her, but never tried to see her again. He died when she was eight years old.

Anne Isabella did want her daughter to pursue poetry, as her father had, so she encouraged Ada to focus on "logical" subjects like math and science. She provided Ada with tutors and books, although much of this support came from a distance. Ada was mostly raised by a loving grandmother who helped her through many serious illnesses, including measles. The illnesses affected her sight and ability to walk, but not her sharp mind.

Like many children, Ada had an active imagination and dreamed about flying, not with magic, but with science.

She studied the anatomy of birds, tested materials for making wings, and thought about tools for navigating flight paths over hills and mountains.

As a teenager, one of Ada's tutors introduced her to Charles Babbage, a mathematician who had published a paper with a fascinating idea: What if we could design a machine that performed complex mathematical calculations? Ada saw the potential immediately. She translated Babbage's paper from French to English and added her own notes, including instructions on how the machine could calculate a mathematical sequence called Bernoulli numbers. In other words, Ada wrote an algorithm for a machine, becoming what many consider to be the world's first computer programmer.

Then she took it one step further. Ada asked a question that would lead us toward artificial intelligence: If we can program a machine to solve equations with numbers, what could it do with other kinds of data from the world of art, music, and poetry? In her mind, the possibilities were endless.

Ada Lovelace

Ada died from cancer at only 36 years old. But her legacy lives on. It took about 100 years for the rest of the world to catch up to her way of thinking, and many more years for people to recognize her contributions to computer science. Today, universities that once would not have accepted her have buildings and scholarships named in her honor. Her name is synonymous with women in science, technology, engineering, and mathematics.

Every year on the second Tuesday of October, we celebrate Ada Lovelace Day to honor her talent and vision and to inspire young girls interested in STEM to say “yes” and follow their dreams as we enter a new era of computer science.





Dorothy Vaughan



Dorothy Vaughan

“It’s not rocket science!”

We often say, “It’s not rocket science!” to describe something that’s easy. But imagine doing actual rocket science without a single computer. Every one of the thousands of calculations needed to launch a rocket into space would have to be done using just pencil and paper. That’s exactly what Dorothy Vaughan did in her early days at NASA.



Dorothy Vaughan

Dorothy was born in Kansas City, Missouri, in 1910 and grew up in West Virginia. Everyone around her knew she was incredibly smart. She graduated high school as valedictorian and earned a full scholarship to study mathematics at Wilberforce University in Ohio. When she graduated college in 1929, the United States was at the start of the Great Depression—a time when the stock market crashed, businesses failed, and many people lost their jobs. Dorothy wanted to help her family, so instead of going to graduate school, she returned home and became a math teacher.

The Great Depression and World War II changed the course of Dorothy's life. Like many Americans, she had to make tough choices. But when the United States entered the war in 1941, President Franklin D. Roosevelt signed an executive order to end racial and gender discrimination in federal agencies. This order allowed Dorothy and others to work in government jobs to support the war effort. After more than a decade of teaching, Dorothy joined

NASA's Langley Research Center as a mathematician and “human computer,” solving complex equations by hand.¹

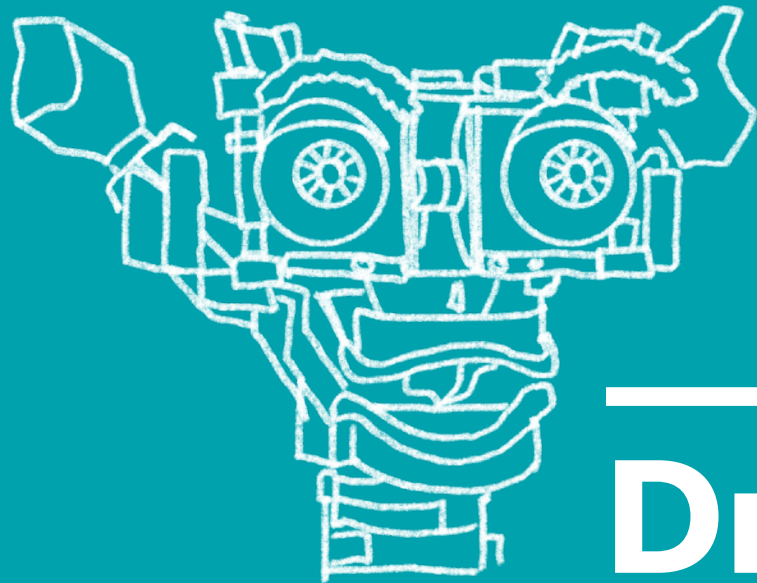
Dorothy quickly became a leader. She headed the West Area Computing unit, an all-Black, all-female group of mathematicians who worked on important aeronautical research. Their work was critical to America's space program. Dorothy thought her job at NASA would be temporary, but she stayed on and became the first Black manager in NASA's history.

Still, Dorothy and her team faced challenges. They had to work, eat, and use restrooms in separate facilities from white women doing the same job. But Dorothy didn't let that stop her. A decade later, NASA desegregated, which meant that people of all backgrounds could finally work together. Dorothy remained a trailblazer. She was one of the first at NASA to learn a computer programming language called FORTRAN, which helped run even more advanced calculations. FORTRAN is still used today in some artificial intelligence models.

Dorothy Vaughan

Dorothy's legacy lives on. She was awarded the Congressional Gold Medal, and a crater on the Moon was named after her. She was also featured in the book *Hidden Figures*, and Oscar-winning actress Octavia Spencer played her in the movie. Today, Dorothy is hidden no longer. Her story continues to inspire future scientists and mathematicians everywhere.





Dr. Cynthia Breazeal



Dr. Cynthia Breazeal

Cynthia Breazeal fell in love with droids at the age of 10, the first time she saw the movie Star Wars. She loved them “because they were full-fledged characters. They had rich personalities. They had relationships not only with each other but with the main human characters, and they really cared about one another,” she said. This human-robot interaction fueled Cynthia’s career and led her to becoming a pioneer in social robotics.

Cynthia was born in Albuquerque, New Mexico, in 1967 and raised in Livermore, California. Her parents were computer scientists and worked at national laboratories. This made for what Cynthia calls a very technologically and scientifically rich experience as a family. Her parents encouraged Cynthia’s interest in science and would take her to science museums, including the Exploratorium in San Francisco. Her family was one of the first to bring tech gadgets home. She remembers being the first of her friends to own a personal computer. Cynthia’s parents also encouraged her to pursue a career in science, and she considers them excellent role models.

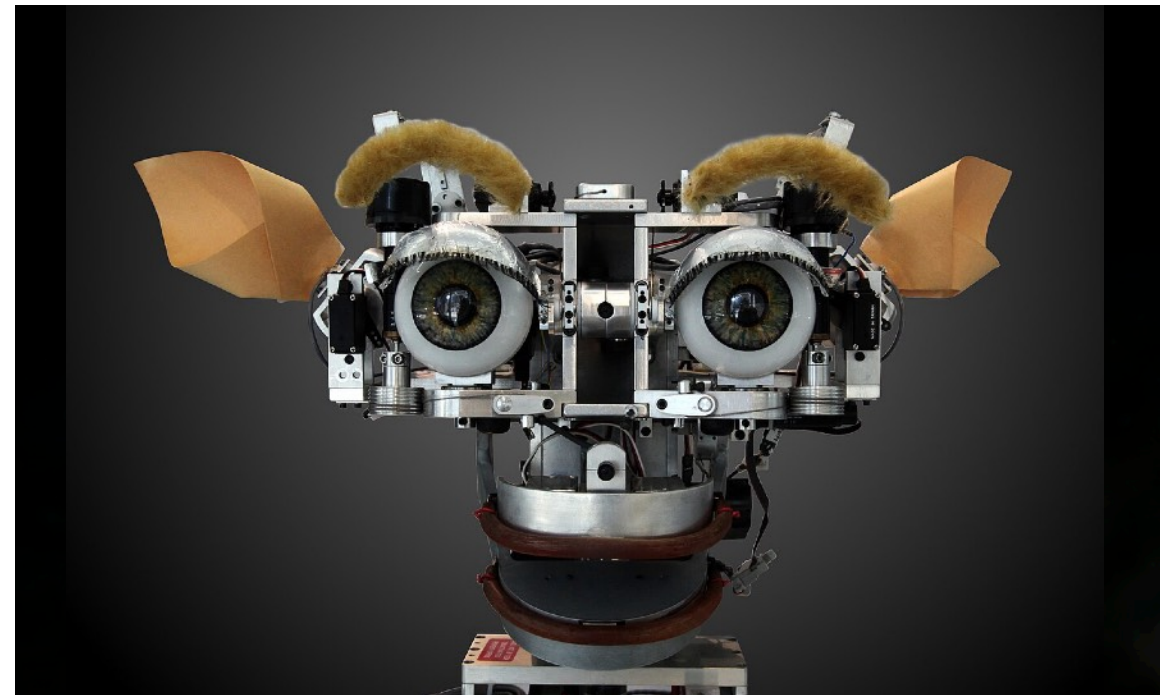


Dr. Cynthia Breazeal

Through high school Cynthia was good in science, and was also a competitive athlete in soccer, tennis, and track. She said being on sports teams helped her develop teamwork and tenacity.

