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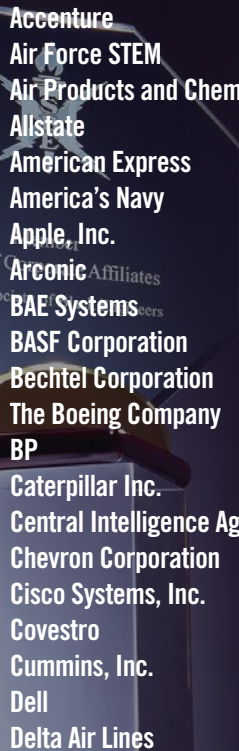






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# NSBE Convention

NATIONAL SOCIETY of BLACK ENGINEERS

On the Cover: Nikki Nola Gordon, NSBE Region II Chair

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# #NSBE44

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The Society aims for an unparalleled experience for its 44th Annual Convention attendees, in Pittsburgh, Pa.

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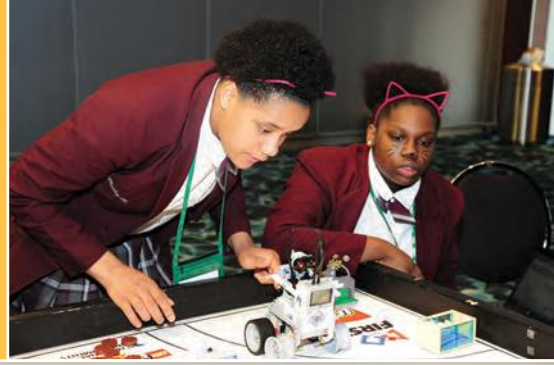
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NATIONAL SOCIETY OF BLACK ENGINEERS



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## ABOUT NSBE

The National Society of Black Engineers (NSBE), with more than 17,000 members, is one of the largest student-governed organizations based in the U.S. NSBE's mission is to increase the number of culturally responsible Black Engineers who excel academically, succeed professionally and positively impact the community. NSBE comprises nearly 300 chapters on college and university campuses, more than 90 NSBE Professionals chapters and interest groups, and nearly 150 NSBE Jr. chapters, in North America, Africa and the Caribbean. The U.S. chapters are divided geographically into six regions. NSBE had its genesis in April 1975. In 1976, NSBE was incorporated as a nonprofit organization in the State of Texas and also became recognized as a tax-exempt organization under Section 501 (c)(3) of the Internal Revenue Code.

The NSBE torch symbolizes our everlasting, burning desire to achieve success in this competitive society and to effect a positive change in the quality of life of all people. The lightning bolt represents the striking impact that will be felt by the Society and industry due to the contributions and accomplishments made by dedicated members of the National Society of Black Engineers.

For more information, visit [www.nsbe.org](http://www.nsbe.org).

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# Building the Ladder to 10K

By Matthew C. Nelson, *NSBE National Chair*



The past two years at the helm of this phenomenal organization have been exhilarating. We have made significant gains in our capability of reaching our nationwide goal of 10,000 black students' earning undergraduate engineering degrees annually by 2025. We partnered with ExxonMobil to develop a Student Retention Toolkit for universities, to leverage best practices to support the academic pursuits of minority

- Community: Create environments that nurture individual growth and collective success
- Empathy: Seek a greater understanding of those we serve
- Leadership: Groom the future leaders of society through training and executive-level experience

Our commitment to these values will improve our ability to build consensus around key initiatives and create a vivacious environment that attracts current and aspiring Black Engineers.

However, the 10K by 2025 goal is extremely ambitious, and our ability to attain it requires full understanding of the challenge ahead and buy-in across all our demographics. In 2016, only 4,366 undergraduate engineering degrees were granted to black students. To reach 10,000 over the next seven years would require a massive increase in black enrollment (from ~29,000 to 57,000) and in six-year graduation rates (from 36 percent to 59 percent).

Given that roughly 22 percent of all black undergraduate engineering students in the U.S. are members of NSBE, we must seek to increase the number of NSBE members who count toward the 10K goal, by increasing our membership rates in engineering colleges. And we must indirectly influence academic outcomes for non-members as well. In addition, our NSBE Jr. model must be scaled-up tenfold to identify and support aspiring engineering talent as early as third grade and to provide focused programming geared toward improving math competency and proficiency on college entry exams.

Even if we fail to reach 10K by 2025, our efforts have created ripples across the engineering landscape. NSBE has been invited to provide input into the development of key STEM-funding legislation in both the U.S. Senate and House of Representatives. The National Academy of Engineering has recognized the 50K Coalition, a group of engineering societies, universities and corporations spawned by our 10K goal, as a pillar of its diversity policy in the foreseeable future. "10K by 2025" has entered the lexicon of academia, industry and government alike. NSBE is well-positioned to lead the discussion around addressing the nation's technical talent shortage by encouraging investments in education and development of black students and professionals. We must continue to drive innovation within the engineering society space and collaborate with key stakeholders in the minority engineering movement.

It has been a pleasure to serve as your national chair, and I hope my efforts, along with those of countless other volunteer leaders, advisors and staff, have met the standards our great organization deserves. ■

*“Our commitment to these values will improve our ability to build consensus around key initiatives and **create a vivacious environment that attracts current and aspiring Black Engineers.**”*

engineering students. Several of our corporate partners have invested in Integrated Pipeline Programs, designed to provide financial assistance, professional development and career opportunities to our collegiate members. And we invested in the development of NSBE Now, a social media platform that enables increased membership engagement and information dissemination.

Although these developments should bear fruit in the near future, one of our most important recent accomplishments is the adoption of a set of organizational core values. Commonly referred to as EXCEL, these guiding principles will help place our essential attributes — “NSBE Luv,” student governance, community service and outreach — into a structure against which future decisions can be evaluated.

The core values are:

- Excellence: Develop the skills necessary to become high-performing engineering students and professionals
- Exposure: Present opportunities in engineering to a diverse cross-section of the black populace



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10,000 BLACK ENGINEERS ANNUALLY  
BY 2025**



## The Issue

African Americans are 13.3 percent of the U.S. population but only 4 percent of the nation's bachelor's degree recipients in engineering. The National Society of Black Engineers (NSBE) has set an ambitious goal to end that underrepresentation, by increasing the number of Black Engineers produced annually from 3,501 in 2014 to 10,000 in 2025.

## The Plan

NSBE is asking 7th through 12th graders across the country to pledge to achieve academic excellence in STEM and graduate from college with a degree in engineering. The "Be 1 of 10K" Campaign also seeks the involvement of educators, parents and other adults to support and encourage the pre-college students.

**TAKE THE PLEDGE!**  
AT [GRADUATE10K.NSBE.ORG](http://GRADUATE10K.NSBE.ORG)



**NSBE**  
NATIONAL SOCIETY OF BLACK ENGINEERS



# Google's \$1.5M Grant to Chance the Rapper Helps Chicago Schools

*Former NSBE Leader Heads the Company's Philanthropic Efforts*

By Kevin M. Briscoe

**A** self-described “sensitive, brainy kid,” Justin Steele grew up thinking a lot about how to improve people’s lives. He says in his LinkedIn profile that “...my lived experience has drawn me to the social sector and the fight for justice in socially- and economically-excluded communities.”

Now, as a principal at Google.org, he leads Google’s U.S.-based giving to support the communities around the company’s offices, and its inclusion portfolio, to combat bias and promote equity. Since joining Google in 2014, he has been responsible for \$66 million in philanthropic grant-making in the United States. The latest giving involves a two-year, \$1.5-million partnership with Grammy Award-winning rapper Chance the Rapper’s SocialWorks, and Chicago Public Schools.

“The grant was broken into two parts: \$1 million over two years to directly support 20 New Chance Fund schools in support of the implementation of computer science, music and arts programming and infrastructure, and \$500,000 over two years to provide innovative computer science programming for Chicago Public School students,” Steele says.

Application for Google grants is by invitation only and with an eye toward raising the profile of STEM education in underrepresented communities.

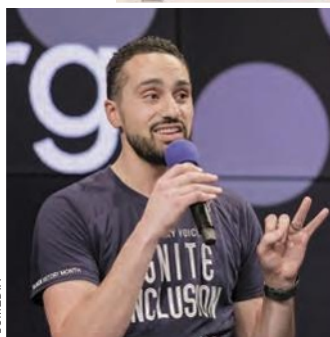
“We’re always looking for ways to make computer science more relevant for kids, and what SocialWorks is doing to inspire creativity and build the dreams of Chicago youth through art seemed like a perfect way to introduce kids to coding,” says Steele. “Chance became the first streaming artist to win a Grammy by creating art that moves people and using technology to get his music into the world. Our hope, through this partnership, is that more kids will follow his example and also learn how to create the technology that makes art possible.”

He added that Chicago Public Schools is the first district in the country to make computer science a graduation requirement. Google’s support is meant to increase the momentum created by this commitment to “computer science for all.”

Steele’s experience includes work as a management consultant at Bain and The Bridgespan Group and as deputy director for the Washington, D.C., site of Year Up, a nonprofit



BENJAMIN LOZOVSKY



510MEDIA

*above* Chance the Rapper with kids at the event announcing his nonprofit's grant from Google.org

*left* Justin Steele, former NSBE National Academic Excellence Chair, now Principal of Google.org

job training program. He holds a B.S. in chemical engineering from the University of Virginia and a joint business administration and public administration master’s degree from Harvard University. NSBE still holds a special place in his heart and informs his current work to bring STEM awareness to the classrooms of Chicago and beyond.

“I had the privilege of overseeing academic excellence for NSBE at the chapter, regional and national levels while I was in college. My passion for NSBE’s mission led me to write my undergraduate thesis on ‘Academic Achievement Among African American Engineering Students,’ and I have been working on some level toward fulfilling that mission ever since,” he says. “I hope through our partnership with organizations like SocialWorks and artists like Chance, we can provide the same kind of confidence and motivation to young people that NSBE gave me.” ■

*Kevin M. Briscoe is a writer based in Atlanta, Ga., and a former editor of NSBE Magazine.*

# Northrop Grumman/NSBE/HBCU Partnership Benefits Students in Year Two

**T**en thousand Black Engineers produced annually in the U.S., by 2025: When NSBE's National Executive Board set this as the main goal of the Society's 10-year Strategic Plan, "strengthening the pipeline" was a big part of the discussion. NSBE's leaders realized that the financial, academic and professional development supports in place for African-American pre-college and college students would have to be made much more robust to bring the goal within reach. They also knew NSBE could not make "10K" a reality without more and stronger partnerships with other stakeholders in the cause of engineering diversity.

The **Northrop Grumman Foundation/NSBE Integrated Pipeline Program (NGF/NSBE IPP)** was one of the first results of the board's thinking. Announced during NSBE's 2016 Annual Convention in Boston, Mass., the three-year, \$2-million program — funded by Northrop Grumman Foundation — is designed to provide 72 students at three Historically Black Colleges and Universities (HBCUs) with annual, \$8,000 scholarship grants and year-round academic and professional development support. The support includes such things as training for interviews for technical jobs and mentoring from STEM professionals.

HBCUs are a prime source of black STEM talent in the U.S., producing about 40 percent of the nation's Black Engineers each year. Three of them — Florida A&M University (FAMU), Howard University and North Carolina A&T State University — are NSBE's institutional partners in the NGF/NSBE IPP.

The first cohort of 24 Northrop Grumman Foundation/NSBE scholars was selected in December 2016. Among them was Yemi Ajiborode of Howard University, who later highly recommended the program to his friend and school-mate, Michelle Brown: a sophomore



**Candace Williams of Howard University (left) and Morgan Harris of North Carolina A&T State University (right) joined 22 other students this year as Northrop Grumman/NSBE scholars.**

computer science major from Miami Gardens, Fla., and one of the 24 members of this year's second cohort.

