

Global Connections

Ayanna M. Howard



Georgia Institute of Technology 2008 Rob Felt
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Accomplishment: Robots that Think for Themselves

Born: 1972

Do you enjoy watching robots move, play, and think? Dr. Howard does, too. And, if your passion is to someday build a robot to travel on Mars or to help patients with their physical therapy, you need look no further than Dr. Ayanna Howard for inspiration.

After studying electrical engineering, robotics, and artificial intelligence in school, Dr. Howard worked as a robotics research engineer at the National Aeronautics and Space Administration's Jet Propulsion Laboratory. At NASA, she and her team developed the technology for the rover to explore the Martian surface independently. That's right, independently. In other words, the team did not program the rover's every move. Instead, the rover was able to "think independently" using artificial intelligence to explore the planet's surface on its own most of the time.

In addition to creating robots, Dr. Howard enjoys designing interactive computer games for young children with different needs and abilities.

Dr. Howard loves what she does! She encourages all students, but especially girls, to think seriously about math and science careers. Her words of wisdom to aspiring innovators is simple: when things don't go according to plan, stay determined, seek advice, and don't give up.

International Careers

Research online a career you would like to pursue overseas. Explore the skills needed for the career and determine if the same skills are needed in other countries as well. Then write a paragraph based on the following writing prompt: In your opinion, what is the most important thing job hunters need to know about working in another country?

Use the map to discover new places. Put a dot on the different countries you would like to learn more about. You might like to note which products those countries produce or businesses that operate there.



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Willis Carrier



Source: United Technologies

Accomplishment: Air Conditioning

Birth: 1876

Death: 1950

Willis Carrier, a recent college graduate who had studied math and engineering, was working for the Buffalo Forge Company. The company designed and made heaters and air exhaust systems for businesses and manufacturers. Carrier was assigned to work on a problem that a printing company had with its air exhaust and heating system. When the temperature and humidity levels changed, the ink from the printing presses would smudge the paper, making the text impossible to read. Carrier invented a system to control the heat and humidity, thus controlling the air inside the printing company.

His system was based on an idea he had while waiting for a train one night. According to his own account, he was looking at the fog and thinking about the relationship between temperature and humidity. In his mind, he calculated the formula for controlling humidity by controlling the temperature of the air. Once he got back to work, he was able to construct a machine that "conditioned" the air.

The new invention changed the way many industries and businesses operated. Improvements in food, medicine, film, textiles, and other products were directly related to controlling the temperature and humidity inside factories. Carrier continued to improve his invention until it provided a safer, cooler environment in larger spaces.

Select one of the industries listed below and answer the questions that follow:

Sports and Recreation

Movie and Television Production

Education

Computer Technology

Medical Research

Automobile Manufacturing

- How does this industry use air conditioning?
- Without air conditioning, what changes would have to be made for the industry to continue?
- What other innovations or inventions either have made or would make a dramatic change in the industry you selected?