Though Cynthia always loved R2-D2 and C-3PO, she didn't always know she would build robots as her career. Entering college, Cynthia wanted to be a doctor or an astronaut. She majored in electrical and computer engineering for her bachelor's degree at the University of California, Santa Barbara. She thought to be an astronaut she would need a PhD in a related field, so she chose to focus on space robotics. Fortunately for Cynthia, there was a National Science Foundation Center of Excellence in Robotics near campus, and she started learning about robotics there.

After receiving her bachelor's degree, Cynthia applied to graduate schools. She toured the Massachusetts Institute of Technology (MIT) and was overwhelmed by the insect-like robots she saw in the lab of Dr. Rodney Brooks. She thought, "If we are ever going to see robots like that in our lifetime, it's going to start in a lab like this. I have to be



here." At that moment, she believed her Star Wars dream of interacting with robots could come true.

Cynthia chose to go to MIT and work with Rodney as her advisor. MIT felt like the perfect fit. Rodney was a leader in artificial intelligence and one of the top experts in autonomous robots. The energy at MIT felt just right to Cynthia. The lab had a fun, supportive culture where people worked hard but also helped one another. She said she is grateful to both Rodney and Dr. Anita Flynn for creating an environment where feedback was welcome but students never tore each other down. Rodney also supported women coming into computer science and AI, and about half the researchers in his lab were women. The positive culture Cynthia experienced at MIT is one she has tried to create in every organization she has worked with since.

Dr. Cynthia Breazeal



A big moment for Cynthia came while she was still a graduate student. In 1997, NASA landed the Sojourner robot on Mars. Rodney had long supported the idea of using small rovers for exploration, so this was a huge milestone. At the time, robots were built mostly for dirty, dull, and dangerous jobs—tasks humans didn’t want to do. Cynthia asked herself, “Why aren’t robots in our living rooms?” She realized that robots built for space exploration, like navigating the rocky surface of Mars, faced very different challenges than robots designed to interact with humans. Humans are unpredictable and emotional, and this made the problem more complex. Excited, she told Rodney that she wanted to change the focus of her PhD to human-robot interaction. He encouraged her to pursue it.

Cynthia began studying developmental psychology to understand how humans and animals learn. She combined ideas from different sciences to create a robot named Kismet. Kismet was designed to interact with people in meaningful ways. Inspired by animation and child development, she made Kismet look like a young creature, so people would naturally want to teach it, like a parent with a child. Kismet had a very expressive face and could

see, hear, and respond to humans. It showed emotions such as happiness, fear, and sadness, making interactions feel natural. With Kismet, the field of social robots was born.

Cynthia’s work was different from earlier robotics. Before, robots were mainly transactional: You asked them to do something, and they did it. Cynthia saw that the bigger challenge was teaching robots to truly collaborate with people. That meant not only understanding words but also tone, facial expressions, and body language.

Cynthia continued making social robots. In 2002 she co-created a gremlin-like robot named Leonardo. Leonardo could acknowledge faces, change expressions, and react to touch. Cynthia also made robots designed for specific purposes. Autom helped people stay on track with their diet and exercise and was found to be much more successful than a computer that spoke the same information as Autom. Huggable was a robot for children to enhance their health care. It was designed to look like a teddy bear and help doctors and nurses interact with children.

Dr. Cynthia Breazeal

Cynthia has also published papers, articles, and books. In 2002 she published the book *Designing Sociable Robots*, which outlines her vision of robots as “synthetic creatures that can learn from and grow with humans, becoming collaborators and companions rather than just sophisticated tools,” she said in the book. In it, she detailed her work developing and studying Kismet. Cynthia has been cited more than 43,000 times in other scientific works.

In 2012 Cynthia co-founded a company called Jibo. The company’s goal was to bring robots to families. Jibo was a robot designed to be set on a countertop or table that had a touchscreen face and a human-like voice. Jibo was intended to be a member of a household by reading bedtime stories, offering dinner suggestions, and organizing tasks like keeping track of appointments. Cynthia also served as the chief scientist of Jibo until the company closed in 2018.

Cynthia is now a professor of media arts and sciences at MIT and the dean for digital learning. She founded and directs the Personal Robots Group in the MIT Media Lab, as well as the MIT-wide Initiative on Responsible AI for Social Empowerment and Education (RAISE). RAISE



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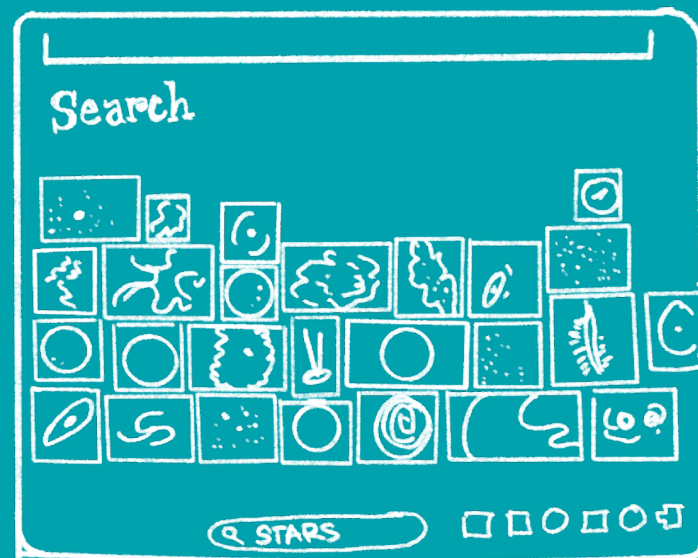
age of AI. RAISE sponsors Day of AI, which works with schools to increase AI literacy and develop curriculum. RAISE also hosts an AI hackathon, a summer program, and a teen FutureMakers program.

Cynthia’s work is recognized among her peers. She is a fellow of the Association for the Advancement of Artificial Intelligence. She won the 2008 Gilbreth Lectureship from the National Academy of Engineering and the 2024 MassRobotics Robotics Medal. In 2025 she was listed in Time magazine’s 100 Most Influential People in AI. Cynthia even was included in a Star Wars exhibit at the Museum of Science in Boston, where she was interviewed about social robots. She wrote a chapter in a book for the exhibit, and she and Kismet were included in a sand crawler, where she was having a conversation with C-3PO about AI.

Cynthia is hopeful for the future of AI. She said she wants her work to support “human flourishing.” She wants to see a higher percentage of women in computer science, and she hopes to promote deep understanding and literacy of AI in the next generation. Cynthia said, “The more we can design technologies that support all of us, the more deeply we can engage—and not surprisingly, the more successful we are.”



PRESENT



Dr. Cecilia Garraffo

Dr. Cecilia Garraffo

Cecilia Garraffo remembers when she first understood what it meant to feel invisible. Growing up in Buenos Aires, Argentina, in the 1980s, she often lived in the shadow of her older sister, whom everyone called “the smart one.” While her sister attracted all the attention, Cecilia found safety and some confidence in numbers and formulas. Triangles weren’t just geometric shapes to her, they were like colors, and each angle and line revealed patterns that made perfect sense in a world that often didn’t.

“At times, I felt invisible, like a black hole,” she remembered. “But through persistence and passion, I feel like I became a supernova.”

Today, as director of the AstroAI Institute at the Harvard & Smithsonian Center for Astrophysics and 2025 recipient of the Presidential Early Career Award for Scientists and Engineers from the National Science Foundation (the highest honor given by the U.S. government for early-career scientists and engineers), Cecilia has indeed become an exploding star, using artificial intelligence to unlock the secrets of the universe.