"(Yemi) was telling me about the benefits of it, how it helped him...how they really open up doors for you, how they were helping him to become a better engineer with the webinars and the other assistance," Brown says. "I really want to be the best engineer I can be, so I applied for it."

The benefits flowing to the NGF/NSBE scholars are clear, but a short talk with a few of them hints at the diverse value they will one day add to the nation.

Candace Williams, from Norfolk, Va., is another Howard University sophomore. She spent two years in the NSBE Jr. program in high school and joined the Howard chapter in 2017. Asked what led her to major in comp sci, she says, "I think the answer everyone looks for is

that I fell in love with coding when I was young. But that couldn't be farther from the truth. I chose computer science because it was practical. Going into the hard sciences is something many college students that descend from involuntary minorities use as a method to break the cycle of generational poverty in their families. I treat computer science like a tool, not just to promote monetary wealth in my community but to also add value to our experiences online."

She looks forward to having a mentor in the NGF/NSBE IPP and plans to pursue her interest in accessibility software engineering in graduate school.

North Carolina A&T sophomore Morgan Harris, a mechanical engineering major from Aurora, Ill., has been active with NSBE for two years. She says her ultimate career goal is to "start my own business that designs, builds and sells prosthetics around the world."

She expects the NGF/NSBE IPP to enhance her academic and professional career.

Russell Cooks Jr., a FAMU sophomore from Fayetteville, Ga., says, "I chose computer engineering because every area of our world is becoming digital, if it is not already. I want to be able to make a difference in our world, and I believe computer engineering will give me the largest opportunity to do so."

Cooks has been a member of NSBE since 2015.

For its part, the Society is "pushing the limits of program" to maximize its impact on students and the field of engineering, says Ralanda Nelson, NSBE's manager, Collegiate Programs. "We are exploring opportunities to partner more with the Pre-College Initiative demographic and expose them to the innovative programming that we're doing in the collegiate space as well as in the professional space with the mentor component of the program." ■



More than 20,000 students have participated in NSBE's Summer Engineering Experience for Kids since the program's launch in 2007.



# SEEKING Future Black Engineers

By Kevin M. Briscoe

It began as an idea: a three-week engineering immersion program to expose underrepresented students to STEM education. Today, the National Society of Black Engineers' (NSBE's) **Summer Engineering Experience for Kids program** — known as **SEEK** — has evolved into a juggernaut that is bringing the science and math subjects at the foundation of engineering to more and more third through fifth graders around the country.

Since the program's launch in 2007, more than 20,000 students have participated in the nationwide camps, along with 3,000-plus mentor-instructors and more than 25,000 parents. In 2017 alone, SEEK enrolled more than 1,700 students at 16 sites in 15 cities. The result has been higher test scores in science, math and engineering, increased interest in STEM, and higher educational aspirations among the student participants.

NSBE is now in the second year of a National Science Foundation (NSF)-funded research study, in partnership with Virginia Tech and Purdue University, to evaluate the outcomes of SEEK. The NSF ITEST grant will enable NSBE to learn how best to scale-up SEEK to reach more students, while improving program efficiency.

But even as the program continues to grow with new curricula and new locations for 2018 and beyond, its mission remains basically unchanged.

"We're exposing children of color to something that they might not have the opportunity to participate in, in the engineering field," says Donyel Stewart, SEEK operations coordinator. "And we're enabling them to learn about STEM and especially engineering, so that when they leave the program, they can see themselves as engineers. This begins NSBE's pipeline."

This "pipeline" is accomplishing "NSBE 2025," the Society's 10-year goal, announced in 2015, which is to lead the U.S. to graduate 10,000 Black Engineers annually, with bachelor's degrees, by 2025. Since that time, the nation's number of black engineering bachelor's degree recipients has risen from 3,501 in 2014 to 4,366 in 2017, a 25 percent increase.

The essence of the SEEK programs is a potent combination of always-evolving curricula — which will include coding, cybersecurity and drones in 2018 — and robust guidance from its mentor-instructors, most of whom are collegiate members of NSBE. The curricula are the result of collaboration among researchers from

such institutions as Virginia Tech, Purdue University and Howard University, along with training vendors and independent engineering experts. But the backbone of the program, says Stewart, is the mentors.

"The mentors are positive role models who enable students to envision themselves as engineers," he says. "Students enter the program not knowing what an engineer does but leave with an entirely new enthusiasm and outlook because of the program."

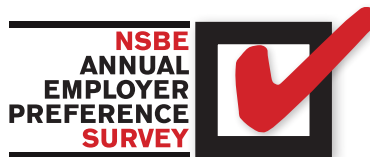
Registration for SEEK students began in mid-January, with more than 1,000 students signing up in the first week, and will continue until all slots are filled, adds Stewart. SEEK staff application began last November and will close on March 30, to give attendees of NSBE's 44th Annual Convention an opportunity to register. The convention will be held in Pittsburgh, Pa., March 21–25.

SEEK camp locations and dates for this year were still being finalized at press time. A tentative list of SEEK sites for 2018 follows. ■

*Kevin M. Briscoe is a writer based in Atlanta, Ga., and a former editor of NSBE Magazine.*



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San Diego, Calif.
Washington, D.C. (all-girls)
Washington, D.C. (coed)



# Google Leads NSBE's Most Preferred Employers

**G**oogle Inc. is once again the National Society of Black Engineers' No. 1 prospective employer! Among the 10 most preferred workplaces of NSBE's collegiate members this program year, nine appeared in that group in 2016, and Amazon is the only newcomer, at the top of the 2017 "NSBE 50."

NSBE's Annual Employer Preference ("NSBE 50") Survey is a window overlooking the career aspirations of NSBE's collegiate and professional members. Since its launch more than two decades ago, this ranking of our members' most desired employers has also served the Society's top supporters as a valuable tool to gauge the effectiveness of their diversity and inclusion efforts.

To calculate the NSBE 50, NSBE members were asked during the membership registration process to identify their top three prospective employers. Organizations selected as a first choice were awarded three points, second-choice organizations were awarded two points, and third choices were awarded one point. The points for each employer were tallied, and the employers were ranked according to their total points. The 50 organizations with the most points were included in the NSBE 50. NSBE 50 rankings were received from more than 7,500 NSBE collegiate members this program year.

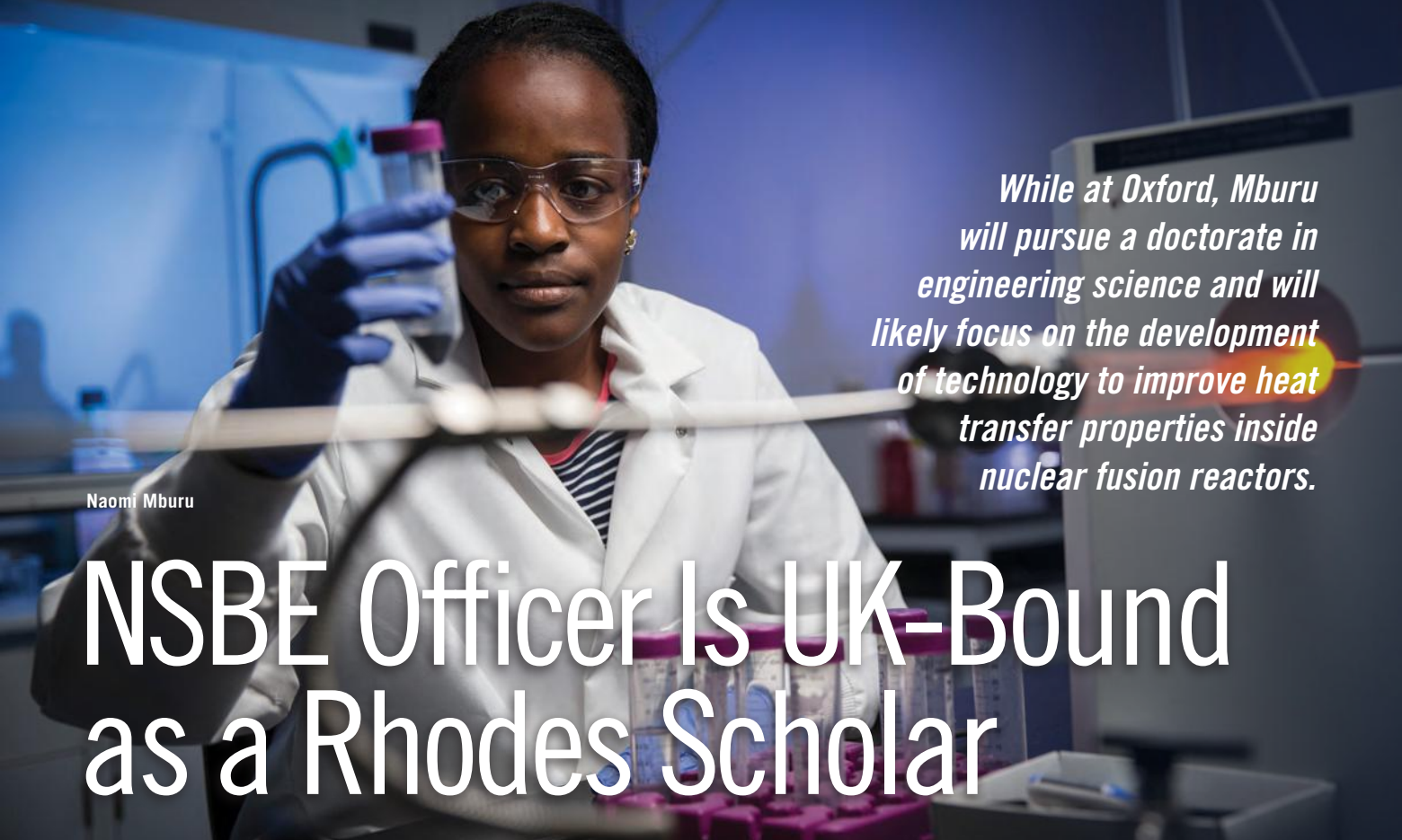
The complete list of this year's 50 most preferred employers follows. ■

## 2017 'NSBE 50'\*

1. Google Inc.	18. <i>Ford Motor Company +</i>	35. <i>Texas Instruments +</i>
2. Apple, Inc.	19. 3M	36. Abbott Laboratories
3. The Boeing Company	20. Accenture	37. Goldman Sachs
4. GE	21. Disney Parks and Resorts	38. <i>Cisco Systems, Inc. -</i>
5. NASA	22. <i>BP -</i>	39. <b>Deloitte +</b>
6. ExxonMobil	23. Northrop Grumman Corporation	40. <i>Bechtel Corporation -</i>
7. Lockheed Martin Corporation	24. Sony	41. National Institutes of Health
8. <i>Amazon +</i>	25. Mercedes-Benz USA, LLC	42. <i>Schlumberger +</i>
9. Microsoft Corporation	26. P&G	43. U.S. Air Force
10. Chevron Corporation	27. <b>Cummins, Inc. +</b>	44. Department of Defense
11. IBM	28. <b>Medtronic +</b>	45. <i>CH2M -</i>
12. Intel Corporation	29. <i>Dell +</i>	46. Central Intelligence Agency
13. Johnson & Johnson	30. Toyota Motor North America	47. <i>Raytheon Company -</i>
14. General Motors Company	31. AT&T	48. <i>Honda -</i>
15. Nike, Inc.	32. <i>Boston Scientific Corporation -</i>	49. <b>Caterpillar Inc. +</b>
16. <i>Shell Oil Company -</i>	33. <i>Turner Construction +</i>	50. <i>Federal Bureau of Investigation -</i>
17. The Dow Chemical Company	34. <i>Delta Air Lines -</i>	

\***Boldface Names:** New in the "NSBE 50" | *Italicized Names:* Moved at least 10 places (+ = Up, - = Down)





Naomi Mburu

*While at Oxford, Mburu will pursue a doctorate in engineering science and will likely focus on the development of technology to improve heat transfer properties inside nuclear fusion reactors.*

# NSBE Officer Is UK-Bound as a Rhodes Scholar

By Kevin M. Briscoe

**N**aomi Mburu, a 21-year-old chemical engineering major at the University of Maryland, Baltimore County, and NSBE's Region II vice chair, is one of 32 students from across the country to receive the prestigious Rhodes Scholarship for 2018. She is one of 10 African-American recipients this year — a record number — and the first UMBC student to receive this honor. The scholarships cover all expenses for two or three years of study at the University of Oxford, in England, starting in October of this year. The winners came from a group of 866 applicants who were endorsed by 299 colleges and universities.

