

# Your Future: What's Out There?

## Everyday Einsteins

Meet engineers who  
are changing the world.

## THE WORLD AWAITS YOU

Show off your stuff!



Questions?  
Engineers have  
the answers.

# Engineers . . . are innovative thinkers who use their

Communication  
Systems Engineer:

**Jaclyn Silva**

Space Technology  
Sector, California

Jaclyn Silva's passion for science and math has grown into an exciting engineering career that allows her to work on designing and performing tests on a satellite system that will be used to explore space.

**Education:** B.S., UCLA; M.S., USC, Electrical Engineering

**Favorite Class:** Physics

**Skills:** Organization, communication, team player, willing to learn new things

**Hobbies:** Running, traveling, and reading

**Role Model:** Other engineers who help to develop amazing technologies

**Advice to You:** "Pay attention in class and get a good background in math and science. . . . Find people to study with and don't be afraid to speak up if you don't understand something."



Jaclyn Silva

Test Design Engineer:

**Steven Shomoye**

Electronics Sector,  
Maryland

Steven Shomoye's love of calculus, chemistry, and physics, coupled with his drive to learn new things and solve problems, led him to a stimulating career in engineering. He is involved in designing hardware and writing the software used to test modules of interfaces that are used in radar systems.

**Education:** B.S., Electrical Engineering, Morgan State University; master's candidate, Systems Engineering, Johns Hopkins University

**Favorite Class:** C Programming

**Skills:** Communication, speaking and decision making, time management, listening

**Role Model:** Bill Gates, because he has developed a software system (Microsoft Operating System) that is

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## My Inner Engineer

Do you share any of these traits with the engineers above?

- *An interest in attending college*
- *A love of working on teams with peers*
- *A passion for doing research on topics of interest*
- *A desire to communicate observations in writing*
- *An ability to perform experiments and tests with scientific precision*
- *An ability to manage time well*

Can you think of any characteristics to add?

## Want to be an Engineer?

Log on to these sites to find out about careers, student competitions, cutting-edge news, and scholarship opportunities:

- [www.engineergirl.org](http://www.engineergirl.org)
- [www.jets.org](http://www.jets.org)
- [www.nasa.gov/audience/forstudents/9-12/features/index.html](http://www.nasa.gov/audience/forstudents/9-12/features/index.html)
- [www.engineeringsights.org](http://www.engineeringsights.org)

math and science skills to solve problems and improve the quality of our lives.



Steven Shomoye

used by almost every computer in the world  
**Advice to You:** "Stay focused, love what you do, and have fun doing the work. Be willing to learn something new all the time."

Industrial Engineer:  
**Erin McGinnis**

Integrated Systems Sector,  
California

Inspired by her engineer grandfather's anecdotes and his enthusiasm for math and science, Erin McGinnis transformed her favorite childhood memories into a reality by pursuing her own career in engineering. As an industrial engineer, she is part of a team of engineers who model, analyze, and solve problems for airplane manufacturing to ensure efficiency, productivity, and quality.



Erin McGinnis

**Education:** B.S., Industrial Engineering, Purdue University

**Favorite Class:** Operations Research

**Skills:** Critical thinking, creativity, communication, and time management

**Hobbies:** Reading, engineering outreach, exercise, and scrapbooking

**Role Model:** "I find new role models all the time. These are people who balance their personal and professional lives while doing something extraordinary that benefits society and has never been done before."

**Advice to You:** "Think about what you really enjoy using and what inspires you to determine which discipline of engineering will fit with your passion to improve a product or service. Hard work is required, and I have found that the sacrifices made to become an engineer are generally well worth the satisfaction that is later achieved."

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# Engineers **DO** Change the World

They have...

- Designed devices to help the heart beat normally
- Launched probes to search for signs of life on Mars
- Created an AIDS vaccine
- Built machines that detect cancer
- Written software programs that recognize human voices
- Designed hybrid cars that release fewer pollutants
- Created a new grain to stop famines in drought-stricken areas of the world

You may...

- Design a device that replaces the human heart
- Plan cities on Saturn and Mars
- Cure AIDS
- Cure cancer
- Write software programs that recognize thought waves
- Design vehicles that don't release pollutants
- Develop technology that brings new kinds of food to help end famines

What will **YOU** do to change the world?

# How Do We Know?

**Earth is the only planet in our galaxy where humans will not fly up into the atmosphere.**

## **How do we know?**

*Aerospace engineers have studied astronauts in space shuttles and discovered that as humans move away from Earth, microgravity pushes on all parts of the body at once, causing the body to fly away if it's not anchored.*



**While in a tiny village in Africa, you can transmit a picture of yourself from your cell phone to someone in Paris.**

## **How do we know?**

*Telecommunication and software engineers implanted megapixel cameras in cellular phones. Images are recorded onto data chips and can be forwarded to users anywhere in the world.*

**Wind power can be used to light large cities for weeks at a time.**

## **How do we know?**

*Environmental engineers have developed powerful wind turbines that harness the wind's energy and feed it to power grids underground to power homes.*

**Double amputees can run marathons.**

## **How do we know?**

*Mechanical engineers have designed lightweight, flexible prostheses from alloys such as carbon fiber that can bear weight and allow amputees to walk and run for miles.*

**AIDS can be stopped from spreading worldwide.**

## **How do we know?**

*Genetic engineers created a vaccine of synthetic copies of pieces of HIV which, when injected, prevent infection and stop HIV from becoming AIDS.*



## Logic ? Puzzles

Use your math and science skills to solve these mind-boggling puzzles!

- Five swimmers were competing in a sprint. Swimmer C placed third and swimmer E placed second. From the following information, can you tell how swimmers A, B, and D placed in the race? Swimmer A was not last. Swimmer A came in after E. Swimmer D was not first.
- What number should replace the question mark in the middle of the bottom line? Explain why.

3 5 3

1 2 6 2 1

1 2 1 5 1 2 1

1 2 1 1 ? 1 1 2 1

*Answer key: 1. B, E, C, A, D. Since C was third and E was behind E, A could not be first; therefore A must be fourth. D could not be first, second, third, or fourth, so D must be fifth. B must take the only place remaining — first. 2. The number 4 should replace the question mark. Each horizontal row adds up to one more than the one above it, so the last row must add up to 14.*