



WHAT ENGINEERS DO

By James Michael Brodie

Augustine Esogbue, Ph.D., better known as “Dr. E.,” was the first black person to work as a professor at Georgia Tech and was a longtime member of NSBE’s National Advisory Board. He once called engineering “a disciplined approach to creative problem solving.”

Since the world has many different kinds of problems, there are many different kinds of engineers. *NSBE Bridge* talked with three of them, all NSBE members, to give you an idea of the kinds of things that engineers do.

ENGINEERS HELP THE ENVIRONMENT

As a child in Tuscaloosa, Ala., Kenya Goodson liked getting her hands dirty. She had an interest in the environment. But becoming an engineer? That part took time.

Goodson liked math and science but chose to study chemistry at Stillman College. As a college student, she imagined working in a lab. Later, she graduated from Samford University with a master’s degree in environmental management and went to work with the Alabama Department of Public Health as a public health environmentalist. Her job was to advise people about their septic systems so their raw sewage wouldn’t come back out of the ground.

“I wanted to do more than just have

a nine-to-five job,” she says. “I knew I wanted to be a problem solver, and that is what engineers do.”

For a long time, she was not convinced she was smart enough to cut it as an engineer. But she gathered her courage and enrolled at the University of Alabama, where she became the first African-American to graduate with a Ph.D. from the Department of Civil, Construction and Environmental Engineering. Today, she is an environmental engineer with Nspiregreen, in Washington, D.C. (www.nspiregreen.com), a company founded by two other members of NSBE. At Nspiregreen, Dr. Goodson helps companies, governments and not-for-profit organizations find ways to sustain the environment.

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Kenya Goodson

“I was intimidated by engineering, but you should not disqualify yourself,” Dr. Goodson says. “You take on the challenge, because you don’t know what your capabilities are until you do it.”

ENGINEERS RESTORE HEALTH

Angelique Johnson was always a good student, but as she grew, she learned that getting straight A’s was not her true goal. She wanted to improve people’s lives.

At the University of Maryland, Baltimore County, she was a Meyerhoff scholar and earned bachelor’s degrees in computer engineering and mathematics. After that, she earned a doctorate in electrical engineering from the University of Michigan.

Dr. Johnson then began doing research on cochlear implants, which are electronic devices that give a sense of sound to people who are profoundly deaf or severely hard of hearing. What she discovered was an efficient, low-cost way to make flexible, strong “electrode leads” to deliver electrical pulses to the inner ear.

Three years ago, Dr. Johnson started a company called MEMStim, which creates electrode leads that can be easily integrated into devices that shoot electric pulses into a patient’s nervous system. The devices, called micro-fabricated stimulators, may provide affordable care for patients suffering from severe illnesses such as Parkinson’s disease, in addition to helping people with hearing problems.

“I didn’t always know I wanted to go into medical devices,” Dr. Johnson says. She says she found this passion by trying new things such as going to science, technology, engineering and math (STEM) camps and working beside professionals in various fields.

“Never make the excuse that you are too young,” she says. “Only by experiencing jobs can you see what might be good for you. Start young. Test careers out.”

ENGINEERS BUILD BUILDINGS

When Bobby Teachey was a child in Winston-Salem, N.C., building a community from scratch in a video game, he had no idea that he was preparing for a career. Teachey is a project manager with Turner Construction Company in Charlotte, N.C. His job involves things such as starting and developing construction projects, determining whether they can really be done, and keeping budgets.

“I use my engineering skills to watch things get built from the ground up,” says Teachey, who has a bachelor’s degree in



Angelique Johnson

civil engineering from North Carolina A&T State University and a master’s degree in project management from the Keller Graduate School of Management. “You are literally out there working in the field, getting your hands on the materials. And it is amazing to watch something go

from a piece of paper to a 45-story skyscraper. You watch the walls go up. It is great to be in a building that you know will benefit hundreds of thousands of people throughout history.”

And it all began with a video game.

“I was a SimCity kid,” says Teachey. “I never knew that would become a career...”

It is amazing that everything in SimCity — trying to build roads, trying to build buildings, putting buildings in certain places, the rules of the game — are like real life. You had to have water in your building. You had to have power in your building. You had to excavate.”



Bobby Teachey II

Teachey says he

delights in manipulating 3-D and 4-D models and using AutoCAD (computer-aided design) programs.

“It looks just like a video game, and I get to model things that go from a computer screen to reality,” he says. “Doing what I am doing now is SimCity.” ■

What else do engineers do? Find out by joining the NSBE discussion on Twitter at #WDED.