Dr. Cecilia Garraffo



Born during Argentina's military dictatorship, Cecilia lived through the transition to democracy, then a period of inflation and economic instability. Her parents divorced when she was young, leaving her mother to raise two daughters alone. At school, Cecilia spoke English. At home, she spoke Spanish. She learned early on what it meant to live between two different worlds. It was a skill that would prove invaluable later, when she spent time moving from economics to astrophysics to artificial intelligence.

Cecilia was very close with her father, a pilot. She spent every other weekend with him learning to think logically, to approach problems step by step, and to never, ever, accept easy answers. A high school teacher noticed her talent and encouraged her to trust her instincts even when others doubted them. Physics captured her imagination, and she threw herself into a school project about black holes and won a prize for her work. For the first time in her life, she loved what she was doing and was recognized for it. Plus she was exploring the universe's most mysterious objects.

But dreams, just like life, doesn't always follow straight lines. Despite her love of physics, Cecilia spent four years studying business and economics at university. It seemed practical, and a safer bet, in an unstable economy. Unfortunately, the work felt empty. She didn't love it and she realized that helping someone make more money wasn't what she wanted to do. The numbers she manipulated felt meaningless compared to equations describing how stars were born and died, and how space-time bent around massive objects.

Argentina's free public university system gave her the second chance she was craving. She changed course and started studying astronomy at the University of La Plata. After graduating, Cecilia pursued her PhD at the University of Buenos Aires in theoretical physics. Her work focused on higher-dimensional gravity theories and abstract mathematics that might someday explain how the universe really works. Then, a research opportunity at Brandeis University in Massachusetts introduced her to international collaboration.

Dr. Cecilia Garraffo

While there, another unexpected opportunity arose when she joined a neuroscience group. The work seemed unrelated to astronomy at first, but she quickly discovered fascinating connections between neural networks in the brain and computational tools astronomers were starting to use in the laboratory. Both involved recognizing patterns, and both dealt with massive amounts of data. This interdisciplinary experience planted seeds that would bloom years later.

When she accepted a postdoctoral position at the Harvard & Smithsonian Astrophysical Observatory, Cecilia shifted from pure theory to computational approaches, and then to teaching others about computational thinking while diving deep into machine learning herself. The transition wasn't always smooth, and there were some real difficulties, but she'd learned to embrace the idea of reinvention.

Then came April 10, 2019. The Event Horizon Telescope released the first image of a black hole. Cecilia watched the press conference and actually cried. The image represented everything she believed in: international



collaboration, cutting-edge technology, and the blending of theoretical physics and observational astronomy. It also showcased the power of AI, which had helped process the massive amounts of data needed to create that historic image. She saw her future clearly for the first time.

As director of AstroAI, Cecilia now tackles problems that would have seemed unimaginable when she first fell in love with black holes. Modern telescopes observe millions of cosmic events every night: supernovas, gamma ray bursts, gravitational waves, exoplanetary systems. The amazing amount of data can be too much for traditional analysis methods, but AI offers a way forward. Cecilia's team is now developing machine learning models that detect patterns and discover connections that human astronomers might miss. One recent project expanded the search for biosignature molecules (molecules that are signals of life on other planets) from five known compounds to more than 14,000 possibilities.

Dr. Cecilia Garraffo

Her work requires constant learning. Astronomical data is not like the images and text that most AI systems are trained on. Astronomers must not only find patterns but also explain them, because discovery without understanding isn't really science. "AI is great at finding," Cecilia explained, "but we need to understand the why, and that's where humans can shine."

Her dream project involves using AI to detect signs of life on exoplanets. The atmospheres of distant worlds might contain chemical signatures of biological processes, such as oxygen from photosynthesis, methane from living organisms, or even industrial pollutants from technological civilizations. AI can sift through tons of data from thousands of exoplanets, identifying candidates that deserve closer study. The same instinct that helped this young girl navigate between English and Spanish now helps her bridge academic disciplines that too often remain isolated.





Dr. Cecilia Garraffo

“Your talents may feel invisible now, ... but they can become the light that others follow”

“Your talents may feel invisible now,” she tells students, “but they can become the light that others follow.” From a girl who felt invisible in Buenos Aires to a scientist using AI to search for life among the stars, Cecilia’s journey proves that sometimes the most amazing discoveries come from those who started in the most surprising places. Her fascination with black holes taught her that even the darkest objects in the universe can become sources of incredible energy and light. The universe needs people who understand what it means to feel invisible, and who refuse to let that feeling define them.



Dr. Rebecca Dikow



Dr. Rebecca Dikow

Rebecca Dikow's kitchen experiments started early. Growing up on Long Island, New York, she'd microwave plants just to see what happened, mix up homemade toothpaste to test it against some very familiar name brands, and deliberately grow mold to watch how it spread. Her father, a food scientist, didn't mind the mess. He knew that curiosity needs space to play.

Those childhood experiments laid the groundwork for what would become a unique career that includes biology, museum collections, and artificial intelligence. Today, as director of research innovation and student success at the Yale University Marx Science and Social Science Library, Rebecca helps students and faculty navigate the promises and pitfalls of emerging technologies like AI. It's a long way from those kitchen experiments, but the thread connecting everything is very clear: a need to understand how things work.



Dr. Rebecca Dikow

Her experimental mindset served Rebecca well in biology. It was the very first class that clicked for her in middle school, thanks largely to Ms. Hughes, a seventh- and eighth-grade teacher who pushed Rebecca to ask harder questions. This passion led to an internship at the Smithsonian's National Museum of Natural History during high school that opened Rebecca's eyes to the hidden world behind museum exhibits—the vast collections of specimens and data that most visitors never see.

The supportive environment she'd had in high school continued at Cornell University, where Rebecca had plenty of female classmates in science courses. But graduate school at the University of Chicago was different. There were fewer women in her classes, informal networks felt closed to women, and proving herself required extra effort. She was also starting a family; she had her first child when she was in graduate school and her second during her postdoctoral work at the Smithsonian's National Museum of Natural History. The balancing act was exhausting, but it taught her to be resilient.



Despite these challenges, her time at the Smithsonian opened new opportunities. Rebecca dove into biodiversity and genomics research. She also began experimenting with neural networks years before ChatGPT made AI a household term. The idea of analyzing really old museum specimens with cutting-edge computing tools fascinated her. She saw potential in bridging these worlds that others treated as separate domains.

That passion for bringing two ideas together eventually pulled Rebecca away from pure biology toward computing and data science. She taught herself hardware and software skills, joining interdisciplinary teams where biologists worked alongside data scientists and educators. The separation of disciplines that she saw in other fields of study never really made sense to her; perhaps this came from her kitchen experiments that taught her the most interesting discoveries happen when you mix unexpected things together.

Dr. Rebecca Dikow



Her current role at Yale Library is a culmination of this boundary-crossing mindset. Rebecca oversees three teams focused on learning engagement, research innovation, and data literacy. Her team supports more than 600 staff members across the university. The work ranges from AI literacy workshops to data ethics training, helping people understand not just how to use new tools, but when not to use them.

“AI can be powerful,” Rebecca said, “but only if you know when not to use it.” It’s a perspective shaped by years of seeing technology overpromise and underdeliver.

Rebecca is aware of AI’s challenges. She worries about the environmental cost of massive data centers, the push toward oversized large language models when smaller ones would work better, and the persistent problems of bias in algorithms. But she’s also optimistic about institutions like the Smithsonian, which contain treasure troves of carefully documented collections that could help train more fair and responsible AI systems.

The key, she believes, is transparency. Museum collections come with detailed records, documentation of gaps and biases, and institutional knowledge built over decades. These qualities could help create AI models that are not just powerful, but accurate and reliable.

For students, Rebecca envisions AI as a practical tool—useful for transcription, accessibility features, and other routine tasks—but not a replacement for critical thinking. She wants young people to approach these technologies with a healthy skepticism and deep understanding of their limitations.

When Rebecca talks to students, especially young women considering STEM careers, her advice is pretty direct: “Take risks. Send that email. Ask the question. Try things outside your comfort zone, even when you don’t feel like an expert.” She’s learned that rejection rarely reflects what you know, or what you don’t know. It’s usually about timing, resources, or circumstances beyond anyone’s control. “Careers take time,” she said. “See challenges as stepping stones.”