While at Oxford, Mburu will pursue a doctorate in engineering science. Her research will likely focus on the development of technology to improve heat transfer properties inside nuclear fusion reactors.

"It has been an unbelievable few months," says the Baltimore native. "The group of scholars all (have) amazing life stories and plans to change the world. It's an honor that the Rhodes Trust has chosen to support my goals to both help make nuclear fusion a viable source of energy and to level the educational playing field for students of all backgrounds."

She adds that the UMBC community has been very supportive of her "journey," which has also included work on the Large Hadron Collider in Switzerland and France for the European Organization for Nuclear Research (CERN).

"The fact that UMBC's first Rhodes Scholar is a black, female engineer speaks volumes about the support the institution provides to minority students pursuing STEM degrees," says Mburu.

Mburu names Gymama Slaughter, Ph.D., an associate

professor of computer science and electrical engineering at UMBC, as her main mentor.

"She has not only refined my research skills, but she has also provided guidance as I have contemplated different career paths after college," Mburu says. "I really admire Dr. Slaughter's ability to combine knowledge from a plethora of different fields together to define and foster research projects."

For her part, Dr. Slaughter adds that: "(Mburu) brings a sense of the real world with her. Her work ethic, maturity and savviness set her apart from other students. The skills she gained in my laboratory helped focus her research interest in engineering science and renewable energy sources. We both share the common goal to increase the mass number of underrepresented minorities in STEM to reflect the community we live in, and she has always been encouraged to take advantage of the diversity of backgrounds and disciplines here at UMBC."

Mburu has also garnered praise from her university's president.

"We are delighted about Naomi's Rhodes Scholarship," says Freeman A. Hrabowski III. "The award speaks volumes about Naomi as a student, her passion for science, engineering and equality in education, and the education she has received at UMBC. She will be a tremendous leader and will continue to inspire her peers and change people's lives through her work."

Mburu's post-Oxford plans remain up in the air, but she says she may stay in Europe to continue postdoctoral research in nuclear fusion. ■

*Kevin M. Briscoe is a writer based in Atlanta, Ga., and a former editor of NSBE Magazine.*



# Can You Learn **While Multitasking?**

By Karl W. Reid, Ed.D. *NSBE Executive Director*

**S**ome years ago, while watching my high school-aged daughter work on a school assignment, I noticed that she frequently interrupted her writing to respond to text messages on her phone.

I wondered whether it was possible that our brains had evolved to multitask more efficiently, thereby enabling us to learn twice the information in the same amount of time. In other words, can aspiring engineers respond to texts and derive Schrödinger equations simultaneously?

In nearly all cases, the answer is a resounding “NO.”

A 2013 study by California State University psychology professor Larry Rosen, titled “Facebook and Texting Made Me Do It,” observed 263 middle school, high school and college students over a 15-minute period as they completed their homework, worked on projects, studied for exams and read books. The students were allowed to respond to texts, use email, talk on the phone and watch their Facebook and Twitter feeds while being directed to “study something important.” Two findings stuck out to me.

First, *it took just two minutes* before these students started to let their devices and activities distract them from their schoolwork. Two-minute attention spans!

More important, to my original question about learning, the researchers found that over a 15-minute period, *the students only spent 65 percent of the time actually working on their schoolwork!*

Later research by cognitive psychologist David Strayer and others has uncovered a small group of people, about 2.5 percent of the population, who do have the ability to handle more than one mentally demanding task at once without tripping up. He calls them “supertaskers.”

But as for the mere mortals, the remaining 97.5 percent of us, multitasking makes our learning shallow and spotty, and we make more mistakes. Why? Because our brains can only handle one higher-order thinking activity at a time. Studying engineering or physics are activities that fall into that category. *It’s impossible to remember something if we’ve never really learned it.*

The Rosen study implies that as a learner, you can actually buy back as much as a third of your study time by resisting the temptation to check up on friends or respond to text and email alerts while studying.

We can work smarter by unplugging.

My daughter went on to become a magna cum laude college graduate. At times, she went “off the grid” to focus on her schoolwork by suspending her Facebook account for weeks at a time. Perhaps we can take a lesson from her and others who’ve unplugged when focus was necessary. Our “friends” will still be there when we reconnect, chatting and posting as always. And when we do reconnect, chances are, we can teach them a thing or two. ■

*“We can work smarter by unplugging.”*

**NSBE 10K GRADUATES CAMPAIGN**  
NATIONAL SOCIETY OF BLACK ENGINEERS

**Help us Graduate  
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Black Engineers  
Annually By 2025**

**TAKE THE PLEDGE  
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## WELCOME FROM THE PLANNING COMMITTEE CHAIR



Kevin Peynado

Greetings,

**O**n behalf of the National Society of Black Engineers, I formally welcome you to #NSBE44, at the David L. Lawrence Convention Center in Pittsburgh, Pa.

This year's theme is “#NSBE44: *Ignite. Imagine. Innovate.*” Our focus is to provide our membership with an experience unlike any other. Inspiration and motivation were major points for the Convention Planning Committee this year, and we want to ensure we provide our attendees the ultimate membership experience, encouraging them to think outside of the box and come up with new and creative ways to go after their dreams. With our push for yearlong engagement with STEM, we want to ensure that you, the member, are up to date on all aspects of the convention while you are here. Toward that end, we have provided multiple media to convey event information, including the NSBEGuide mobile app, the convention website at [convention.nsbe.org](http://convention.nsbe.org), frequent issues of *NSBE eNews* and, of course, this magazine.

Pittsburgh is the perfect location for this convention. Voted the most livable city in the United States by *Forbes* magazine, it is home to some of the nation's most prestigious academic institutions and is also renowned for its medical establishments and robotics research.

The Convention Planning Committee has worked hard to develop an experience that will change your lives. We hope that all NSBE members take advantage of everything offered during this four-day event. Whether you are participating in the various competitions, attending the different workshops or listening to the inspirational speakers, our goal is to make sure you leave motivated and inspired to achieve anything you put your mind to.

I look forward to seeing you here, among the 10,000-plus attendees in the MODEL region at NSBE's 44th Annual Convention!

Can I get a 2HYPE?

With NSBE Luv,

**Kevin Peynado**

NSBE 2018 Convention Planning Committee Chair



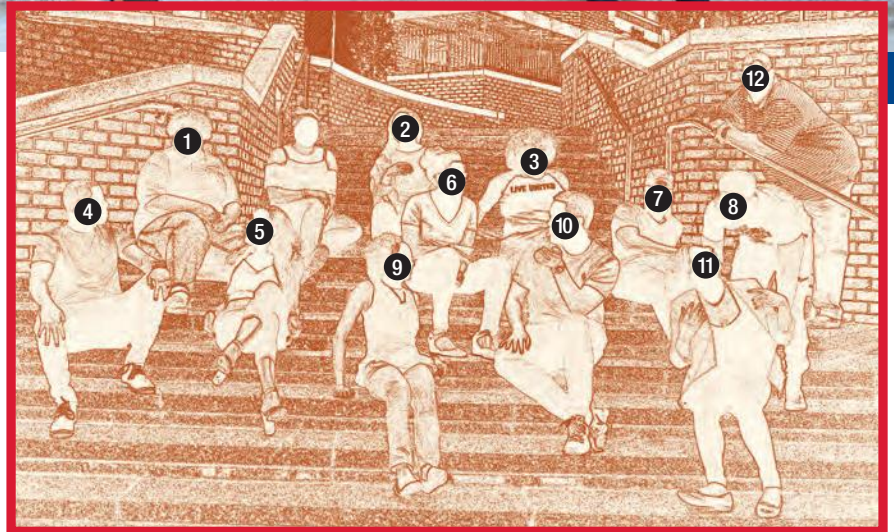


# CONVENTION PLANNING COMMITTEE



## NSBE 2018 CONVENTION PLANNING COMMITTEE

1. **Shuffarel Bonaparte**, Marketing Chair; 2. **Dreanna Perkins**, Executive Assistant; 3. **Tashiah Myrick**, Entertainment Coordinator; 4. **Andrew Ellis**, Speakers and Workshops Coordinator; 5. **Ana Taylor**, Community Service Coordinator; 6. **Talore Harrison**, Technical Professionals Conference Chair; 7. **Kevin Peynado**, Chair; 8. **Adam Flores**, Speakers and Workshops Coordinator; 9. **Jasmine Keene**, Programs Chair; 10. **Casey Rayburg**, Pre-College Initiative Conference Chair; 11. **Sukari Brown**, Vice Chair; 12. **Michael D. Smith**, D.Eng., Programs Advisor

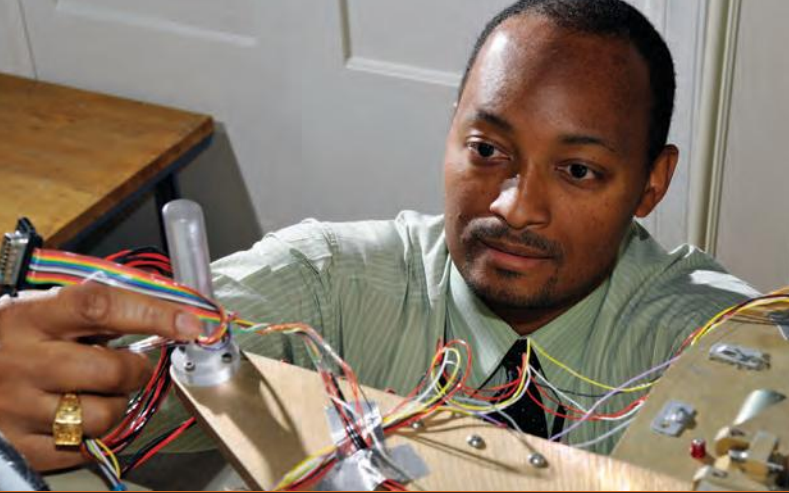


Not Photographed:

**Ade Akinsiku**, Graduate School Conference Chair  
**Joy Frazier**, Facilities and Operations Coordinator  
**Danielle Taylor**, Facilities and Operations Coordinator  
**Robert Timmons II**, Treasurer

**Takiyah M. Jefferson**, Communications Advisor  
**Shelly Morris**, Facilities and Operations/Financial Advisor  
**S. Gordon Moore Jr.**, National Advisory Board Advisor





# MIT LINCOLN LABORATORY

## Imagine it. Build it. Be the first.

Since 1951, when MIT Lincoln Laboratory was established to build the nation's first air defense system, the Laboratory has been applying advanced technology to problems critical to national security.

In addition to an impressive record of technical innovation in communications, space surveillance, advanced electronics, and air and missile defense, today the Laboratory is also leading the way in newer areas such as cyber security, integrated sensing and decision support and homeland protection.

Behind every Laboratory solution are researchers with exceptional technical abilities and imagination, developing systems from the initial concept stage, through simulation and analysis, to design and prototyping, and finally to real world demonstrations. Cross-disciplinary collaboration and the breadth of Lincoln Laboratory's research enable continuous technical growth for its scientists – and they also inspire unparalleled creativity. In the past six years, MIT Lincoln Laboratory has been awarded 26 R&D 100 Awards that recognize the year's 100 most significant innovations in technology.

