

# Where Are They Now?

*Now in its 75th year, UNCF was preparing African American STEM students for the workforce long before “STEM” was a thing* BY NANCY HENDERSON

It's only been three years since UNCF launched its official STEM Scholars Program, but helping students launch their careers in science, technology, engineering and mathematics is nothing new for the United Negro College Fund. For decades, UNCF has supported some of the nation's brightest minority students with scholarships, postdoctoral fellowships, and opportunities to connect with peers, mentors and employers. Here, we introduce several who are in different stages of their careers to learn how the programs helped them succeed.

## MICHELLE FIELDER, 58

*Software Engineer  
Somerset, N.J.*

Growing up in Detroit, Michelle Fielder felt right at home with the prospect of a STEM career, although back then it wasn't called that. Her mom was a medical technologist who sometimes let Fielder help conduct experiments in the lab; her dad, a math teacher, was constantly building ham radios and other electronics. But the real turning point came when Fielder enrolled at Cass Technical High School, a highly respected university preparatory magnet school.

“There were just all these kids who were kind of like me: a little bit nerdy,” she recalls. “And everybody was striving to do better. It was just a great environment.”

Intending to become a doctor, Fielder didn't even know what an engineer was until her senior year, when a mentor took her

the details but, she says, “somehow I ended up getting \$1,000 from UNCF. It was a onetime sort of grant, but at the time it was about a quarter of my whole tuition, room and board. And it really made a difference.”

In her senior year, Fielder transferred to Georgia Tech, which was then dominated by white males, to finish her physics and electrical engineering degree. “There were maybe 5% black people, so that was a big adjustment for me,” she says. Although she made the dean's list, she notes, “I had to have intestinal fortitude. People didn't want to be my lab partner. Professors questioned whether that was really my grade when I got an A on the test.”

Early in her career, Fielder became the first black woman in her department when she joined what was then called Bell Labs. Then in 1986, “back when phones were like suitcases,” she started working for a wireless company. She later joined a small software consulting firm and, after several more moves, was hired at the company now known as Nokia, where these days she tests wireless features on cell phones and manages a robotic automation program.

Giving back is a priority for Fielder, who at age 25 started

mentoring underrepresented teenagers in engineering and computer science classes through PACE (Program for Acceleration in Careers of Engineering). She still keeps in touch with some of her students, including one who is a programmer, motivational speaker and author. For the past 20 years, Fielder has taught financial skills, science exploration and other subjects to middle school girls in a STEM-focused program sponsored by her sorority. She also does anti-racism work and is active in the Spelman Alumnae Association. Through her church, Fountain Baptist, she raises funds for UNCF every year.

Fittingly, her email signature is the Biblical maxim, To whom much is given, much is required. “I've been blessed my whole life by great parents, a great childhood, great educational opportunities. I've had a great career. I've gone on great vacations,” Fielder says. “I've been given so much that I have to give back.”

## DR. AVERY POSEY, 35

*Biomedical Researcher, Philadelphia*

Sometimes a really bad thing leads to a really good outcome, as was the case with Avery Posey, who as a child was quarantined with a contagious, itchy infection. “I wanted to go into medicine to figure out how to solve the problem of chicken pox because it was miserable,” recalls Posey, 35, a biomedical researcher at the University of Pennsylvania in Philadelphia. “I thought that meant that I needed to be a medical doctor, but it wasn't until college, I think, that I figured out I could have more reach by going into medical research.”

After earning his undergraduate degree at the University of Maryland, Baltimore County, and a Ph.D. at the University of



PHOTO COURTESY OF MICHELE FIELDER

Chicago, in 2014 Posey began his postdoctoral research at Penn, thanks to a two-year UNCF fellowship. Upon acceptance into the program, he was invited to network with his peers as well as professors from major universities around the country who are working in his chosen field and others.

"Financially, the fellowship provided money for salary so my boss didn't have to pay for me anymore," he says. "It also provided research money that I had discretion over so I could pursue things that I was interested in learning more about that were not directly tied to the questions that my boss was having me answer. The ability to get my own discretionary funding and build my own research program was important in establishing my independence, which every postdoc who has pursuits to go on to an academic career needs to do."

