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**Focus on diversity**

**African American engineers are finding success in their first jobs**

*As EEs, MEs, ChEs and more, they're learning and growing their careers*

*Many found their jobs through internship and co-op experiences*

*By Jon Boroshok  
 Contributing Editor*

**A**ccording to an analysis by the Commission on Professionals in Science and Technology ([www.cpst.org](http://www.cpst.org)), the percentage of African Americans receiving bachelors degrees in engineering has increased from an average of 3.5 percent of all engineering grads during the early 1990s to nearly 4.7 percent over the past three years. That's a significant overall rise.

Diversity is making its way into corporate America too, although not as fast as might be ideal. According to "Diversity Practices that Work: The American Worker Speaks," a two-year national study of 5,500 workers by the National Urban League, 32 percent believe their companies have effective diversity initiatives, and 45 percent believe that diversity is part of their employers' corporate culture, leaving



System engineer William McKnight debugs radio hardware at BAE systems.





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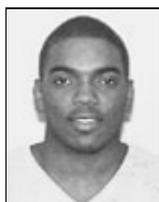
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obvious room for improvement. Wanda Jackson, vice president of human resources for the league, maintains that businesses are marketing to a multicultural audience, so by being diverse internally, a company is bound to be more successful. "There's a business case for being diverse," says Jackson.

Augustus Bedu-Addo does construction and operations for SDG&E.

Many employers are moving in the right direction. The new African American engineers we interviewed have all found companies that appreciate their talents. They're part of the changing face of today's engineering workforce.



Leo Campbell.

**Cardin "Leo" Campbell: intern to employee at Intel**

Leo Campbell is a systems/technical analyst in Intel's PeopleSoft Competency Center Group in Folsom, CA. "Intel's HR and finance groups are my group's primary business partners," he says. "We get requests from them regarding systems they'd like to help them do Intel's business better and more efficiently. We

execute on these requests, which sometimes means building the system for them."

Campbell's job includes gathering, defining, analyzing and re-engineering business and system processes, along with data mapping and analysis, implementation planning, risk assessment, cost/benefit analysis and more.

After a childhood in Kingston, Jamaica, Campbell attended middle school in Delray Beach, FL, then finished high school in the Bronx, NY. He received a bachelors degree in information technology in 2002, and has almost finished his masters in decision science and engineering systems, both from Rensselaer Polytechnic Institute (Troy, NY). Campbell says his biggest challenge was the pressure of being both a father and a full-time grad student. While in school, he also did two internships and a co-op with Intel.

Campbell got his job after making a favorable impression during interviews for a different Intel opening. Although that hiring manager selected someone else, another manager on the interview panel considered Campbell a strong candidate, and recommended him for a position in a different part of the company. Feedback from Campbell's previous internship managers helped too.

Campbell works with key project players: other technical analysts, developers, software quality assurance folks and design architects. "Many of the systems we work with are 'out of the box' software applications that need some tweaking. Our primary enterprise software application is PeopleSoft. Sometimes it's a system that's already in place



that needs major revamping to be more efficient, or that will help us save a lot of money," he says.



"I'm very prepared for this job through academia, and I'm getting more training on the job, in PeopleSoft and other group level tools. I also take other Intel University courses," says Campbell. "I absolutely love it here at Intel. The culture fits well with the way I like to work, and it doesn't hurt to be with the number-one chip maker in the world."

### **Wande Soyombo: networking at Northrop Grumman**

While growing up in Ann Arbor, MI and Nigeria, Wande Soyombo liked math and physics, so majoring in engineering at the University of Michigan (Ann Arbor, MI) seemed natural to her. She received a Lockheed Martin scholarship and several smaller scholarships, and joined the campus chapters of the National Society of Black Engineers (NSBE) and the Institute of Electrical and Electronics Engineers Inc (IEEE). She completed internships with Lockheed Martin while she was an undergrad.



Wande Soyombo.

She finished her BSEE in 1999, and went on to receive a masters in bioengineering from the University of Maryland-College Park in 2002. "Take lots of internships," advises Soyombo. "They help you decide what you want to do."

Soyombo's focus was on instrumentation, matching her strong interest in human factors and the application of electrical devices to the human body. She completed her masters thesis on the instrumentation of computers and other devices for assisting asthma patients.

She was recruited on campus into Northrop Grumman's Professional Development Program, which she found attractive because its system of rotational assignments exposed her to different aspects of the company. After three four- to six-month rotations, Soyombo has spent the last year as a systems hardware engineer for the company's Electronic Systems sector in Baltimore, MD, where she builds instrumentation to help collect and analyze data for F-22 aircraft radar systems.

Soyombo has also immersed herself into the Northrop Grumman culture via the firm's Women's Learning Group, a networking program with monthly guest speakers and a group mentoring program. She remains very active in NSBE, currently serving as vice president of the local professional chapter, and is helping plan an annual radar conference.