Dr. Rebecca Dikow

“Take risks. Send that email. Ask the question. Try things outside your comfort zone, even when you don’t feel like an expert.”

Most importantly, Rebecca encourages young scientists to think beyond data and discoveries. Science matters because of how it connects to people, communities, and the planet. The technical work is just one piece of a much larger puzzle.

From those early kitchen experiments to her current role shaping how Yale approaches AI, Rebecca has stayed true to that philosophy. Her career proves that curiosity, persistence, and the courage to cross boundaries can lead to unexpected places and maybe help solve larger problems.





Renee Autumn Ray



Renee Autumn Ray

Public transportation promotes healthier communities through improved access, reduced pollution, and increased physical activity. By providing affordable and reliable ways to get around, such as buses, public transit connects people to education, health care services, nutritious food, jobs, and social support. Safe, inclusive, and sustainable public transportation systems advance health equity and community well-being.

But what happens when problems arise in the system? What if a bus lane is blocked or someone is parked at a bus stop? These problems are what Renee Autumn Ray is trying to fix.

Renee is the senior director of strategic growth at Hayden AI, where she guides the company's partnerships with major transit systems to improve road safety and public transportation. She works with agencies like Los Angeles County Metropolitan Transportation Authority and the Washington



Renee Autumn Ray



Metropolitan Area Transit Authority to deploy AI-powered camera systems on buses. These cameras switch on automatically when the bus starts, requiring no extra work from the drivers. As the bus moves along its route, the cameras spot vehicles blocking bus lanes and record 8 to 10 seconds of video, along with the exact location, date, and time. That short clip is then sent to a human reviewer to issue the vehicle owner a ticket, while all other images are deleted. Under Renee's leadership, this technology helps cities keep bus lanes clear, reduce congestion, and make public transit more reliable.

Based on what bus drivers and passengers say, transit agencies know that blocking the bus lanes and stops are a problem. If a bus stop is blocked, the bus can't get to the curb and deploy its ramp for passengers using wheelchairs, and they are unable to board. Blocking the bus lane also causes delays to passengers on the bus and along the route, making public transportation less reliable. For transit agencies, this hinders their goals of bringing reliable, accessible, transportation to communities. But it is impossible for cities to invest the budget and the

number of staff needed to enforce the rules and keep the entire bus lane system clear. For Renee, this technology is essential to ensuring that public transit is reliable, safe, and accessible in urban areas.

Renee's background is in English literature, urban planning, and project management. It is her varied background that gives her a unique perspective on the role AI can play in transportation management. Two classes that Renee said were most impactful were high school AP English and graduate school history of architecture. Her AP English teacher, Alice West, taught the class how to read text and identify layers of meaning within the words on the page. Renee believes she has always read texts in a different way because of that class. Her history of architecture class made moving through daily life more interesting because she learned to appreciate the world around her. This is something she still enjoys while riding her bike, enjoying native plants, and bird watching. It is also what she enjoys about urban planning as part of her career.

Renee Autumn Ray

Before joining Hayden AI, Renee worked in land use planning and transportation planning. She valued urban planning as part of the social sciences, and studied how cities and transportation help people move through space. Renee worked for a small-town mayor on a public health platform. While working on public health and policy systems, she realized more and more of the projects became technology projects.

Her first memorable experience with STEM came while working at a government agency. She was a project manager working on several tech projects. She started a new communications and project management system around launching a new website. This project gave her an insight into how much technology is shaping the world around us. When she turned 40, Renee began working exclusively in technology. She used her subject matter expertise to partner with engineers, to make sure what



Renee Autumn Ray



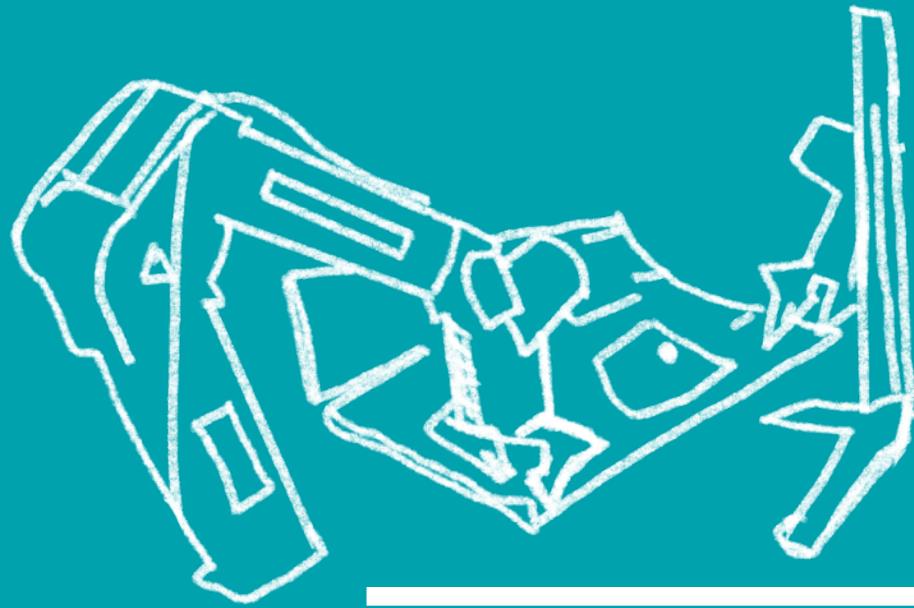
was built helped the people it was made for in projects such as navigating public spaces.

Renee's interest in tech and public space brought her to Hayden AI four years ago, before ChatGPT and AI were mainstream. Now she is leveraging AI to make public transit safer, faster, and more reliable. To her, technology is means to an end. She is using AI technology as a human service. The goal of her work is to improve mobility and reduce barriers to access for marginalized groups.

The idea of being a citizen in the world is one of the things that attracted Renee to urban planning 20 years ago, and she is seeing positive change. In New York City, automated enforcement has increased bus speed 5 percent overall and up to 36 percent in congested areas such as First and Second Avenues. Collisions have decreased by an average of 20 percent on routes using the AI technology.

There are many areas where the Hayden AI system can increase the health, safety, and welfare of communities.

One area Renee wants to explore is using the bus-mounted camera system for bike lane enforcement. Hayden AI is now helping the City of Sacramento and soon the University of California San Diego enforce parking violations in bike lanes with this technology. Asset management is another area that is promising for the technology. It could be used to identify areas with graffiti or roads with potholes. That way, the employees who fix these issues are not wasting time driving around looking for the problem areas. AI on buses can enable the buses that are already driving the streets to find these problems. This is another way AI systems can provide information to improve safety, quality of life, and transit performance for people living and visiting urban areas.



Dr. Chelsea Finn



Dr. Chelsea Finn

Dr. Chelsea Finn is a computer scientist and professor at Stanford University. Her work focuses on designing robots that develop intelligence through learning and interaction. She wants to create robots that can work with and help humans with everyday tasks.

“I care a lot about the experience people are having. Hopefully, in the long-term future there is a way in which intelligence can make people’s lives better,” Chelsea said.



Dr. Chelsea Finn



Chelsea grew up in a STEM household. Her mother is a chemical engineer. Her father is a civil engineer. Her first memorable experience in STEM was when she participated in her first LEGO League in middle school. She enjoyed building and programming robots made out of LEGOs. While working with these objects, Chelsea learned how to find and remove errors in a system. More importantly, she learned how to solve problems and fix things. These lessons were helpful as her interest in engineering grew.

In high school, Chelsea took several advanced placement classes in science. She was able to explore subjects such as physics, biology, and computer science. She became more excited about pursuing engineering when she visited the Massachusetts Institute of Technology (MIT). “I felt really at home in some ways,” she remembered. “And I love being surrounded by so many passionate people.”

Chelsea thought about studying bioengineering in college. But when she started at MIT, she decided to pursue computer science. She loved that computer science could open so many doors for her to explore different fields, such

as robotics and aerospace. Chelsea loved the school’s computer science department. She liked learning about the pros and cons of AI, and became fascinated with how AI operates. She began taking classes on computer vision and image processing. Computer vision is the process of teaching a computer how to see by finding objects in an image.

“I was really fascinated by how you would get a computer to be able to see and act. I also like that there was interesting math in some of the problems. So it was both a fascinating problem and very technically challenging,” Chelsea said.

