

ARAB-AMERICAN SCIENTIST SHOWCASE



Nadira Najib, PhD

1984–

Environmental Engineer



Background

Nadira Najib was born and raised in Casablanca, the largest city in Morocco. A first-generation graduate of both high school and college, she completed a degree in chemical engineering at the University of Mohammedia. In 2008, she moved to the United States to work as a research assistant at Harvard University, analyzing the works of North African scholars and imams. Although opportunities were limited due to the Great Recession (2008), she spent much of her time in libraries, improving her English and continuing to study chemical engineering.

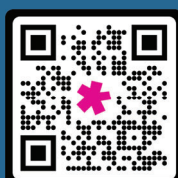
Environmental Engineering Career

While working at Harvard, Najib took a class in environmental systems at Harvard Extension School and decided to pursue a career in environmental engineering. After completing a master's in environmental processes at Stevens University in 2011, she focused her doctoral research on **water filtration**, with a specific focus on using sustainable resin fibers to remove arsenic and phosphorus.

A big priority for Najib is finding greener methods for producing what we need—ones that require less energy, chemical use, and water consumption. While working towards her doctorate, she also worked for Langan Engineering & Environmental, performing site investigation and remediation on several skyscraper projects. After completing her PhD in 2019, Najib took a job at Honeywell where she currently works as a global remediation manager.

STEM Vocabulary Word

Water filtration—the process of removing contaminants from water to make it safe to drink, or clean enough to reenter the water cycle without causing pollution.



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Farouk El-Baz, PhD

1938–

Geologist



Background

Farouk El-Baz was born and raised in Zagazig, Egypt. He studied chemistry and geology at Cairo's Ain Shams University, completing his degree in 1958. After moving to the United States, he earned a master's degree in geology at the Missouri School of Mines and Metallurgy (now the Missouri University of Science and Technology) in 1961. He performed much of his doctoral research in geology at MIT but returned to Missouri to complete his PhD in 1964.

Geology Career

In 1967, El-Baz began working for Bellcomm Inc., a branch of Bell Labs (now Nokia) that offered technical advice to NASA's Apollo program. For Apollo 11, he analyzed the Moon's terrain and select the most ideal location for landing. He performed this role again for Apollo 15, while also training the Apollo astronauts on how to study their surroundings and collect rock and soil samples.

After the Apollo programs ended, El-Baz established and directed the Center for Earth and Planetary Studies at the National Air and Space Museum of the Smithsonian Institution. To improve our understanding of the Moon's **hostile environment**, he photographed and studied the arid landscapes of Earth. This research took him to every major desert around the world! He retired in 2018 after serving as the director of the Center for Remote Sensing at Boston University.

STEM Vocabulary Word

Hostile environment—a place that is difficult to live in, usually due to extreme temperatures, dangerous chemicals, or a lack of water.



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Adah Almutairi, PhD

1976–

Chemical Engineer &
Nanotechnologist



Background

Adah Almutairi was born in Portland, Oregon, and raised in Jeddah, Saudi Arabia. She credits her father as her academic champion, as he challenged traditional Saudi customs and encouraged all his children to pursue education. After finishing high school at 16, she taught English for a year before applying to universities. In 1996, after receiving a scholarship, Almutairi moved back to the United States to study at Occidental College. Her major was mathematics, but she switched to chemistry as a sophomore after encouragement from chemistry professor Dr. Tetsuo Otsuki.

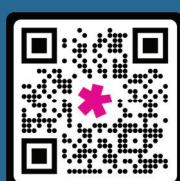
Chemistry Career

After completing her bachelor's in 2000, Almutairi began pursuing her doctorate at the University of California, Riverside. She received her PhD in 2005, presenting research focused on molecular structures as well as a new polymer with electromechanical actuated properties (the conversion of electrical energy into mechanical motion). From 2005 to 2008, she performed postdoctoral research at UC Berkeley developing nanoprobe for in vivo molecular imaging (imaging inside a living organism or tissue).

In 2011, Almutairi filed her first patent for a **slow-release polymer** designed to react to lower pH or ROS (reactive oxygen species). It can be used to deliver medication to a specific location within the body before the polymer degrades, releasing the medicine. Since then, she has filed dozens of other patents and currently works as a professor at UC San Diego in the Jacobs School of Engineering.

STEM Vocabulary Word

Slow-release polymer— polymers that have been engineered to control the rate and duration of the delivery of a drug after it has been administered.



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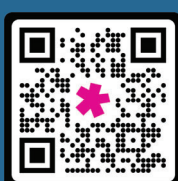
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Tony Fadell

1969–

Computer Engineer &
Entrepreneur



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Background

Anthony “Tony” Fadell was born and raised in Detroit, Michigan. He grew up in a multicultural household, celebrating the food and customs of both his Lebanese father and Polish mother. He attended Grosse Pointe South High School before pursuing a bachelor’s degree in computer engineering at the University of Michigan, graduating in 1991.

Computer Engineering Career

After graduating, Fadell spent several years working for major electronics companies, including General Magic (a spinoff of Apple) and Philips Electronics, where he specialized in developing **hand-held devices** for personal use. In 1999, he created his own company with the goal of creating a small, portable music player with its own online music catalog. After not being able to secure funding, he decided to develop the product at an existing company instead.

In early 2001, Fadell found a home for his new device and began working as a contractor for Apple, designing the iPod. The first iPod was released in November 2001 and several different sizes and designs followed soon after. Apple sold an estimated 450 million iPod products globally, before the device was discontinued in 2022.

Entrepreneurial Career

In 2010, Fadell and his former colleague Matt Rogers co-founded Nest Labs, a smart home products company. The concept was largely the result of Fadell’s personal frustration at the lack of energy-efficient thermostat options, and the Nest Learning Thermostat was the first product released.

STEM Vocabulary Word

Hand-held device—
portable technology designed
for use by an individual.

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