**All positions are located in Lexington, MA.**

**[www.ll.mit.edu/employment](http://www.ll.mit.edu/employment)**

*MIT Lincoln Laboratory is an Equal Employment Opportunity (EEO) employer. All qualified applicants will receive consideration for employment and will not be discriminated against on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, age, veteran status, disability status, or genetic information. Due to the unique nature of our work, we require U.S citizenship.*

**Aerospace or Mechanical Engineering**

**Algorithm Development**

**Applied Math**

**Circuit Design and Laser Development**

**Computer Engineering**

**Computer Science and SW Engineering**

**Cyber Security**

**Digital Signal Processing**

**Electrical Engineering**

**Machine Learning and Computer Vision**

**Modeling and Systems Architecture**

**Physics**

## ABOUT PITTSBURGH



Being the largest metropolitan city in the Ohio Valley and Appalachia, Pittsburgh has earned its reputation as one of America's most livable cities. Having long been a center for the production of steel, iron and glass, Pittsburgh's economy is now driven by biomedical technology, healthcare, robotics, environmental design, nuclear engineering and tourism.

Thanks to several Fortune 500 companies that employ a large number of STEM professionals, and local universities with strong STEM programs, Pittsburgh has been rated as the third best city for professionals in STEM fields. With big-city amenities and a welcoming attitude in an atmosphere that is small-town friendly, travelers arriving by plane can enjoy the first-class service and impeccable facilities of the Pittsburgh International Airport.

Head downtown through the Fort Pitt Tunnel, and emerge to a spectacular view of three rivers (The Allegheny and Monongahela Rivers join together to form the Ohio River.) and a city skyline spiked with architectural masterpieces.



The David L. Lawrence Convention Center lies at the energy hub of downtown Pittsburgh activity. Located along the Allegheny River, the center boasts the world's first Gold and Platinum LEED-Certified convention center.

Located in one of America's safest cities, Downtown's Cultural District comes alive at night, as it is home to nine theaters within walking distance of many hotels. Spectacular views can be had from one of the two remaining inclines overlooking the city at the top of Mt. Washington.

Hospitality abounds in Pittsburgh's 90 diverse ethnic neighborhoods, offering a sampling of food, culture, festivals and celebrations inspired and influenced by the city's history and ethnic heritage. Once the musical center during the golden age of jazz music, the Hill District was home to many influential African Americans, such as August Wilson, Earl Hines and Billy Strayhorn.

Today, enjoy the jazz heritage at a number of venues, including the Manchester Craftsmen's Guild and the August Wilson Center for African American Culture, steps away from the David L. Lawrence Convention Center. The African Heritage Classroom, one of 30 Nationality Rooms located in the University of Pittsburgh's Cathedral of Learning, is a reproduction of an 18th-century Asante temple. And, the Senator John Heinz History Center, located in the Strip District, details the breadth of African-American history in one visit.

Pittsburgh has undergone many technological advancements, such as Uber's self-driving cars, since Advanced Technologies Center (ATC) in Pittsburgh was established. In September 2016, the company announced that the world's first Self-Driving Ubers are now on the road in the City of Bridges.





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## WORKSHOPS

### WORKSHOP TRACKS

#### 0-100 (ACADEMIC INSPIRATION)

Whether you've been a 4.0 student all your life or your GPA could use a little sprucing, these workshops will provide strategies to help membership nourish their academic stance and reach and excel academically.

#### FORMATION (SOCIAL MEDIA IMPACT)

Whether it's other people or the environment itself, we as engineers can make an impact on society. It is our responsibility to ensure that the impact is both positive and culturally aware. These workshops will provide an opportunity for attendees to embrace who they are and how they can effect change.

#### FOR US BY US – F.U.B.U. (INNOVATIVE DEVELOPMENT)

Innovative development is about identifying more effective solutions that add value for the people affected by development challenges. These workshops will focus on connecting what we do to who we are.

#### X FACTOR (X FACTOR)

What will make you stand out? These workshops and panels will prepare you with the knowledge and insight to set yourself apart and give you the edge you need to excel academically, succeed professionally and positively impact the community.

### WORKSHOPS LISTING

#### 0-100 (ACADEMIC INSPIRATION)

Ignite Excitement and Passion in Engineering / Brought to You by Bechtel, BP and Rockwell Collins



Data Management and Visualization with The Carpentries

Exploring Careers at Google, Software and Beyond

Guaranteed A+ Learning System

Guaranteed 4.0 Learning System

Building and Maintaining Your Professional Network

#MacScientists: Defining Your Vision

MBA Prep

Youth and Engineering: The Policy Impact

Making the Most of the Summer Undergraduate Research Experience / Brought to You by Northrop Grumman

Navigating the U.S. Job Market as an International Student

Learning Across Boundaries: A Grassroots Approach to Network-building with Remake Learning

Stereotype Threat: Understanding How Environment Affects Performance

Graduate School Admissions Process / Brought to You by Purdue University

STEM-Law Escape Room

Going Back to School? No Way!

Life After Grad School Panel

Paths in Graduate School Panel

Advice for Current Grad Students: When Faculty Says "X"

How to Write a Statement of Purpose / Brought to You by Purdue University

Sleepover Science

From Mailroom to Electrical Engineer at a Fortune 500 Company

# WORKSHOPS

CONTINUED FROM PAGE 19

## FORMATION (SOCIAL IMPACT)

Design Swarms Workshop for Social and Environmental Impact / Brought to You by Autodesk, Inc.

This Is My Journey, This Is My Life!

INTech Camp for Girls

Safe Space Workshop

NSBE Members Building the STEM Pipeline with Independent Education Programs

Leading in STEM Workforce Initiatives Panel Discussion

Data Science Solving Public Policy and Social Problems

Cereal Doesn't Grow on Trees! / Brought to You by Rockwell Automation

Be a Bridge: Overcoming Gaps in Social and Personal Understanding

How to Start a STEM Club in Your Community? / Brought to You by The Boeing Company

Rewriting the Golden Rule: How to Treat Others the Way THEY Want to Be Treated

Girl Talk Wind Down

Social Impact: Engineering a Difference Where the Opportunities Are

Social Climate: Panel to Discuss Impact of Black Community Issues on STEM and Educational Achievement

## FOR US BY US – F.U.B.U. (INNOVATIVE DEVELOPMENT)

STEMIFY YOUR PASSION

Accenture Tech Vision 2018

Personal Finance 101: Paying Off Debt, Budgeting and Building Wealth

Transforming Organizational Chaos into Personal Order / Brought to You by Air Products and Chemicals, Inc.

Lean Six Sigma White Belt Certification / Brought to You by America's Navy

Technology Advancement and Leveraging Our Partnership with NSBE / Brought to You by Arconic

Becoming a Leader: What They Don't Teach You in Engineering School / Brought to You by BAE Systems

Mentoring: The Right Ingredient for Creating Chemistry / Brought to You by BASF Corporation

A Glimpse into Energy: U.S. Energy Trends, Technologies and Policy

Decoding the Message / Brought to You by ExxonMobil

Building Against Bias: Fairness in Machine Learning and AI / Brought to You by Google

Understanding Circuits in your Cellphone

User Centered Design at Harley-Davidson Motor Company

10 Steps to Becoming a 501(c)(3) Nonprofit, the EZ Way

Designing the Future of Supply Chain (One Engineer at a Time) / Brought to You by Intel Corporation

Avoid "Oops!" in Your Design: Learn About Intel's Commitment to Quality

Internet of Things: Answering the World's Problems by Driving Innovation with Smart and Connected Devices / Brought to You by Intel Corporation

Taking the Leap: Assessing Career Opportunities and Making Tough Choices / Brought to You by Johnson Controls, Inc.

Making the Great Transition: Excelling from the College World to the Real World

Shoot for the STARS: Interview with Confidence / Brought to You by Lockheed Martin Corporation

The 5W's of Finding a Mentor

Too Cool for School: An Internet of Things Workshop / Brought to You by Microsoft Corporation

Build Your Professional Brand on LinkedIn / Brought to You by Microsoft Corporation





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## WORKSHOPS

Entrepreneurship at Any Age

Engineers Do That?!

Grad School, Industry and Everything Else

Writing Technical Papers Made Easy: The Space SIG Technique

Leveraging Your Engineering Degree for Employment and Innovation

Engineering Professionals Solving Community-based Problems

Keys to Early Career Decision Making

Build Something from Nothing: Entrepreneurs of Today

Getting Through Against All Odds: The Possibility Perspective

Wonder of Flight and Paper Airplane Contest / Brought to You by The Boeing Company

13 Your Career: Ignite Your Career | Imagine the Possibilities | Innovate the Path / Brought to You by The Boeing Company

Sustainability and You / Brought to You by The Dow Chemical Company

Build Brand YOU!

Black Dignitaries Representing Transportation, Engineering and Construction Organizations

Hosting Your Own Career Fair

Strategies for Becoming a Dynamic Tech Executive / Brought to You by Verizon

MathMovesU Hands-on STEM Demonstration / Brought to You by Raytheon Company



College to the Workplace: The John Deere Experience

### **X FACTOR (X FACTOR)**

Identifying Counterspaces to Enhance Self-Care for Black Female Engineers

A Progressive Conversation on the Generational Differences Facing Corporate America / Brought to You by Caterpillar, Inc.

An Introvert's Guide to Networking in the IT Industry / Brought to You by Central Intelligence Agency

How to Obtain an Internship as a Freshman or Sophomore / Brought to You by Chevron Corporation

Wellness and Harmony: Balancing Stellar Performance with Personal Well-Being in a Chaotic World / Brought to You by Deloitte

Career Crisis: Success vs. Failure / Brought to You by ExxonMobil

A Geek's Perspective on Unconscious Bias: What It Is, What It Does and How to Mitigate It / Brought to You by Northrop Grumman Corporation

Pathways to NSBE Leadership

Chapter Development Series: Academic Programming

Chapter Development Series: Membership Recruitment

Innovate the NSBE Collegiate Chapter Experience

Courageous Conversations on Diversity and Inclusion / Brought to You by Rockwell Automation

Renewing Your Mind with Renewables! / Brought to You by Southern Company

Business Plan Development

BitCoin, Blockchain and Black Liberation

So You Want to Be a Problem-Solver? A Day in the Life of a Consultant

# TECHNICAL PROFESSIONALS CONFERENCE – TPC

## WEDNESDAY, MARCH 21

**Picture Yourself in Pittsburgh: TPC/GSC Welcome Reception / Brought to You by Arconic, Duolingo, PPG and UPMC** (8 p.m.–12 a.m.)

Kickoff the 44th Annual NSBE Convention at our Welcome Reception, at PNC Park. Meet people, establish connections, and network with other professionals before the conference begins.

## THURSDAY, MARCH 22

**Aerospace Systems Conference (ASC) Kickoff**

**How to “Break In” to the Cybersecurity Industry / Brought to You by Palo Alto Networks**

**Professionals Town Hall Meeting**

**Executive Mentoring Series Meet and Greet: ITSMF Diverse By Design (DxD) Conversation Series** (9:30–11:30 a.m.)

This series will provide a rich experience for mentors and mentees, with topics and experiences that prompt meaningful and in-depth conversations.

**Environmental Engineering Jeopardy**

**ITSMF: Diverse By Design (DxD) Conversation Series**

**Engineering Career Pathways in Healthcare Innovation Panel**

**Women in Leadership Executive Roundtable / Brought to You by BorgWarner** (2–4:15 p.m.)

Now, more than ever, we need to address the gender gap in engineering and the impact it has on advancement opportunities for women. Join the NSBE community for an engaging discussion about our responsibility to elevate women to executive positions in STEM.