Chelsea received her bachelor’s degree in computer science and electrical engineering in 2014. She then went to graduate school at the University of California, Berkeley. She decided to switch her focus from computer vision to robotics. She liked the process of teaching robots how to perform actions by seeing things. She became interested in how robots are designed and how they can be used.

Dr. Chelsea Finn

During her PhD program, Chelsea worked in the Berkeley Artificial Intelligence Lab. Her research focused on whether robots programmed by humans can learn from experience and do tasks on their own. This might happen in different ways. One way is a robot doing the tasks itself and getting better by practicing them more than once. Another way is if a person controls the robot and shows the robot how to do the task. The robot learns to mimic what is being shown and can then finish the task by following the steps it has learned.

Chelsea compares this to how to learn and play a sport such as tennis. A coach can guide you about how to hit a ball, and you can do that by imitating the coach's motion. You can also learn how to hit the ball by practicing yourself and getting better over time.



Dr. Chelsea Finn



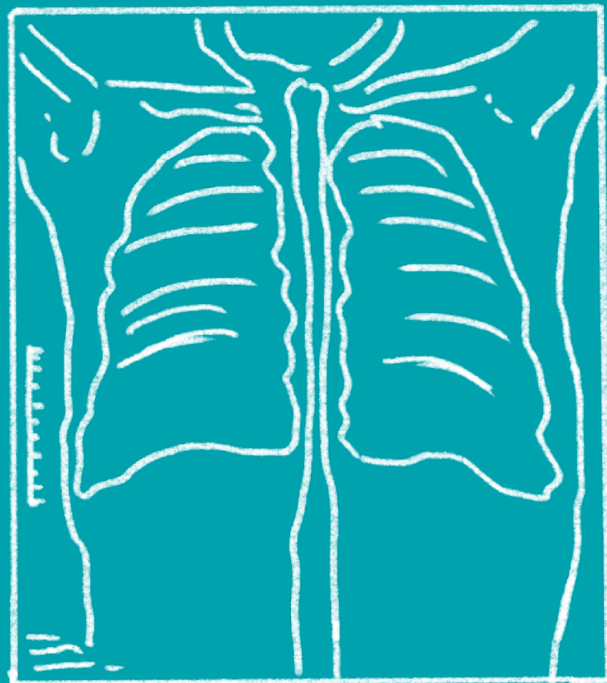
She also did more research more about neural networks. Her work as an intern at Google with the Google Brain team focused on neural networks in robots. A neural network is a computer system that is modeled on the human brain and nervous system. Sensors in a robot model the neurons in the brain. This enables the robot to do things that connect to what it sees. Neural networks are used in AI programs such as ChatGPT. It takes text data and predicts what the next paragraph of information will be, based on text data it has already processed. “Neural networks are a flexible way to learn from data,” Chelsea said. “In the context of robotics, this means demonstrating how to do something, like how to swing a racket.”

At Google, Chelsea focused on training larger neural networks on more robot data. She used robot experience with data from the Internet to see if you can train a group of robots instead of training only one robot. One of the projects she worked on was using robot learning algorithms to give high-quality feedback to 10,000 students.

They wanted to know if neural networks could improve online education by providing automatic feedback to students.

Chelsea received her PhD in 2018 and accepted an offer to teach at Stanford University in California. She is currently an assistant professor in computer science and electrical engineering. Chelsea heads the Stanford IRIS Lab. The lab studies how robots can develop broad intelligence through learning and interaction. In March 2024, she co-founded her own company, Physical Intelligence (PI). The goal of PI is to bring general-purpose AI into the physical world. General-purpose AI is AI that is trained to perform a wide range of tasks, rather than being used for a single purpose.

Chelsea believes AI is beneficial but should be used with intention. She says neural networks work best when they act in a supporting role to humans. “I think there will be challenges along these lines,” she said. “But I also think there’s a huge potential to allow people to spend time on less tedious jobs and amplify people’s productivity.”



Dr. Regina Barzilay

Dr. Regina Barzilay

In Moldova during the 1970s, there were no computers, many homes didn't have phones, and children as young as seven walked to school alone. Regina Barzilay was one of them. But she wasn't exactly alone. In her backpack, she carried two books. One was about Sofya Kovalevskaya, a Russian mathematician born in 1850 who became the first woman to earn a doctorate in mathematics. The other was a novel about a scientist who developed antibiotics.

The world is very different today. Children often read on tablets and smartphones. And those the books in their backpacks? They might be about Regina, now a world-famous mathematician.

Regina was born in 1970 in Chişinău, Moldova, which was part of the Soviet Union at the time. Back then, every student across the country learned the same lessons and took the same tests. For someone as smart as Regina, school felt like a checklist.



Dr. Regina Barzilay



In math class, equations were so easy that she once said it felt like “a monkey solving exercises.” But then one of her teachers made math class exciting by being really creative with the range of activities provided. Suddenly, math wasn’t just a class or even a possible career. It was joyful!

Regina wasn’t the only girl who was a top student, but her situation was different from most other students. Regina was Jewish, and many places had limits on how many Jewish people could work there. She knew that to succeed, she couldn’t just be good. She had to be the best.

Her parents encouraged her to study hard and read from the family’s large library. But Regina didn’t feel pressured. She loved books. She even used them as wallpaper in her room when she was done reading them. But she also felt lucky. She had a stable home, supportive parents, and access to books and resources. Her natural gift for math gave her confidence and opened doors.

When Regina was 20, her family moved to Israel. She earned her undergraduate degree in mathematics at Ben-

Gurion University. It wasn’t easy. She worked in a lab and also taught high school in a neighborhood where many families struggled financially. One student was very disruptive, and Regina didn’t understand why, until she spoke with the student’s family. Their mother was very sick, and the student was caring for her. That experience helped Regina see how a hard life outside of school could affect learning. When she later became a professor, this motivated her to support students with less resources.

Regina became interested in computer science, even though her degree was in math. She needed a master’s degree, but didn’t even know what a thesis was. Her professor didn’t ask her what her topic was (it was image processing), and didn’t offer much help. She had limited Internet access, and the few resources she found were in English—a language she was still learning. It felt like everything was against her. But she learned an important lesson: Sometimes no one can help, and you might fail. But science is about trial and error. What matters is trying again.

Dr. Regina Barzilay

Regina earned her master's degree and later moved to the United States to pursue a PhD in computer science at Columbia University in New York City. For the first time, she noticed how few women there were in her field.

Her early research focused on natural language processing. She developed Newsblaster, a system that summarized news from different sources. In 2014, Regina was diagnosed with cancer. She received treatment and recovered, but many people don't. She wondered what would happen if cancer could be detected before it developed.

That question led her to co-develop MIRAI, an AI model that predicts breast cancer years in advance. By 2025, MIRAI had been tested on more than 2 million mammograms from 48 hospitals in 22 countries. She also helped create Sybil, a tool for predicting lung cancer risk, and other AI models for flu vaccine effectiveness



Dr. Regina Barzilay

and cancer treatment responses. Regina also helped discover halicin, a new antibiotic found by using AI to scan millions of molecules. It was the first new antibiotic discovered in decades.

Regina continues her research in medicine and artificial intelligence. She has received many honors, including the MacArthur “Genius Grant,” and is listed among Time magazine’s 100 Most Influential People in AI. At the Massachusetts Institute of Technology, where she is a professor and the AI faculty lead at the Jameel Clinic for Machine Learning in Health, she sees students who are even more brilliant than she was at their age.

But Regina said that brilliance doesn’t determine success. The difference is not who is the smartest, Regina said, but who can “dig themselves out” and make a choice to find a way forward. One day those people might find themselves in books like this one, inspiring the next generation.





Dr. Aleksandra Pregalinska



Dr. Aleksandra Pregalinska

Aleksandra Przegalińska is a philosopher and futurist who focuses on the impact of AI. She is the head of the Human-Machine Interaction Research Center at Kozminski University in Warsaw, Poland. Her work explores what it means for humans to live and work side-by-side with AI systems. For Aleksandra, understanding AI is not just about how user-friendly it is. It is also about looking into what is overlooked in our interactions with it, such as our trust, feelings, and emotions. “What drives my work is the question of how we remain human in the age of intelligent machines,” she said.

Aleksandra was drawn to science at a young age. Her favorite subject was biology. She spent a lot of her time reading encyclopedias about animals. She also studied the details of the illustrations. She would draw frogs, lizards, and animal skeletons in her notebook. She wanted to understand how animals lived. She wanted to know how they moved, their physical structure, and the habitats they live in.