He now runs his own lab at Penn, where he conducts cutting-edge studies on how sugars in cancer cells differ from those in noncancerous cells, with the ultimate goal of developing therapy options. "We're really at the crossroads of glyco-immunology," he says, "And we're trying to build cancer immunotherapies that really focus on ... how we can change the sugars on our normal cells, our immune cells, and make them better at fighting cancer."

Posey keeps in touch with the UNCF staff and tells his story at local UNCF fundraising events. To up-and-coming STEM students and professionals, he advises, "Definitely pursue all of the money that's available to you. Without that funding mechanism in my postdoc, I'm not 100% sure that I would be where I am today."

### **ERNEST HOLMES, 21** *Software Developer* *Mountain View, California*

Morehouse College senior Ernest Holmes was just as surprised as the rest of his 400 classmates when, at his graduation ceremony in May, billionaire philanthropist Robert F. Smith announced plans to pay off all student debts for the Class of 2019. But it wasn't the first time an African American man had



Avery Posey

greatly influenced his future.

"The only black professor or teacher I've ever had before going to Morehouse was my computer science teacher in my junior year of high school. The teacher was one of my number one supporters," says Holmes, a New Jersey native and self-described problem-solver who recently started working as a

software engineer at Google, where he is helping develop the new Fuchsia operating system. "And then I fell in love with coding, with how literally you could code anything that you put your imagination to. I loved the open-endedness of that, so I started going down my career path in computer science."

In his freshman year at Morehouse, Holmes heard about UNCF's Google internships and set out to "do everything in my power" to land one. Before long, UNCF organizers asked him to teach a group of nearly 100 middle school students how to code using the basic computer language Scratch. That's where he heard about the organization's HBCU Innovation Summit, which empowers future engineers and scientists and hosts on-site visits for African American STEM students to Silicon Valley companies like Google, Apple and Twitter.

In 2016, Holmes was chosen as an Innovation Summit Fellow, and two years later, his talent secured him a place as a mentor. This year, just a few days after graduation, he became a teaching assistant at the UNCF Silicon Summer Academy for 30 HBCU students in a data structures and algorithms class.

Holmes credits his involvement with the Innovation Summit for helping propel his budding career. "It's one thing to network with these companies," he says. "But it's another thing to expand your network horizontally, with peers that were also Fellows. These are literally the next innovators, scientists and doctors."

UNCF also helped Holmes establish a nonprofit group, Codehouse, and sponsored his Tech Exposure Day, which, in partnership with nine major

tech companies, brought 150 middle and high school students of color from the Atlanta metropolitan school districts to Morehouse to acquaint them with tech opportunities in Silicon Valley. Holmes is already planning to host 350 Atlanta area students next year and hopefully double the number of companies represented.

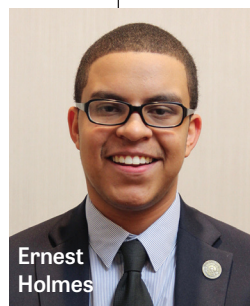
Holmes' brand-new job at Google seems "surreal," he says. "I'm so used to coming out here to be just an intern, just learning as the young guy on the team. I'm still a young guy on the team, but it's real life now."

### **KIM BOERRIGTER, 20** *Harvard Student* *Cambridge, Massachusetts*

As a little girl, Kim Boerrigter adored animals, large and small. By high school, that passion had evolved into a general love of science and, more specifically, anatomy. "I got very into how people work, how we function," says Boerrigter, a Newark, N.J., native and Harvard University junior majoring in integrative biology. "So I might go to medical school eventually."

Boerrigter discovered the UNCF STEM Scholars program while surfing online for scholarship opportunities in high school. "Initially I thought it would help me out a lot [financially]," she says. "But then I read on that, beyond just the money, they also give a sense of community where you can meet other students who are also in STEM. I thought that was pretty unique because that was the first time I'd come across a STEM scholarship that was offering all that."

The four-year award pays for Boerrigter's living expenses and supplements the funding package she received from Harvard. Since high school, UNCF has also given her a chance to meet other STEM Scholars. "Being in STEM and also being a woman, and a woman of color, to be able to just be in a space where there are so many young people of color who want to be in STEM has been great," she says. "I met people who wanted to study math, women who wanted



Ernest Holmes



Kim Boerrigter

to go to medical school, or who were in medical school, and that was really empowering. I haven't really, on a large scale, ever seen that before."