### **Tammy Pickett: a smooth transition at Southern Nuclear**

Tammy Pickett is an engineer in the



Tammy Pickett.

engineering support performance group for Southern Co's nuclear plant subsidiary, Southern Nuclear (Birmingham, AL). She works at Southern Nuclear's Plant Vogtle, located near Waynesboro in eastern Georgia.

Originally from Prattville, AL, Pickett received her BSChE from Auburn University (Auburn, AL) in 2003. During summers there, she did internships with International Paper and then at Southern Co Services in Birmingham.

She joined NSBE in college, and was awarded a scholarship through the BellSouth Minority Engineering Program. She also won a City of Prattville scholarship in high school, along with a Wal-Mart employee scholarship and an African American Heritage Leadership scholarship.

Pickett's internship with Southern Co led to a job offer, allowing her a smooth transition from intern to employee. "I feel that I have adjusted well to this environment, and I'm learning fast. There are a lot of diverse roots in the company," she says.

Pickett advises any college student to continue to think positive, work hard, have goals and know where he/she wants to go in life. "I worked every semester in college, and sometimes I worked two jobs during the summer break," she says. "I had scholarships, but they were not enough to cover my expenses. Working part time while attending an engineering college full time wasn't easy, but I had determination and a positive attitude."



Gaston Large.

### **Gaston Large of Alabama Power brings power to new customers**

Gaston Large graduated from the University of Alabama - Tuscaloosa in December 2003, earning his BSEE with an emphasis on computer engineering. Today, the Oneonta, AL, native works as a distribution engineer for Alabama Power in the firm's western division.

"Basically what we do is bring power to new customers," says Large. "Sometimes the customers are in a new subdivision so we design the placement of power lines, transformers and poles."

Large won a Blount County alumni scholarship, and was president of his campus NSBE chapter. His transition to the working world has been made easier by staying in Tuscaloosa - in fact, he still participates in multicultural engineering programs on campus.

Large did both co-ops and internships with Southern Co Services in Birmingham, and found his job through his

school's career website, "going through the usual interview cycles."

Large's mother was one of thirteen children, and graduated from Alabama A&M University (Normal, AL) with a bachelors degree in biology and zoology. She became a social worker, working to support the family because Large's father, a former firefighter and a Vietnam vet, has been unable to work since a job injury many years ago.

"My parents worked hard together so that my brother and I would be able to experience things greater than they did. My father was very hard on me as a child because he said that he knew what I could achieve," Large says.

"I was told that if it was easy, everyone would do it. No one is going to give you anything - you will have to work for it. After working so hard, you will enjoy the success a whole lot more," he says.



Janine  
Buseman-  
Williams.

#### **DuPont's Janine Buseman-Williams works at the nano level**

Janine Buseman-Williams is in her first rotational assignment for the DuPont Field Engineering program, doing research and development for the DuPont Titanium Technologies business unit in Wilmington, DE. She works in business extension, finding new ways to use products, and is currently on a project involving nano titanium dioxide.

"DuPont has long been a leader in titanium dioxide, but when titanium dioxide is taken down to the nano level, new opportunities and applications exist," says Buseman-Williams. "It is used in both UV protection and photocatalysis, and we explore how to make these properties meaningful in end use applications."

Buseman-Williams earned her MSCE from the University of Washington (Seattle, WA) in June 2003. She got her BSCE from the Massachusetts Institute of Technology (Cambridge, MA) in 2001. She was awarded an American Chemical Society scholarship and an Air Products-sponsored National Achievement Program scholarship as an undergrad, and was a GEM Fellow in grad school. Her GEM sponsor was BP. She was active in NSBE during both her undergrad and grad years.

After summer internships with BP in Texas and Illinois, and Procter & Gamble in Cincinnati, OH, Buseman-Williams wanted to return to the East Coast. She applied to DuPont's rotational Field Engineering program, which provides two or three developmental assignments for new employees. The program's assignments are ordinarily two or three years long and most field engineers take two to four assignments

before transferring to a permanent position.

Buseman-Williams is involved in DuPont diversity programs, women's networks and mentoring programs. Through them, she has access to higher-level people at meetings, lunches, workshops and conferences.

### **Omowale Casselle of Ford: five to ten years ahead**

Omowale Casselle is a product development engineer in the Ford College Graduate program for Ford Motor Co (Dearborn, MI). He is midway through a thirty-two-month rotational training program. Each rotation lasts from four to six months in a different functional area.



Omowale Casselle.

Casselle is currently working on restraint sub-systems for model year 2007 cars. "Anything you see on the streets, we're working on it five to ten years ahead," says Casselle. "It's cool. I like to solve problems related to cars."