Dr. Aleksandra Pregalinska

Her interest in biology grew in middle school. She started to take part in science competitions. In eighth grade, Aleksandra placed in the top 10 in Poland's National Biology Olympics. The theme of the competition was fish, amphibians, and reptiles. She was amazed by all the information she learned about these different animals. She studied all aspects of each animal, including their evolution, physiology, and classification. She even learned about the differences in their lung structures. She also learned about ancient reptile species. "It felt like I had discovered a different world," Aleksandra remembered.

Then she began asking another question. "I didn't just want to understand how things worked, I wanted to understand why," Aleksandra said. "Why does a species behave the way it does? How do we perceive the world? That's when philosophy began to slip into my thinking."

By high school, Aleksandra's curiosity about the mind was firmly established. She dived into science fiction and fantasy books. She read books by authors such as Stanislaw Lem and Ursula K. Le Guin. Then her mother gave her the book *Sophie's World* by Jostein Gaarder, a novel about the history of philosophy. Aleksandra believed the book introduced philosophy not as something abstract

and difficult, but as a way to ask deeper questions about humans and the world. "I became fascinated by questions that sat at the intersection of science and philosophy. In high school, I nurtured both these paths," she said.

She continued on both paths through her teenage years. The Internet became more a part of her life then, too. She realized that technology was not just a tool, but was going to be a big part of our environment. This got her more interested in learning about how digital spaces are made and managed.

After high school, Aleksandra went to college to study journalism and communications studies. "I wanted to understand how information circulates, who controls it, and how it shapes perception and power," she said. She was drawn to media theory. In media theory, she learned about how the technology used to convey information is sometimes more important than the information itself. She said this opened her mind to how media operates.

She also gained insight into the connections between media and the human brain. Exploring media, technology, and philosophy led to her interest in AI.

Dr. Aleksandra Pregalinska

For her AI research, she decided to study how these topics weave together in how AI systems are built—and to show how we live with them.

“That’s when something clicked,” she said. “I could explore the human brain, the logic of thought, and the philosophical effects of machine behavior all within the same field. AI became the perfect meeting ground for everything that had shaped me.” After receiving her bachelor’s degree, she went to the University of Warsaw for a PhD in philosophy, shaping a career that focuses on AI technologies and the human experience.

Aleksandra is currently an associate professor and vice rector for innovations and AI at Kozminski University. She is the lead of the Human-Machine Interaction Research Center at the university. Her work goes deep into AI technology. Her team blends philosophy, psychology, management, and computer science in their work. The center has looked into how AI and wearable technology shape behavior and emotion. This included studying how EEG headsets affect mental health in urban green spaces. They also studied AI use and its impact on individuals and teams in an office setting. The center has also worked with universities and companies, including the Massachusetts Institute of Technology, Harvard University, and Microsoft, to further their work in AI.



Dr. Aleksandra Pregalinska



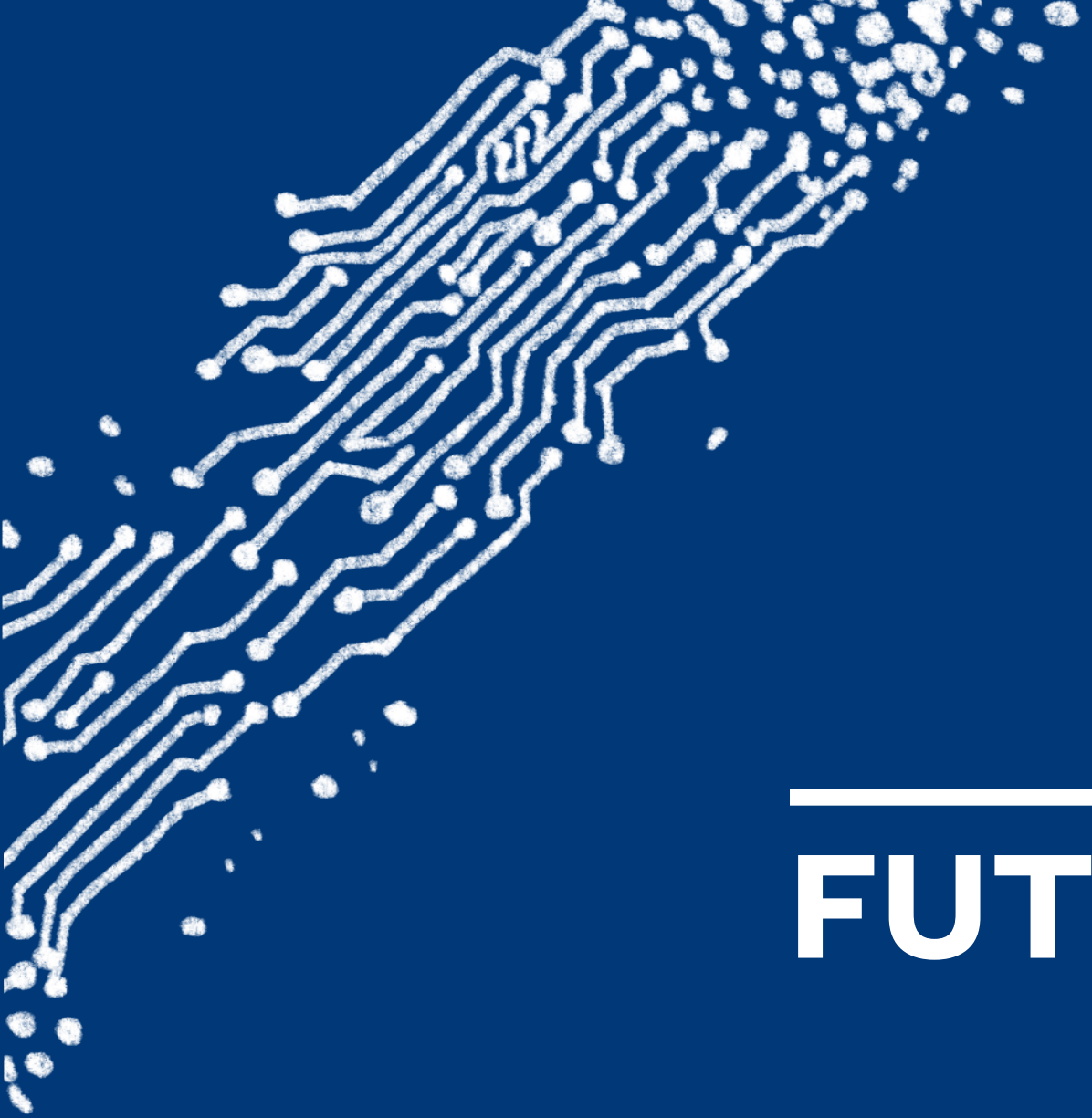
Aleksandra believes the future of education lies in collaborative AI. Collaborative AI is about creating systems where humans and AI work together to achieve a common goal. An organization she is proud to be a part of is Campus AI. Campus AI is a virtual education space created to make AI accessible so people can learn more about how it works. The goal is for individuals, teams, and communities to understand AI and how it can be used for better collaboration.

Aleksandra understands others' concerns about AI, especially when it comes to student's use of AI in the classroom. She encourages her students to use AI to assist them, not as their main source of classwork. She believes AI should not take over the process of learning. "I think AI can absolutely support learning in a very meaningful way. But only if students remain active thinkers, not passive recipients." Aleksandra explained. She wants to explore how students and educators can use AI to help with literacy.