**Technology and Innovation Executive Roundtable / Brought to You by Dell, Inc., Eaton Corporation, Intel Corporation, Lockheed Martin Corporation and Microsoft Corporation** (2:15–4:30 p.m.)

The Executive Roundtable discussions are a great opportunity for TPC attendees to interface with high-level executives of the sponsoring companies.

**The Outsiders Movement Presents: “The Outsiders Experience”**

**ITSMF: Diverse By Design (DxD) Mixer** (3:30–5:30 p.m.)

This event follows the ITSMF: Diverse By Design (DxD) Conversation Series about building diversity and inclusion in the workforce.

**HISIG Social Mixer**

**Young Technical Professionals (YTP) and Special Interest Group (SIG) Mixer / Brought to You by Oracle Corporation** (8–11 p.m.) Ever wondered what it’s like to work at Oracle? Come mingle with Oracle employees to hear their perspective on the great opportunities this company has to offer! Light refreshments will be served.

## FRIDAY, MARCH 23

**Executive Mentoring Series: Inside the Executive Suite Breakfast / Brought to You by BNY Mellon** (8–9:30 a.m.)

This will feature a one-on-one interview format with a high-profile corporate executive, government official, nonprofit leader or celebrity figure with relevance to STEM.

**Global and Community Impact Executive Roundtable / Brought to You by Google**

**Executive Mentoring Series II** (8 a.m.–5:15 p.m.)

This series will provide a rich experience for mentors and mentees, with topics and experiences that prompt meaningful and in-depth conversations.

**Regional Professionals Meetings**





# Building the future of energy

At Southern Company, we like to think the future of energy starts with ideas – and the best ideas naturally start with the right people. That's why we work to create an organization that attracts the right people who believe in building a better future. It's a culture built on respect, communication and inclusion that empowers employees at every level to contribute, flourish and advance.

The right people and the brightest ideas make for a better future. Come find yours with us.

[southerncompany.com/nsbe](https://southerncompany.com/nsbe)



Alabama Power | Georgia Power

Gulf Power | Mississippi Power

Southern Company Gas

Southern Nuclear | Southern Power

Southern Linc

## Booth 1113

Seeking Fulltime and  
COOPs/Interns

- » Electrical Engineers
- » Mechanical Engineers
- » Computer/IT Degrees
- » Civil Engineers

# TECHNICAL PROFESSIONALS CONFERENCE – TPC

CONTINUED FROM PAGE 22

**Executive Mentoring Series: Executive Leadership Luncheon / Brought to You by Northrop Grumman Corporation** (12:15–1:45 p.m.)

Join Northrop Grumman CEO Wes Bush and other senior-level executives for this rare engagement opportunity!

**Lean Six Sigma White Belt Training / Brought to You by America's Navy**

**Diversity and Inclusion Executive Roundtable / Brought to You by Dell, Inc., Eaton Corporation and Lockheed Martin Corporation** (2–4:15 p.m.)

These discussions will be a great opportunity for TPC members to interface with high-level executives in the sponsoring companies.



**Region V Professionals Town Hall and Vision**

**Business Plan Development**

**Career Advancement Executive Roundtable / Brought to You by Eaton Corporation and Microsoft Corporation**

**Entrepreneurial Speed Networking Reception**

**Graduating Seniors Reception / Brought to You by Zillow Group** (3–5 p.m.)

The collegiate Graduating Seniors Reception honors graduating college students and introduces them to the resources and benefits of being a NSBE Professionals member.

**PEB Candidate Q&A**

**e.E.M.Y. Awards Gala and After-Party** (8–10 p.m.)

Join TPC attendees at the August Wilson Center for this annual event. Tickets are free with Convention registration and include light refreshments!

## SATURDAY, MARCH 24

**Executive Mentoring Series III** (8–10 a.m.)

This series will provide a rich experience for mentors and mentees, with topics and experiences that prompt meaningful and in-depth conversations.

**Joint SIG Town Hall Meeting**

**NSBE Professionals Awards Luncheon / Brought to You by Palo Alto Networks** (11:45 a.m.–1:45 p.m.)

This event honors NSBE Professional members and chapters from across the country. Awards include the Member and Chapter of the Year for each region. The Professionals Executive Board will also recognize outstanding regional Professionals leaders.

**#TheSpinoff / Brought to You by Pinterest** (1–4 p.m.)

This is a day party sponsored by Pinterest! Issa turn up...Need we say more?





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## GRADUATE SCHOOL CONFERENCE – GSC

**T**he Graduate School Conference (GSC) programming provides current and prospective graduate students with information about competing and thriving as an engineer. The GSC hosts a variety of educational workshops, networking events, idea exchange forums and diverse experts from industry and academia who will share success hacks, technology and advice.

The GSC focuses on helping current students who are among the relatively few Black Engineers in graduate school, and it supports their transition into employment in academia, industry or entrepreneurship. The decision to attend graduate school is critical, directionally and financially, so resources are provided to help prospective students learn what factors to consider and how to get in.

### WEDNESDAY, MARCH 21

**Picture Yourself in Pittsburgh: TPC/GSC Welcome Reception / Brought to You by Arconic, Duolingo, PPG and UPMC**

Kickoff the 44th Annual NSBE Convention at our Welcome Reception, at PNC Park. Meet people, establish connections, and network with other professionals before the conference begins.

### THURSDAY, MARCH 22

**GSC Kickoff Luncheon / Brought to You by Autodesk Inc.**

(12–1:30 p.m.)

This opening event welcomes graduate attendees and invites them to network and share the rich GSC programming at the convention. Attendees will mix and mingle with colleagues, professionals and industry guests, while enjoying delicious hors d'oeuvres and cocktails.

**GSC Technical Research Forum / Brought to You by American Express**

(2–4 p.m.)

This event serves as a platform for students to learn about up and coming technology and gives an opportunity for one to two students to share and receive invaluable feedback on their own ongoing research. This forum will have a Q&A format with targeted questions from the moderator as well as an opportunity for the audience to ask questions.

**GSC Networking Reception / Brought to You by Draper Laboratory**

(8–10:30 p.m.)

[www.nsbe.org](http://www.nsbe.org)

### FRIDAY, MARCH 23

**NSBE Thesis and Dissertation House (9 a.m.–5 p.m.)**

NSBE's inaugural thesis and dissertation-focused writing seminar is geared toward students attending the convention who are interested in making progress in their senior or master's thesis or Ph.D. dissertation.

*CONTINUED ON PAGE 26*





# GRADUATE SCHOOL CONFERENCE – GSC

CONTINUED FROM PAGE 25

## Engineering Deans Forum (1–2:30 p.m.)

NSBE aims to have the U.S. graduate 10,000 Black Engineers annually, with bachelor's degrees, by 2025. This forum will focus on the retention of minority engineers in college. In attendance will be top engineering deans who are members of minority groups, and minority engineering program (MEP) directors, who will share their strategies for progress and converse with students. Black excellence is also about scholastic achievement and technical mastery. Support the transformation!

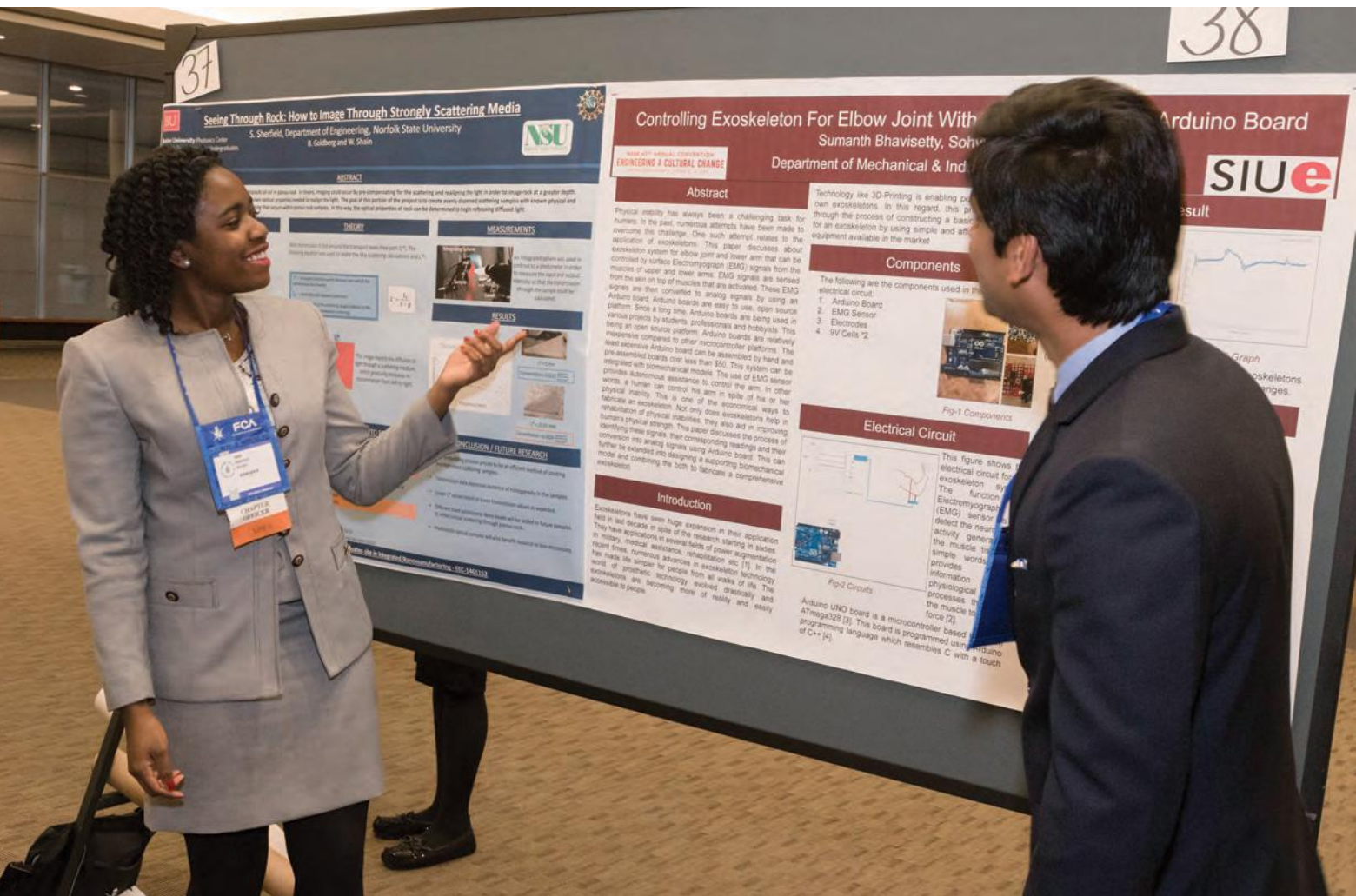
## “My Research” Lightning Talks (9 a.m.–5 p.m.)

## SATURDAY, MARCH 24

### GEM GRAD Lab / Brought to you by Carnegie Mellon University, Intel Corporation and Washington University in St. Louis (12–5 p.m.)

The Getting Ready for Advanced Degrees (GRAD) Lab helps prospective graduate students decide on attending graduate school and how to fund it, and provides advice from successful graduate school students. The event is hosted by The National GEM Consortium, which has a mandate to support minorities in acquiring advanced degrees, through funding from fellowships, providing access to internships and helping students obtain jobs.

### NSBE Thesis and Dissertation House / Brought to You by Purdue University (9 a.m.–5 p.m.)





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## PRE-COLLEGE INITIATIVE CONFERENCE – PCI

**W**e have planned an exciting, invigorating event and the best PCI Conference in NSBE's history! As an attendee, you can expect programming that fulfills NSBE's mission and inspires you to IGNITE, IMAGINE and INNOVATE.