He earned his BSME from the University of Illinois, Urbana-Champaign in 2002. He received scholarships from Ford and the Chrysler Corporation, a U of I President's Award and a U of I Children of Veterans scholarship.

Casselle joined NSBE in school, and taught "Engineering 100," an eight-week seminar run by upperclass students. The seminar's object is to introduce first-year engineering majors to the U of I College of Engineering. "It's always good to look at someone four years down the road from you," Casselle says. "You can see what they've done well, and avoid their mistakes."

He had two internships at Ford, in manufacturing and in product development. Casselle says the internship experience was invaluable to his career path, teaching him how to function daily in the corporate world and to apply the theory he learned in school.

In addition to his job, Casselle is also a member of the recruiting team for Ford at the University of Illinois. U of I is second only to the University of Michigan among feeder schools for the company.

He received an offer the September after his second internship, and went through his senior year with a job already secured. He advises current students to "focus on grades - that's what makes someone first look at you. Then do internships or co-ops to see what the job and industry is really about."

### **Seagate's Troy Sabal is still learning at work**



Troy Sabal is a firmware test engineer for data storage device maker Seagate in Minneapolis, MN. He designs, debugs and tests firmware and processes for SCSI, SAS and fiber channel interfaces. He is also responsible for conducting disk drive failure analysis to root cause.

Troy Sabal.

He received his bachelors in EE from the University of Minnesota-Twin Cities (Minneapolis, MN) in 2002, but his education continues at work. "To do my job well, I've had to re-familiarize myself with C, C++, Linux, and other tools I used in college," says Sabal.

Sabal also did internships, including one in civil engineering, for the city of Minneapolis. He was the academic excellence chair of NBSE during his senior year, and won an Alan Page Foundation scholarship. He has always held down a job while going to school.

Sabal advises current college students not to give up on their college educations. "Get through it. Try not to compare yourself to others, be yourself, and understand why you are the way you are."

#### **Mickelea "Mickey" Wilson: electrical reliability at SDG&E**

Mickey Wilson is a district engineer for Sempra's San Diego Gas and Electric Co (SDG&E) subsidiary. She oversees operations and supervises a team of ten "troubleshooters," the first responders for power outages. She also works with customers on voltage problems and other reliability projects.



Mickelea Wilson.

Originally from Tampa, FL, Wilson got her BSEE from Howard University (Washington, DC) in 2002. SDG&E recruited her on campus. Her summer internships in the standards department at the Tampa Electric Company and the Goddard Space Center (Greenbelt, MD) made her an attractive candidate. "I advise current college students to start interning at companies before their junior year so they can be more marketable," says Wilson.

Although Wilson didn't join NSBE as a student, she is now the program chair for the San Diego alumni chapter. She has also been president of her local professional chapter of the Society of Women Engineers.

With no family on the West Coast, Wilson joined the NSBE alumni group to meet other people in the area. Shortly after joining, she was elected programs chair. "As programs chair, I was responsible for coordinating community service for the organization," says Wilson. "We tutored at local high

schools in math and science."

She also helped prepare the students for the annual "try-math-alon" (TMAL) competition hosted by NSBE. During the competition, students are asked questions about math, science and black history. Wilson proudly reports that San Diego took third place at the TMAL regional competition in 2003. In her spare time, Wilson volunteers at local homeless shelters.

#### **Augustus Bedu-Addo: rotation assignments at SDG&E**

Augustus Bedu-Addo graduated cum laude with a 2003 BSEE from Howard University (Washington, DC). Originally from Ghana, he is now an associate engineer in El Cajon, CA for San Diego Gas & Electric, a Sempra Energy company. Both he and Mickey Wilson participated in Sempra's eighteen-month training program, which involves three six-month rotations. Bedu-Addo is in his final rotation assignment. The program gives each trainee a mentor who advises and counsels the new engineer through all three rotations.

Bedu-Addo's first assignment was in distribution standards, the second in substation engineering and design, and the last, where he is now, in eastern district construction and operations. He resolves customer voltage complaints and performs circuit balancing and other reliability analysis and improvement tasks.

Bedu-Addo did internships with the Baltimore electrical engineering department of General Motors, doing design work as well as digital control automation. He also worked as an associate analyst for the Howard University chapter of the Army High Performance Computing Research Center. Coincidentally, he was serving in the Army Reserves at the same time, and appreciated the connection.

He was a member of IEEE and NSBE in school, and received a General Motors scholarship. Like Wilson, Bedu-Addo was recruited on campus and flown to California for more interviews. SDG&E was not his only offer.

Bedu-Addo says he is comfortable with people of all races. There were many foreign students in the Howard engineering program. "I met people from everywhere," he says. He advises that "College is a time where we should have fun, network and meet diverse personalities and have the opportunity to become mature, well-rounded citizens. I think little things like making up a study timetable for each day and having the discipline to maintain it are key to college success."