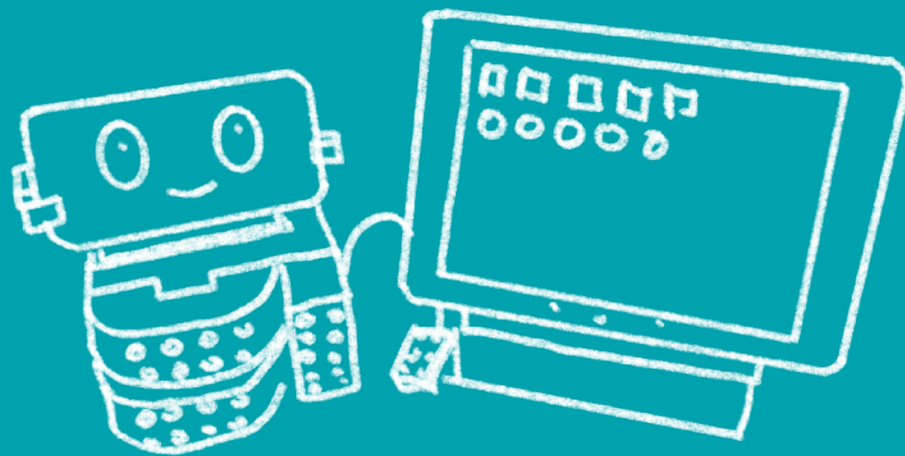
Aleksandra created EUonAIR in January of 2025. The initiative brings together 10 universities across Europe. They work to incorporate AI into higher education in a responsible and inclusive way. A major project under the program is MyAI University. It offers virtual classrooms, AI-guided orientation tools, avatars, and shared spaces. These spaces enable people and generative agents (sophisticated AI systems) to create and learn together.

She has also written several books, and co-authored the book *Collaborative Society*. The book highlights the importance of humans and AI working together in what it calls a "sharing economy." It examines the need to be critical of AI use, and to make sure it is being used to help the public, not just for profit.

Aleksandra's advice to women who want to pursue STEM is to always be curious. She also said not to be afraid to put yourself out there, because in STEM there will always be more to learn. "Ask your questions out loud. Break things. Build weird stuff," she said. "Be bold enough to combine what you love, even if no one else sees the connection yet."



FUTURE



Dr. Randi Williams



Dr. Randi Williams

“I want to ensure that technology truly serves and empowers the communities it touches.”

Randi Williams always loved learning about technology. Her work using robotics in education has inspired a new generation of young people to get involved in STEM. Randi likes to compare herself to the Marvel superhero Ironheart, also known as Riri Williams. They both work in robotics and, in Randi's words, “use technology to build a better future.” She added, “I want to ensure that technology truly serves and empowers the communities it touches.”

Randi grew up in Prince George's County, Maryland. Her interest in STEM started with her parents. Her mother studied electrical engineering in college. Her father started his own IT company. At a young age, her parents encouraged Randi and her siblings to explore engineering and computers.

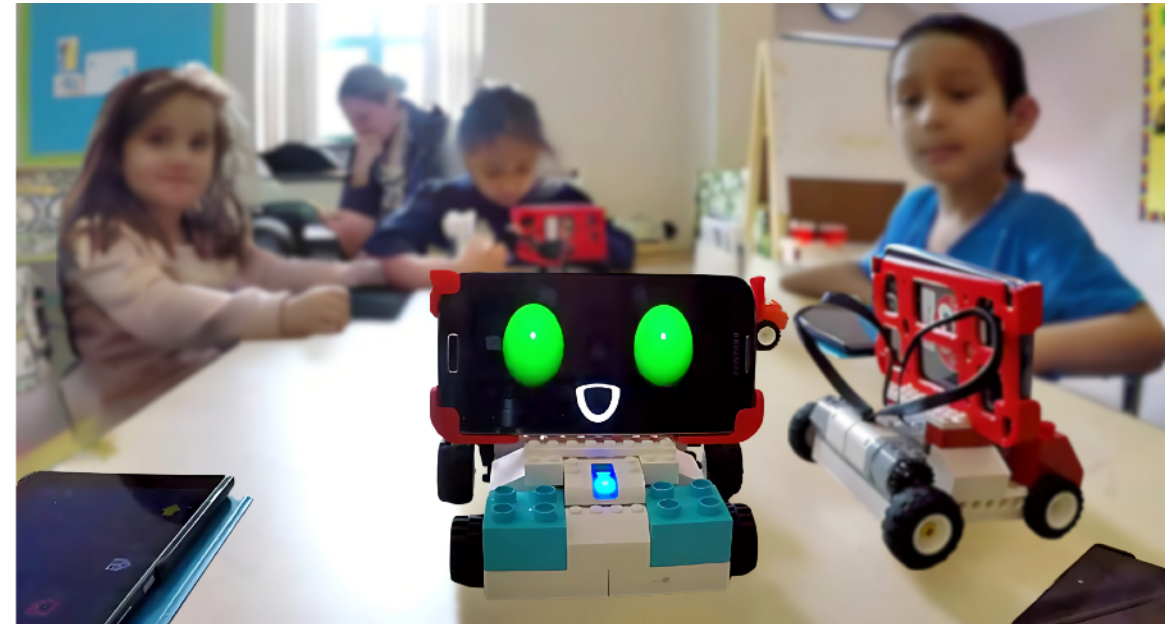


Dr. Randi Williams

When she was a child, Randi had a habit of taking objects apart, such as pens, toys, and remote controllers, to see how they worked. And she was able to put some of them back together. In middle school she took advanced classes in math and science. During the summer, she participated in engineering camps. This helped her understand more about different STEM subjects.

In high school Randi took her first computer science class. “It’s funny that despite my parents’ background, I didn’t understand what the class would be about,” she remembered. “I thought we would be learning how to repair computers. But it was all about programming.” One of her most memorable projects was creating a colorful ball bouncing around a screen. This project opened her creative mind. She realized she could build anything she could imagine.

It also made Randi more aware about representation in STEM. Her first computer science teacher was a Black



woman, like Randi, and her presence was very inspiring. But out of 30 students, Randi was one of only two girls in the class. They supported each other throughout all the assignments—which taught Randi that STEM success is not just about talent, but also about opportunity, support, and mentorship.

After high school, she attended the University of Maryland, Baltimore County (UMBC). While there she met the president of UMBC, Dr. Freeman Hrabowski. He had created the school’s Meyerhoff Scholars Program that Randi was a part of. The program focuses on supporting diversity in leadership in STEM and other related fields. He was the first person who encouraged Randi to pursue her PhD, as a path to becoming a leader and creator of new knowledge for herself and others. Randi received her bachelor’s degree in computer engineering from UMBC in 2016.

Dr. Randi Williams

Randi then went to Massachusetts Institute of Technology (MIT) to pursue her graduate studies. Her master's program focused on media, arts, and sciences. Randi said she didn't realize until graduate school that she could make AI a main part of her research. One of her first projects used a social robot to help kindergartners learn how to read. During the project, she noticed how many of her student participants were familiar with AI. It struck her how today's children grow up with AI as a part of their lives in a way previous generations had not. "I realized that children growing up with AI deserved to understand it and to become creators of it," Randi said.

She completed this and many other projects in the MIT Media Lab under her advisor, Dr. Cynthia Breazeal. Breazeal is the founder of the Personal Robots Group at the MIT Media Lab. The opportunities she gained from working at the lab and Cynthia's support helped Randi grow. "She helped me realize I could bring all my passions for technology, art, research, and entrepreneurship into a fulfilling career," Randi said.



Dr. Randi Williams



Working with kindergartners inspired her to create the PopBots projects. Randi taught preschool students about AI using a programmable robot. The robot was made of LEGO bricks and a cell phone. The platform was made up of three parts: PopBots, PopBlocks, and PopAI. Children were able to work with sensors that detect light, proximity, and touch, and to build their own robots. The children learned how to use sensors, run motors, change LED colors and the robot's face, play music, and other fun things. Randi got her master's degree from MIT in 2018 and her PhD in media, arts, and sciences in 2024.

In her work, Randi describes three key limits of AI and its impact on society. These three limits are: the knowledge gap, the education gap, and what Randi calls the "AI justice" gap. The knowledge gap is about not being aware of how technology works and having a sense that tech fields are not for everyone. The education gap is realizing that not everyone has access to learning computer science in school. The AI justice gap is when technology is not available in the same way to everyone.

Randi believes robots are not meant to replace human-to-human interaction, but to enhance and support it. She believes this starts with making AI more available to people who are not currently able to access it. "Technologies aren't always built with me or my community in mind. And if used as intended, they can fall short," Randi said. "I see that as an opportunity to be creative, to think outside the box, to build new tools and new ways of using tools."

Education is a vital part of her work. She continues to focus on building robots and tools that children can both play with and use to create their own AI technologies. Randi currently works at the nonprofit organization Day of AI. The organization provides free, high-quality AI curriculum for K-12 teachers and students.

Randi remembers how afraid she was during her first internship in college. She had a hard time sharing her ideas and was not sure if the technology space was for her. But her supervisor pushed her to share her ideas and make her voice heard. She said, "The most important advice I can give is to not be afraid to speak up when you're meant to stand out."