Boerrigter's admission into a prestigious Ivy League school has also triggered another payoff: a positive ripple effect on the town where she grew up. "After I had gotten into university, I guess the word had kind of gotten around the neighborhood a little bit," Boerrigter says. "It was kind of awkward at first because I really generally

am not a spotlight person. The neighborhood where I come from is inner city. People tend to only see the bad things in inner cities and never the good. So once that got out, it kind of put a positive light on the neighborhood and ... brought the community together. That was really beautiful."

Boerrigter wants people her age, or younger, to know that although STEM jobs have historically been inaccessible for women of color, the advancements are "huge."

"I don't care what background you have, what you identify as, if this is something you're passionate about, I really feel like you

shouldn't let anything or anyone stop you," she says. "There have been times in my life where circumstances or my background or my ethnicity could have potentially stopped me from pursuing the fields I'm interested in, but nowadays there are so many resources that are available if you're really interested in STEM."

"There are people out there who legitimately want to see you succeed," Boerrigter adds. "If you want to be an astronaut, go for it. If you want to be a mathematician, go for it. I think programs like UNCF are out there to see young people of color succeed." ■

## A Multigenerational View of UNCF's STEM Programs and Initiatives

UNCF is the largest and most impactful African American educationally focused organization. Over its 75-year history, UNCF has raised more than \$4.8 billion to assist nearly half a million students earn college degrees. As the nation's largest private scholarship provider to students of color, UNCF awards more than \$100 million in scholarships to more than 10,000 students at more than 1,000 schools each year. Many of those students that UNCF has helped majored in STEM disciplines.

Over the past two decades, UNCF has heavily invested in building a robust African American STEM pipeline. With the launch of the Gates Millennium Scholars Program (GMS) — a \$2.1 billion commitment — and the UNCF Merck Science Initiative (UMSI), a \$40 million commitment from Merck & Co. in 1998, UNCF ushered in a new era of program-level investments in STEM education and career development.

While the GMS program was not designed specifically to just focus on STEM, almost a third of the more than 20 GMS cohorts have majored in a STEM discipline. Many of those graduates went on to graduate school to earn Ph.D.s in STEM fields, as well as to medical school and to take on leadership roles in the tech industry. At the same time, UNCF launched a groundbreaking partnership with Merck

& Co. to expand the number of African Americans pursuing careers in biomedical research. The UMSI program, which lasted until 2017, supported African American undergraduates majoring in the life sciences and committed to pursuing careers in biomedical research.

UMSI supported fellowships at the undergraduate, graduate and postdoctoral levels, providing tuition scholarships for undergraduates and stipends at each level. The legacy of the UMSI lives on in a partnership with Bristol-Myers Squibb (BMS) and the recent launch of the Ernest E. Just Postdoctoral Fellowship in the Life Sciences program. The BMS-sponsored initiative supports African American M.D., Ph.D. and M.D.-Ph.D. scientists who are committed to a career in biomedical research and provides a highly competitive stipend, research laboratory support and a travel award for research conferences.

Chad Womack, senior director of STEM programs and initiatives at UNCF, joined the organization in October 2012 at a critical juncture in the development of those programs. In addition to managing the relationship with Merck, he brought a project called HBCU Innovation, Commercialization and Entrepreneurship (I.C.E.) from the White House Office of Science and Technology Policy under the Obama administration.

"The I.C.E. initiative was focused on building more robust STEM pipelines into the tech workforce and to support greater capacity for commercialization and entrepreneurship among historically black colleges and universities," Womack says. "I.C.E. was also envisioned as a platform that would work with a consortium of HBCUs to facilitate mutually beneficial relationships with Silicon Valley."

The first HBCU I.C.E. Silicon Valley Summit was held in 2013 and was hosted by Stanford University, with more than 80 participants, including STEM faculty, several deans and provosts and HBCU presidents. Over the past five years, UNCF has established partnerships with companies including Google, eBay and Facebook. It now engages nearly 700 HBCU students majoring in the computer sciences and related fields, as well as faculty and administrative leadership.

Recently, UNCF launched the Silicon Valley CS Academy program. Hosted by Carnegie Mellon University at the NASA Ames Research Center campus in Mountain View, California, the program engaged 30 HBCU computer science majors, all of whom were rising sophomores. The goal of the program is to support the academic growth of the sophomores and to prepare them for the data structures and algorithms course, as well as for internships and career development.