### COMPETITIONS

#### Try-Math-A-Lon

Try-Math-A-Lon (TMAL) is a competition for high school students in grades 9–10. Each team is composed of four NSBE Jr. members and one alternate.

#### MATHCOUNTS

This national middle school coaching and competitive mathematics program promotes mathematics achievement through a series of fun and engaging contests.

#### Ten80 Student Racing Challenge

Ten80 is a national league in which middle school and high school students compete using electronic, radio-controlled model cars to create products and work together. Student teams will showcase their work and compete over the Internet, locally and nationally, in the following categories: project management, race engineering, aerodynamic design, alternative energy, creative engineering and graphic design.

#### VEX Robotics and IQ Competition

In the VEX Robotics Competition, teams of students are tasked with designing and building a robot to play against other teams in a game-based engineering challenge. Students in the VEX IQ Challenge team up to design and build a robot to play with other teams in a game-based engineering challenge.

#### KidWind Design Competition and Presentation

In the KidWind Project, teams explore the science behind wind and other renewable forms of energy. The goal is to make renewable energy widely accessible through hands-on activities that are challenging, engaging and teach basic science and engineering principles. Students dedicate their year of engagement to building a small turbine to produce as much power as possible.

#### Future City

Future City starts with a question: "How can we make the world a better place?" To answer it, sixth, seventh and eighth grade students imagine, research, design and build cities of the future that showcase their solution to a citywide sustainability issue.



#### NSBE Jr. Explorer Technical Innovations Competition

The NSBE Jr. Explorer Technical Innovations Competition (TIC) is an annual national science fair program that gives pre-college students the opportunity to compete in and explore the many applications of science through projects and presentations.

#### FIRST LEGO League Junior

FIRST LEGO League Junior (FLL Jr.) spurs the curiosity of children in grades K–4 and directs it toward discovering the wonders of science and technology. This program features a real-world scientific concept to be explored through research, teamwork, construction and imagination.

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# PRE-COLLEGE INITIATIVE CONFERENCE – PCI

CONTINUED FROM PAGE 27

## PCI Talks

This competition gives high school students the opportunity to practice their public speaking skills and highlight the diversity of thought on culturally relevant challenges facing our society.

## THURSDAY, MARCH 22

**Graduating High School Seniors Luncheon / Brought to You by The EmmaBowen Foundation**

**DreamBig! / Brought to You by Bechtel (2–5 p.m.)**

Middle school and high school students are welcome to attend a showing of the film “DreamBig!” Attendees will also have a chance to win prizes and enjoy a complimentary snack/ice cream bar!

**PCI Game Night (7:30–10 p.m.)**

## SATURDAY, MARCH 24

**PCI Pre-Torch Awards (4–6 p.m.)**

**PCI Prom (9:30–11:30 p.m.)**







## Apply your talent. Shape the future.

We are seeking people who want to make a difference. The staff members of the **Johns Hopkins Applied Physics Laboratory (APL)** are thwarting sophisticated cyber attacks, engineering pocket-sized robots that can navigate and maneuver in difficult environments, and testing the ability of body armor to protect soldiers against blast and ballistic impacts. We are exploring the expanses of the solar system from Pluto to Mercury, and developing methods to detect and characterize biological pathogens.



We are actively hiring individuals with experience in **software engineering, cyber security, radar/RF engineering, systems engineering, health systems, information assurance and IT** to join our team of dedicated staff.

Confront the nation's toughest challenges and help shape the future at one of the nation's premier engineering, research and development centers. Sound like a future meant for you?

Learn more about careers at APL and apply at [www.jhuapl.edu](http://www.jhuapl.edu)

Johns Hopkins Applied Physics Laboratory is an equal opportunity/affirmative action employer that complies with Title IX of the Education Amendments Act of 1972, as well as other applicable laws, and values diversity in its workforce.



## \$\$\$ FOR NSBE MEMBERS

# In NSBE's Scholarship Vault!

## APPLICATIONS OPEN IN APRIL

.....  
**Deadline: June 30, 2018**

Apply for a scholarship in NSBECONNECT at [www.nsbe.org](http://www.nsbe.org).

Or e-mail questions to [scholarships@nsbe.org](mailto:scholarships@nsbe.org).

## ENTERTAINMENT

### WEDNESDAY, MARCH 21

#### #NSBE44 Carnival Night (8:30 p.m.–12 a.m.)

This event is the kickoff entertainment event of #NSBE44, where we will raffle off prizes, including a Nintendo Switch, and enjoy a night of carnival games and fun.

### THURSDAY, MARCH 22

#### Gospel Night (8:30–11:30 p.m.)

Attendees will participate in an interactive and worship-filled experience. Gospel Music Night will showcase talented musical performers and an opportunity to support the headlining performer's ministry of music after the concert.

### FRIDAY, MARCH 23

#### Silent Party (10 p.m.–1 a.m.)

Shhh!! Did you hear that? Neither did we! Join us for the #NSBE44 Silent Party! You don't want to miss this amazingly quiet event!

### SATURDAY, MARCH 24

#### The NSBE World: Back to Pittsburgh Reunion (1–2 p.m.)

We hope you've enjoyed getting to know this year's Convention Planning Committee through The NSBE World: Back to Pittsburgh on Instagram @nsbeconvention. Here is your chance to catch up with us after this season has wrapped. Hear what we think about the team, one year of planning later.

#### GTA Official After-Party: #NSBE45 Kickoff (11 p.m.–2 a.m.)

We are #2HYPE about #NSBE44, and we can't wait for #NSBE45! Join us for the first opportunity to preview the 2019 Annual Convention, which will be held in Detroit, Mich., at Cobo Center.





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## CAREER FAIR EXHIBITORS AND STRATEGIC PARTNERS

**Boldface** names are NSBE Board of Corporate Affiliates partners. *Italic* names are NSBE Affiliate partners. Information is subject to change. Please see NSBEGuide for updates.

EXHIBITOR	BOOTH NUMBER	EXHIBITOR	BOOTH NUMBER	EXHIBITOR	BOOTH NUMBER
<b>3M</b> .....	1506	Cornell University – Robert Frederic Smith School of Chemical and Biomolecular Engineering ..	643	<b>Goldman Sachs</b> .....	331
A. James Clark School of Engineering, University of Maryland College Park.....	1241	Cornell University Systems Engineering .....	638	<b>Google, Inc.</b> .....	325
<b>ABB</b> .....	1433	Corning Incorporated.....	1607	<b>Harley-Davidson Motor Company</b> .....	625
<b>Accenture</b> .....	1307	<b>Covestro</b> .....	1133	<i>Harris Corporation</i> .....	127
Advancing Minorities' Interest in Engineering .....	545	<b>Cummins, Inc.</b> .....	911	Harvard Business School.....	644
The Aerospace Corporation.....	213	Daimler.....	1539	Harvard Medical School, Department of Biomedical Informatics.....	642
The Aerospace Corporation.....	TBD	<i>Danaher Corporation</i> .....	219	<i>HDR, Inc.</i> .....	432
<b>Air Force STEM</b> .....	301	<b>Dell, Inc.</b> .....	617	Hensel Phelps Construction.....	TBD
<b>Air Products and Chemicals, Inc.</b> .....	401	<i>Deloitte</i> .....	1417	Hexcel Corporation .....	1534
Akamai.....	1629, 1631	<b>Delta Air Lines</b> .....	1319	<b>Honeywell</b> .....	1225
<b>Allstate Insurance Company</b> .....	611	<i>DENSO International America, Inc.</i> .....	1519	<b>IBM</b> .....	1103
American Airlines.....	1612	Direct Energy.....	1108	Illinois Department of Transportation.....	1331
<b>American Express</b> .....	1125	Discover Financial Services.....	1627	<b>Ingersoll Rand</b> .....	831
American Society of Civil Engineers.....	1427	Diversity in Action .....	244	INROADS.....	1129
<b>America's Navy</b> .....	405	<b>The Dow Chemical Company</b> .....	511	<b>Intel Corporation</b> .....	701
ANSYS, Inc.....	1637	Draper.....	1428	Iowa State University – College of Engineering .....	1438
<b>Apple, Inc.</b> .....	1017	DTE Energy.....	1621	Jacobs.....	1013
<b>Arconic</b> .....	533	Duke University, Pratt School of Engineering .....	843	<b>John Deere</b> .....	731
<b>BAE</b> .....	1233	<b>DuPont</b> .....	425	The Johns Hopkins University Whiting School of Engineering .....	1040
Barnes Group Inc.....	1425	Eastman Chemical Company .....	1606	<b>Johnson &amp; Johnson</b> .....	525
<b>BASF</b> .....	825	<b>Eaton</b> .....	207	<b>Johnson Controls, Inc.</b> .....	1119
<b>Bechtel Corporation</b> .....	431	Edwards Lifesciences, LLC.....	1504	JT3.....	1615
<i>Bloomberg LP</i> .....	330	Electric Power Research Institute.....	206	Keck Graduate Institute.....	1340
BMES.....	1329	<b>Eli Lilly and Company</b> .....	312	Kent State University, College of Business Administration.....	344
BNY Mellon.....	1516	Embry-Riddle Aeronautical University.....	1244	Lehigh University – P.C. Rossin College of Engineering and Applied Science.....	541
<b>The Boeing Company</b> .....	1001	Esri.....	232	<i>Leidos</i> .....	1507
BorgWarner Inc.....	1525	Excella Consulting.....	132	Lesbians Who Tech.....	225
<i>Boston Scientific</i> .....	1411	<b>ExxonMobil</b> .....	801	Liberty University.....	1145
Boston University – College of Engineering....	1344	Facebook, Inc. ....	TBD	Lincoln Electric.....	1510
<b>BP</b> .....	817	<b>FedEx Services</b> .....	201	<b>Lockheed Martin Corporation</b> .....	501
Brown and Caldwell.....	1608	<b>Fiat Chrysler</b> .....	TBD	Los Angeles Department of Water and Power.....	242
Burns & McDonnell.....	1526	Fish & Richardson P.C. ....	1634	Macy's.com.....	227
Cargill, Incorporated.....	234	Florida International University – College of Engineering and Computing.....	1044	Massachusetts Institute of Technology (MIT).....	1238
Carnegie Mellon University, College of Engineering .....	837	<i>FM Global</i> .....	1325	McKinsey & Company.....	1518
<b>Caterpillar Inc.</b> .....	417	<b>Ford Motor Company</b> .....	901	Medtronic.....	1513
Celanese.....	430	Fox Networks Group.....	1424	Merck & Co., Inc. ....	100
<b>Central Intelligence Agency</b> .....	919	<b>GE</b> .....	1313	Miami University – Oxford Campus.....	945
<i>Cerner Corporation</i> .....	1224	General Atomics.....	243	<b>Microsoft</b> .....	1219
Chapman University Fowler School of Law.....	1038	<b>General Dynamics Corporation</b> .....	707	Missouri University of Science and Technology.....	1043
<b>Chevron Corporation</b> .....	411	<b>General Motors Company</b> .....	807	Moody's Corporation.....	1434
<b>Cisco Systems, Inc.</b> .....	134	The George Washington University Engineering .....	645	NASA Jet Propulsion Laboratory.....	935
Colorado School of Mines – Graduate School .....	1343	Georgia Institute of Technology.....	936		
Columbia University School of Engineering and Applied Science.....	1144	Georgia Tech Research Institute.....	1333		
Cornell Graduate School and Diversity Programs in Engineering .....	641	Georgia Tech Scheller College of Business.....	TBD		
		Gilbane Building Company.....	1530		
		GitHub.....	239		