#### **Systems engineer William McKnight: learning at BAE Systems**

Will McKnight has just started work as a



William  
McKnight.

systems engineer for BAE Systems in Wayne, NJ. Mc-Knight received his BSEE from the New Jersey Institute of Technology (NJIT, Newark, NJ) in May 2004, and expects to get his MSEE from NJIT in January 2005. He is still in training at BAE Systems, debugging radio systems hardware.

Much of the work McKnight is doing is for the military, although it's as a contractor. "I'm learning a lot. The learning curve is super exponential," he says.

McKnight received several scholarships at NJIT, including a presidential scholarship that lowered his tuition to in-state rates. He also received a James E. Bowen scholarship for Christian achievement, and participated in the Alliance for Minority Participation, a work-study program for minorities.

McKnight points out that a lot of aid and grant dollars go unclaimed because students are not always aware of all their financial opportunities. McKnight feels that being a minority is an advantage. "There's so much money out there for minorities. You just have to look for it."



Wadson Felix.

**Wadson Felix: engineering services at NAVAIR**

Wadson Felix is a civilian electrical engineer for the Naval Air Systems Command (NAVAIR) repair depot in Jacksonville, FL. NAVAIR is responsible for maintaining the U.S. Navy and Marine Corps' combat readiness in a cost-effective manner.

Felix is a member of the P-3 Orion aircraft fleet support team. His job involves designing and testing new electrical installations, troubleshooting electrical system problems and overseeing the modification of P-3 aircraft. The Jacksonville depot is the only naval facility on the East Coast that performs depot-level maintenance on the P-3 Orion. The depot also works on carrier-based F/A-18 Hornets, F-14 Tomcats, EA-6B Prowlers and SH-60 Seahawks.

As a NAVAIR engineer, Felix works on avionics components, aircraft systems integration and other projects for the P-3. He's involved in engineering decisions, and works with other electrical, aerospace and logistics engineers. He has worked with the Naval Research Laboratory to modify a P-3 aircraft to serve as a test platform, and recently did the electrical distribution design for an admiral's VIP P-3 aircraft.

Felix was raised in West Palm Beach, FL. He received his BSEE from Florida Atlantic University-Boca Raton in 2000, and immediately joined NAVAIR. Felix joined NSBE in school, and received a Martin Luther King scholarship through the college.

**Deere's Rhea Johnson: the value of co-ops**

Rhea Johnson is a product engineer for equipment maker John Deere in Augusta, GA, working on value improvement and reliability for mid-sized tractors.



Rhea Johnson.

She is proof of the value of co-ops and internships. While attending Tuskegee University (Tuskegee, AL), she did a co-op at John Deere each year. When she graduated with a BSME in 2001, she was immediately offered a job.

In college, Johnson was a member of both NSBE and SWE, and received a scholarship from Tuskegee. At John Deere, she has gotten involved in mentoring, special employee events and diversity programs.

Johnson has not felt any particular race-related challenges at work or school, but quickly points out that she was not a minority on campus. "John Deere is making steps in the right direction by recruiting more diverse employees," she says.



Darya Fields.

**Delivering diversity**

Many of these employers have instituted clearly defined policies, training programs, affinity groups and mentoring programs to ensure a diverse corporate environment.

Darya Fields, Southern Co's diversity manager, says that the firm has made a commitment to a diverse workplace. Affinity groups have been created within the Southern Co system to help employees voice issues, present solutions and participate in activities that, in turn, help the company better serve its diverse customer base.

A diversity advisory council assesses company culture to determine areas needing improvement. Southern Co's supplier diversity program is committed to the development of minority- and female-owned businesses, and to the establishment of mutually beneficial business relationships with these enterprises. A workplace ethics program is in place that ensures company policies, requirements and guidelines are applied to all employees in an impartial, reasonable and nondiscriminatory manner.

Southern Co has a company-wide two-day mandatory training program that emphasizes valuing the differences of all employees, and has added mandatory training for leaders that focuses on managing the individual, the situation and the subculture of workgroups.

Deborah Taylor, associate director of global diversity for John Deere and Co, explains that as a Fortune 500 company with offices worldwide, the firm has a commitment and "opportunity to diversify worldwide.

"We keep employees happy and engaged," says Taylor. Activities geared to particular minority groups help with employee retention, as do both online and formal mentoring programs.

Most of the engineers in this story say they did not feel any additional pressures or challenges because they are African American. They believe that their workplace experiences and acceptance in the business world are no different from anyone else's. Their ideas and ideals will help shape their companies and the diverse world of business.

**D/C**

Jon Boroshok is a freelance writer in Groton, MA.



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