Nazareen Ebrahim



Nazareen Ebrahim

“...what you need is the ability to think critically, ask good questions, and lead with kindness, respect, and love.”

When Nazareen Ebrahim was young, the closest she got to a computer was sitting next to her father’s electric typewriter for a photo. But even as a kid, she was motivated by a big goal that would take her into the field of AI. “We’re all born with greatness,” she told her mom. “We just have to live it.”



Nazareen Ebrahim



Nazareen was born and raised in South Africa, the oldest of four children in a traditional Muslim family of Indian descent. Her parents were strict but supportive, and there was no topic they couldn't discuss and debate. As the oldest child, she felt a strong sense of responsibility and wanted to set a good example. She described herself as nerd, always reading, always curious, and sometimes afraid that people would think about her as an annoying know-it all. But even when classmates were mean to her, she stayed true to herself and took leadership roles, becoming head girl in high school, which is like being student body president.

Nazareen studied media and communications at University of KwaZulu-Natal. She didn't have a lot of money or connections, or even a cell phone—until a friend gave her their old Nokia phone shaped like a small brick! But she pursued radio, television, and film, and eventually started her own communications company, without any money in the bank. It wasn't easy. At one point, she lost her car and had to rely on her family for support. She was failing more than winning, she said. But she took every single opportunity anyway, until one changed her life.

In 2018, she attended a tech conference in Portugal. There, a mentor encouraged her to get involved in the AI for Good movement. Inspired, Nazareen returned home and wrote a 12-part series to help everyday people understand AI. That series became the foundation for her work in AI ethics.

She wasn't a computer scientist or engineer. But Nazareen's background in communication helped her explain complex tech topics in simple, relatable ways. As a woman of color and a Muslim wearing hijab, she also brought a perspective that was often missing in tech spaces. She did not look like the people in the board rooms of tech companies or speakers at conferences. But even when people talked over her or tried to dismiss her because she was different, she wasn't afraid to voice her thoughts.

She was later selected as one of the 100 Brilliant Women in AI Ethics, and began speaking at conferences around the world. Her message? That AI should be used to help people, not harm them. Everyone, no matter their background, should have a say in how technology is built and used.

Nazareen Ebrahim

Nazareen believes young people today have a special role to play. “You already know the tech,” she said. “You’re not strangers to it. But what you need is the ability to think critically, ask good questions, and lead with kindness, respect, and love.”

She encourages students to explore their interests, whether it’s art, science, or storytelling, and to think about how technology might shape those fields in the future. “Before you choose a career,” she said, “ask yourself, how will technology impact this path?”

Today, Nazareen is writing a book titled *Building a Responsible Digital Citizen*, and continues to mentor others, especially young people. She believes technology is a reflection of who we are. By improving ourselves and being more thoughtful, respectful, and informed, we can also improve AI. With speaking engagements at conferences, on TV, and on podcasts, that message has reached millions around the world

Her story is a powerful reminder that you don’t have to be a coder to make a difference in tech. You just have to care, be curious, and be willing to speak up.





Laura Meléndez



Laura Meléndez

“AI will continue to change everything we do, and you have to be prepared to modify and adjust to learn new things. If you stay complacent, you will be left behind.”

In a hospital operating room, efficiency and coordination are key. Surgeons, anesthesiologists, nurses, and technicians must work together to provide the best outcome for the patient. How does an operating room team achieve this coordination?

Laura Meléndez works for Johnson & Johnson in customer experience transformation team, part of United States surgery. Laura’s customers are healthcare professionals looking to increase their efficiency and coordination. Her work impacts clinical customers such as surgeons, physicians’ assistants, and nurses, as well as hospital administrators, to make sure these professionals have the best surgical devices to perform their jobs.



Laura Meléndez

Laura develops omnichannel capabilities. Omnichannel means engaging with customers in many different ways, to give customers the information that they need it, at the moment that they need it to make decisions. So, for example, she makes sure the clinical staff know about all the upcoming training opportunities. Laura also tailors communications for her customers to learn how new surgical products can help them solve problems and how to purchase these devices. She and her team automate communications with her customers as much as they can. To do this, they must understand how customers engage with communications. For example, some people may want to communicate via text while others prefer email.

For Laura, AI has been instrumental in moving marketing and customer support forward. Laura and her team receive huge amounts of information. AI and machine learning organize and mine her marketing data to determine who are the people buying products and what they have in common. It uses that information to create a profile of a customer. AI then identifies people who share that customer profile. and helps send Laura's messages to these customers, people who could directly benefit from using surgical products.

Before Laura began working with AI, it was very difficult to go through all the data and understand who should be

seeing her company's advertisements. AI makes advertising much more efficient and serves customers better. For example, AI can see searches for similar products. So if you are selling sneakers, you can look into people buying athletic socks and build a profile of who might be a good customer.

Laura has a background in industrial engineering, management, and marketing. She was born and raised in Puerto Rico. There, she attended Escuela Secundaria (UHS) Universidad de Puerto Rico, a special high school linked to Universidad de Puerto Rico. This enabled her to take advanced math, science, art and English classes. Laura was influenced by her algebra teacher, who made math really fun. She showed Laura how math could be used in real life. Laura saw that math was something that she could enjoy and pursue in her life. Laura's high school was for academically advanced students. She found this was an environment that fostered academic excellence. Between her math teacher and the academic excellence around her, Laura's interest in science and math led to an interest in engineering. Coming from a lower income family, she saw engineering as a way to find a good job to help support her family. She completed a bachelor's degree in Industrial Engineering at University of Puerto Rico, Recinto de Mayagüez.

Laura Meléndez

After college, political issues in Puerto Rico made Laura decide to move to New York, where she started working for Verizon. She entered the technology world right as Verizon was transitioning from being a phone company to offering technology and Internet access. Laura worked in engineering for five years, but then she decided she wanted to do something with quicker results. She transitioned to marketing as a different way of using science and math. She got a master's degree in media and digital communication from Rutgers University. A few years later, she joined Johnson & Johnson. In marketing, Laura uses math and behavioral science to understand her customers. She is able to match customers with products that can help them.

Of course, Laura has had challenges. Things like a company reorganization put her in a job she didn't enjoy, and she had to work to get back to doing what she liked. Laura also moved from New York to New Jersey to have more space for her growing family and she had to adjust to a very different pace of life.

In her career, Laura remains excited about the future. She said, "AI will continue to change everything we do, and you have to be prepared to modify and adjust to learn new things. If you stay complacent, you will be left behind. That is true for any field."



Your Identity Map

In this e-book you have learned about scientists who study and work in jobs related to artificial intelligence. Each of the scientists has a unique path in their career and a unique identity. Our different experiences, backgrounds, and ideas give each of us a unique identity. Your identity is what makes you, you. Our different identities often lead to different perspectives. Perspectives are the ways we think about the world around us. Understanding your own identity and perspectives can help you understand other perspectives. This activity will help you think about your own identity. Could you be part of the future in a field related to artificial intelligence?



Your Identity Map



1. Take out a piece of paper and title it **“Identity Map.”**
2. On the paper, write your **name** in the center of the page or draw a **small picture of yourself**.
3. Draw a circle around your name or picture.
4. Answer the question, **“Who am I?”** or, **“What describes me?”** The list below can give you some ideas to consider, but you choose what you want to include. You can also include things that are not on the list. Record anything you can think of that is important to who you are.
 - *Age*
 - *School or class*
 - *Race and/or ethnicity*
 - *Gender*
 - *Country or place where you live*
 - *Groups you belong to*
 - *Country or place that is important to you or your family*
 - *Ideas or beliefs that are important to you*
 - *Topics or subjects that interest you*
 - *Hobbies or things you like to do for fun*
 - *Physical traits (such as tall, black hair, blue eyes, wears glasses)*
 - *Personality traits (such as loud, funny, sad, kind)*
 - *Roles you have in your household (such as big sister, helper, cousin)*
5. **Write each answer** on the page around your name. **Draw a line** between your name and each answer.
6. **Share your Identity Map** with family and friends to find out what you have in common.

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1. Loff, Sarah (November 22, 2016). "Dorothy Vaughan Biography". NASA. Archived from the original June 25, 2020. Available: <https://web.archive.org/web/20200625171042/https://www.nasa.gov/content/dorothy-vaughan-biography>

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