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## CAREER FAIR EXHIBITORS AND STRATEGIC PARTNERS

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EXHIBITOR	BOOTH NUMBER	EXHIBITOR	BOOTH NUMBER	EXHIBITOR	BOOTH NUMBER
National Association of Broadcasters Education Foundation.....	208	<i>Shell Oil Company</i> .....	1033	University of Illinois Urbana-Champaign – College of Engineering.....	539
Naval Nuclear Laboratory.....	202	Sirius.....	138	The University of Iowa College of Engineering.....	538
<b>Navy Civilian Careers</b> .....	1025	<i>Snap Inc.</i> .....	238	University of Michigan College of Engineering.....	542
NC State University College of Engineering.....	1041	Society of Women Engineers.....	241	University of Michigan–Dearborn.....	341
NCEES – National Council of Examiners for Engineering and Surveying.....	1212	Solenis.....	1421	University of New Mexico School of Engineering.....	1245
New Jersey Institute of Technology – Newark.....	1341	Southern California Edison.....	1632	University of Pennsylvania – Center for Engineering MechanoBiology.....	1244
New Mexico Tech.....	1039	<b>Southern Company</b> .....	1113	University of Pittsburgh Katz Graduate School of Business.....	844
NiSource, Inc.....	1619	SpaceX.....	334	University of Pittsburgh Swanson School of Engineering.....	737
<b>Nissan Americas</b> .....	519	Spectrum.....	1429	University of Pittsburgh, School of Computing and Information.....	840
North Carolina A&T State University.....	1143	<i>Squarespace</i> .....	1110	University of Rhode Island.....	741
Northeastern University.....	TBD	Stanford University School of Engineering.....	338	The University of Texas at Austin, Cockrell School of Engineering.....	639
<b>Northrop Grumman Corporation</b> .....	717	State University of New York – Binghamton.....	743	University of Virginia School of Engineering and Applied Science.....	TBD
Northwestern Pritzker School of Law.....	443	Syracuse University – College of Engineering.....	1339	University of Washington – College of Engineering.....	438
Northwestern University, McCormick School of Engineering.....	343	Target.....	1617	University of Washington – Master of Science in Data Science.....	444
NSBE.....	121	<i>TE Connectivity</i> .....	113	UPMC.....	204
NVIDIA.....	140	Tesla.....	TBD	<i>USAA</i> .....	102
NYC Department of Environmental Protection.....	1034	Texas A&M University – College of Engineering Graduate Program.....	940	U.S. Army Corps of Engineers (USACE).....	TBD
Oak Ridge Institute for Science & Education (ORAU).....	1528	<b>Texas Instruments</b> .....	633	USC – Viterbi School of Engineering.....	1141
Office of Naval Research.....	931	Thayer School of Engineering, Dartmouth College.....	1338	U.S. Department of State, Bureau of Diplomatic Security.....	1431
Optical Science Center for Applied Research, Delaware State University.....	1242	ThoughtWorks.....	1432	<b>U.S. Marine Corps</b> .....	319
<b>Oracle Corporation</b> .....	313	T-Mobile USA.....	TBD	Vanderbilt University School of Engineering.....	1142
<i>Pacific Gas and Electric Company</i> .....	233	<b>Toyota Motor North America</b> .....	601	<b>Verizon</b> .....	1109
Penn State Applied Research Laboratory.....	340	Turner Construction.....	1228	Vibrant Pittsburgh.....	200
Pinterest.....	231	<i>Twitter</i> .....	1030	Vidant Health.....	335
<b>PPG</b> .....	1203	UC Davis College of Engineering.....	742	Virginia Commonwealth University.....	543
Praxair, Inc.....	1520	UCLA CEED.....	1239	Virginia Tech College of Engineering.....	1138
<b>Procter &amp; Gamble</b> .....	1213	UCLA MS ENGR Online Program.....	939	Virginia Tech Engineering Education.....	1140
Purdue School of Engineering and Technology, IUPUI (Indianapolis).....	1440	UCLA Women in Engineering.....	941	<i>Visa, Inc.</i> .....	324
Purdue University Engineering Graduate Programs.....	439	UCLA Anderson School of Management.....	943	VisitDETROIT.....	108
<b>Qualcomm</b> .....	1611	UConn School of Engineering.....	342	Washington University in St. Louis, School of Engineering & Applied Science.....	540
<b>Raytheon Company</b> .....	925	<i>Unilever</i> .....	1533	<b>Western Digital</b> .....	1208
Rensselaer Polytechnic Institute.....	1045	<i>United Airlines</i> .....	1439	WSP   Parsons Brinckerhoff.....	1524
Rice University/NEWT.....	345	<b>United Technologies Corporation</b> .....	725	Yello.....	1605
Robert Morris University.....	745	University at Buffalo, School of Engineering and Applied Sciences.....	339	ZF.....	245
Rochester Institute of Technology (RIT).....	845	University of Akron.....	640		
<b>Rockwell Automation</b> .....	1009	The University of Alabama.....	445		
<b>Rockwell Collins, Inc.</b> .....	1405	University of Arkansas College of Engineering.....	1139		
Rolls-Royce Corporation.....	1426	University of California, Berkeley, College of Engineering.....	740		
San Francisco Public Utilities Commission.....	328	University of California, Irvine.....	744		
Schneider Electric.....	1335	University of California, Riverside.....	1342		
		University of Dayton.....	944		
		University of Denver Engineering & Computer Science.....	738		



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## GOLDEN TORCH HONOREES

We are proud to present this year's recipients of the National Society of Black Engineers' highest honor, the **NSBE Golden Torch Awards**. With these annual honors, NSBE recognizes individuals and organizations that exemplify the Society's ideals of academic excellence, professional success and commitment to the advancement of the black community. The 2018 honorees will be celebrated during the 21st Annual NSBE Golden Torch Awards ceremony, at the David L. Lawrence Convention Center, in Pittsburgh, Pa., on Saturday, March 24. Designed to inspire students toward successful careers in engineering, the NSBE Golden Torch Awards, through their sponsors, have also provided millions of dollars in scholarships to talented high school seniors.



### **Distinguished Engineer of the Year**

#### **Kareem Muhammad**

Engineering Core Senior Manager, Seat & In-Flight Entertainment Connectivity Integration Team

**The Boeing Company**

**Kareem Muhammad** is the Engineering Core senior manager for the Seat and In-Flight Entertainment Connectivity Integration Team, in Boeing's Commercial Airplanes division, responsible for leading electrical integration and qualification, drawing release, certification streamlining and functional excellence for all contracted and anticipated seat development programs. In addition, he has engineering skill development and staffing oversight for more than 100 technical and engineering professionals. He previously served as a senior manager in the Engineering Integration and Boeing Product Development System (BPDS) organization and was the BPDS Program Specific integrator for the 787-10 Program.

Muhammad's roles leading up to his experience with BPDS included leading the Functional Integration, Development Assurance and Requirements Management (FIDAR) core Systems Engineering team. Before joining Commercial Airplanes, Muhammad participated in The Boeing Company's Enterprise Auditor Program, a two-year leadership development program. His first assignment with the company was as a thermal systems engineer at the Boeing Space and Intelligence Systems (S&IS) Satellite Development Center in El Segundo, Calif.

Muhammad earned his bachelor's degree in mechanical engineering from Rensselaer Polytechnic Institute (RPI) and obtained two advanced degrees: a Master of Science in mechanical engineering from the Georgia Institute of Technology and a Master of Science in systems architecture and engineering from the University of Southern California. He also completed a certificate in project management from the California Institute of Technology Industrial Relations Center.

NSBE is not the first to recognize Muhammad's outstanding work. His previous honors include the 2009 S&IS World-Class Engineering Award for the area of Execution and the Rensselaer Alumni Association Alumni Key Award for outstanding service supporting the advancement of Rensselaer.



### **Outstanding Woman in Technology**

#### **Kathryn V. Hamilton**

Engineering Program Manager

**Northrop Grumman Corporation**

**Kathryn Hamilton** began her career with The Boeing Company as an engineering scientist and specialist providing flight control support to the Space Shuttle Program. Her work in that capacity received special recognition from NASA's Mission Operations Directorate in the form of a plaque on the wall in the Johnson Space Center's Mission Control Room. Early in her career, she was also involved with Technology Revitalization efforts for the Autonomous Vehicle Rendezvous and Docking Program. Hamilton joined Northrop Grumman as a systems engineer and has been given roles with increasing responsibilities as a Systems Engineering lead supporting the Test Engineering functional organization, with requirements including development and verification planning documentation for key facility critical assets.

Today, she works as an engineering program manager, providing key support for several programs that make a direct impact on U.S. defense services and warfighters in the field. She serves as the engineering program manager for the F-22 Raptor Program and has also provided engineering program management support to the F/A-18 Program, working directly with the Navy and her technical team at Northrop Grumman to offer solutions and innovations to the customer.

Service and support to her community have always been key tenets for Hamilton, as demonstrated by her volunteer efforts to help establish a FIRST Robotics program at a local elementary school, her participation on the Engineering and Environmental Science Advisory Board for a local high school and her involvement as a board member for TEAM Science, teaching sixth graders the fundamentals of planning a manned mission to Mars.

Hamilton received her Bachelor of Science in aerospace engineering from the University of Southern California, her Systems Engineering Certification from the California Institute of Technology and her Technical Management Certification from the University of California at Los Angeles.

## GOLDEN TORCH HONOREES



**Dr. Janice A. Lumpkin Educator of the Year**  
**Reginald E. Rogers Jr., Ph.D.**

Assistant Professor, Department of Chemical Engineering

**Rochester Institute of Technology**

Dr. Reginald Rogers joined the faculty of Rochester Institute of Technology (RIT) in 2012, after earning his undergraduate degree at the Massachusetts Institute of Technology, his M.S. at Northeastern University and his Ph.D. at the University of Michigan, all in chemical engineering. He completed a postdoctoral fellowship at RIT leading up to his faculty appointment. His research interests are focused on improved water resources using novel nanomaterials and advanced cathode materials for sodium-ion batteries.

As an educator, Dr. Rogers has continuously integrated undergraduate students into his research efforts to broaden their perspectives on their potential roles in meeting societal challenges as rising engineers. Before pursuing his graduate degrees, Dr. Rogers worked in the Fabric & Home Care Business Unit of Procter & Gamble, and he has integrated his industrial experience into his classes to challenge his students to “think outside of the box.” In addition to teaching, Dr. Rogers is passionate about mentoring the next generation of students to ensure they are confident about reaching their life goals.

Dr. Rogers has been recognized for his teaching, research and service efforts with numerous awards and invitations to seminars. Among his notable awards are the 2015 Partner of the Year Award from RIT’s Multicultural Center for Academic Success, the 2016 Richard and Virginia Eisenhart Provost’s Award for Excellence in Teaching from RIT and the 2017 Henry C. McBay Outstanding Teacher Award from the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers.



**Graduate Student of the Year**  
**Chima Patrick Chukwuemeka**

Ph.D. Candidate, Chemical Engineering

**Tennessee Technological University**

Chima Chukwuemeka, a native of Imo state, Nigeria, obtained his Bachelor of Science degree in food science and technology from Imo State University, Owerri, Nigeria. His interest in engineering led him to enroll in the chemical engineering graduate program at Tennessee Technological University, Cookeville, in Fall 2012, which is when he joined NSBE. His graduate research work highlighted the effects of plasmin inhibitors and promoters and the role of fibrinolysis in preventing wound healing abnormalities. His aim was to find means to prevent the occurrence of abnormal scars from developing after wound healing. He obtained his master’s degree in Spring 2014 and subsequently enrolled in the chemical engineering doctoral program.

Chukwuemeka has contributed to the engineering discipline in both industry and academia. He started his industrial engineering career with Georgia-Pacific Cellulose as a Process Development summer intern in 2016 and returned in summer 2017 as a Pulp and Paper Operations intern. In both capacities, he provided solutions and helpful recommendations to meet the challenges he was presented with. He has also contributed to his field through research and mentorship. He has served as a teaching assistant in the Department of Chemical Engineering at Tennessee Tech since 2012 and has helped more than 400 students achieve success. With a perfect 4.00/4.00 GPA in his doctoral program, he has dedicated his energy to excelling academically while also mentoring undergraduates. Now, in the chemical engineering doctoral program at Tennessee Tech, Chukwuemeka is working to develop a new topical antibacterial from comestible herbs, for wound management. He has published an article on wound healing and abnormal scarring.

Chukwuemeka has received numerous awards, including several scholarships from NSBE and Minority Graduate Research Award from Tennessee Tech.



**Lifetime Achievement in Government**  
**Jimmie Williams**

Supervisory Engineer (SPAWAR) (SSC Pacific)

**U.S. Navy**

Jimmie Williams is a supervisory engineer in the Logistics and Fleet Support Department at Space and Naval Warfare (SPAWAR) Systems Center Pacific (SSC Pacific) in San Diego, Calif., where he works with Fleet Support and Sustainment Engineering projects for the U.S. Navy. He began his career with the Department of the Navy in 1977, as a high school draftsman at the Supervisor of Shipbuilding, Conversion and Repair facility in San Diego. As a student aide, he supported civil engineers in developing foundation drawings for installations aboard Navy ships.

In 1982, Williams was accepted into a co-op program at Naval Electronics System Command (now SSC Pacific). He eventually became part of the automatic test engineering team. Upon graduation, he accepted an offer at SSC Pacific as the lead test engineer.

Williams transitioned his career to project management in 1990 and led the development of the SPAWAR/Program Executive Office (PEO) Integrated Data Environment and Repository (SPIDER). Before SPIDER, installations planning/execution for command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) was done using spreadsheets, by dozens of people in several commands. Williams was instrumental in the effort to reconcile ownership of “ground truth”: data at these commands. Once that was determined, programmers were able to develop a robust system that seamlessly shared critical data that improved the fleet modernization process in multiple commands.

Williams now leads 22 engineers, technicians, computer specialists and



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## GOLDEN TORCH HONOREES

administrative personnel supporting C4ISR fleet needs. He also mentors a NSBE member, an electrical engineering student at San Diego State University. Williams holds a B.S.E.E. from San Diego State University and an M.S. in electronic commerce from National University.



**Lifetime Achievement  
in Industry**

**Bradley E. Stockton**  
Production Engineering  
Team Leader  
**The Boeing Company**

**Brad Stockton** is an innovative professional with more than 15 years of engineering and leadership experience in manufacturing and business environments. His largest successes are displayed by increased financial performance, productivity, quality, safety and customer satisfaction.

He is now the Production Engineering Team leader for both the F/A-18E/F/G Structures and Final Assembly areas and is responsible for Liaison and Manufacturing engineering. He focuses on empowering his teams, reducing defects, creating real-time metrics and establishing constructive customer and supplier management relationships. His leadership success is a direct reflection of his engagement with his teams, as he motivates and guides his employees in their career development.

Stockton previously worked in the F-15 and C-17 programs as a manufacturing engineer and has many honors and accomplishments, including the John Van Gels Award and Six Sigma Green Belt Certification. His technical accomplishments on the C-17 include the incorporation of one-pass drilling using Selective Laser Sintering tools. In addition to handling his day-to-day duties, Stockton became a cultural change agent, facilitating collaboration of union, nonunion and leadership people across the programs to engage in new opportunities and strategies.

Stockton earned his Bachelor of Science in manufacturing engineering at Central State

**WHAT'S  
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# GOLDEN TORCH HONOREES

University and his Master of Science in engineering management at Washington University. He has maintained an active role in the community by serving as a mentor for the St. Louis Regional Business Council Mentoring Program. He also coaches youth sports. He continues to inspire those he works with and strives to leave a positive lifelong impact on them.



**Mike Shinn Distinguished Member of the Year (Female)**

**Jeremy Waisome, Ph.D.**

Postdoctoral Associate, Department of Computer & Information Science & Engineering  
**University of Florida**

**Dr. Jeremy Alexis Magruder Waisome**, postdoctoral associate at the University of Florida (UF), serves as project manager of the National Science Foundation-supported Institute for African-American Mentoring in Computing Sciences (iAAMCS, pronounced “I Am C.S.”), in UF’s Department of Computer & Information Science & Engineering.

During her youth in Orlando, Fla., Dr. Waisome’s parents instilled in her the value of education. She had an early passion for math, science and the performing arts, and they enrolled her in several summer camps to help narrow her interests. By the seventh grade, one such camp had helped her realize that a doctoral degree in engineering was her educational goal.

She subsequently attended Edgewater High School’s STEM magnet program, where she helped an all-girls NSBE Try-Math-A-Lon team win a countywide competition and gain sponsorship to attend a NSBE conference. The next year, she became president of her high school’s NSBE Jr. chapter. She also participated in UF’s GatorTrax program, eventually earning a scholarship to the university upon completion of the program.

Dr. Waisome received her bachelor’s, master’s and doctoral degrees in civil engineering from UF. During her studies, she served NSBE as the president and advisor of the Gator Chapter and in other leadership positions. In addition, she served as president of Epsilon Lambda Chi, the Herbert Wertheim College of Engineering’s (HWCOE’s) leadership honorary; and as vice president of Florida Blue Key, UF’s most prestigious leadership honorary. In 2010, she was acknowledged for her contributions to the university and inducted into UF’s Hall of Fame.

Through her mentoring and leadership activities with the Ronald E. McNair Scholars Program, HWCOE and the UF Graduate School, Dr. Waisome cultivated a passion for developing activities that broaden participation in STEM and computing (STEM+C). As a result, she is now pursuing research opportunities in engineering education.



**Mike Shinn Distinguished Member of the Year (Male)**

**Derius Galvez**

Master’s Degree Student, Aerospace Engineering  
**Mississippi State University**

**Derius “DJ” Galvez**, from Shubuta, Miss., is a recent graduate of the aerospace engineering bachelor’s degree program at Mississippi State University. Through his studies at MSU, he has developed diverse technical skills related to his research and development of unmanned aerial systems. Galvez has created an orientation sensor that predicts incorrect positioning of North American youth football players and enables them to reposition themselves to reduce the probability of head injury. He has also studied the effects of brain damage resulting from large forces emitted from contact between professional North American football players. Through this research, he has designed a conceptual helmet to minimize head injury to players.

His work in the community is also impressive. Galvez volunteers with the Boys and Girls Club, STEM on the Move and the Project Lead the Way initiative, working with African-American youth to increase their awareness and understanding of STEM disciplines. He was recognized by the Louis Stokes Mississippi Alliance for Minority Participation (LSMAMP) in 2015 for his outstanding research on head injuries and was selected as the first-place winner at the LSMAMP Research Symposium. In 2016, LSMAMP honored him with its Outstanding Senior award.

Galvez’ most recent accomplishment was winning the three-minute thesis competition at Mississippi State University, where he presented his work in creating a bio-inspired unmanned aerial vehicle. Galvez expects to graduate with his master’s in aerospace engineering this May and plans to work at Northrop Grumman Corporation in Palmdale, Calif.



**Pioneer of the Year**

**Nasr A. Shuaib**

Mechanical Engineer  
**Pratt & Whitney**

**Nasr Shuaib** is a mechanical engineer with more than 10 years of experience in the areas of research and development, design and project management. He holds a bachelor’s degree in mechanical engineering from the University of Khartoum, Sudan; a doctorate in mechanical engineering from the University of Kentucky and a Project Management Professional certificate and is a P&W Achieving Competitive Excellence (ACE) practitioner specializing in design for variation. He also holds three issued and five pending patents.

Shuaib’s keen interest in science and technology, and aerospace engineering in particular, drove him to pursue a career at Pratt & Whitney. As a jet engine design engineer, he led multiple bearing compartment seal



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## GOLDEN TORCH HONOREES

design activities supporting the development of the Airbus PW1100G Geared Turbo Fan, HPW3000 military helicopter and Adaptive Engine Technology Development sixth-generation military jet fighter engines. Later in his career, Shuaib transitioned to a project management role, leading cross-discipline teams for the Adaptive Engine Technology Development/Adaptive Engine Transition Program military program and PW1000G engines field investigations. He continued to drive his teams toward P&W core goals of technological excellence and focus on quality and customer satisfaction. Shuaib has recently been named Seal Design Discipline deputy manager. In this role, he will be responsible for leading resolution of technical challenges, teaching and developing analytical tools, and mentoring of team members.

Shuaib is an active member of P&W's Diversity and Inclusion council and activities and is passionate about continuously improving the engineering culture locally and globally.



### **Pre-College Initiative Student of the Year (Male)**

**Malcolm Roy Brown**  
C.A.S.H. NSBE Jr. Chapter

**Malcolm R. Brown** is a senior at Huntingtown High School, in Huntingtown, Md., with plans to attend college and major in engineering after his graduation in 2018. When he isn't playing sports or doing school work, Brown spends time building model rockets, practicing the violin or growing his business: for the past three years, he has demonstrated his entrepreneurial talent as the owner and operator of "Roy's Lawn Service," which now has 14 regular customers.

Brown is vice president of operations of the Creative and Striving Hard (C.A.S.H.) NSBE Jr. Chapter, in Calvert County, Md., and is the engineering lead for the chapter's Ten80 Student Racing Challenge remote-controlled race car team. Brown loves to volunteer and help those around him through activities such as mentoring with the Swaliga Foundation, teaching children aged 6–14 about STEM topics. He also presides over his school's chapter of the National Honor Society, which conducts outreach efforts and community service projects. His other school activities include VEX Robotics, the Transitioning into Excellence club, the student government and the track team.

Brown is an honor student with a 3.99 GPA and has completed AP calculus I and II, physics I and C, composition and rhetoric, and government. Engineering courses he has completed include PLTW Pathway Intro to Engineering, Principles of Engineering, Digital Engineering, Aerospace Engineering, and Engineering Design and Development.



### **Pre-College Initiative Student of the Year (Female)**

**Kenadi Parran Wilkerson**  
C.A.S.H. NSBE Jr. Chapter

**Kenadi Parran Wilkerson** is a senior at Huntingtown High School in Huntingtown, Md. She joined Creative and Striving Hard (C.A.S.H.) NSBE Jr. in 2013, shortly after the chapter was chartered. Wilkerson has held multiple leadership positions with the chapter since then, including treasurer, programs chair, and program manager for the Calvert Cruisers Ten80 Student Racing Challenge team. She is now the chapter's membership chair and in her third year of managing the Calvert Cruisers.

Wilkerson is an honors student and a member of her school's VEX Robotics team, the Future Business Leaders of America and the National Business Honor Society. She has served as Class of 2018 historian for two years and as manager of Huntingtown High's junior varsity and varsity volleyball and basketball teams.

Wilkerson is a member of the Plum Point United Methodist Church, where she is an active Sunday school, youth choir and liturgical dance team member. She plans to pursue a degree in computer science and aspires to become a software engineer.



### **Pre-College Initiative Director of the Year**

**Xavier Nicholas Horton, PMP**  
Engineering Project Leader  
**Caterpillar Inc.**

**Xavier Horton** has led many initiatives during his more than 10-year career with Caterpillar Inc. He now guides a global team focused on delivering test infrastructure solutions for use in Hardware-in-the-Loop and Software-in-the-Loop machine/engine test applications. Horton is a proud graduate of the University of Texas at Austin with a Bachelor of Science in electrical/computer engineering. He is also a certified project management professional.

Horton discovered NSBE after going through a rough set of first-semester engineering midterms during his freshman year. NSBE was his saving grace, providing a family away from home and a support system that helped him successfully navigate college life.

Horton was a founding member of the Central IL Alumni Extension Chapter of NSBE (now the Central IL Professionals) and served as the chapter's Pre-College Initiative chair and president from 2008 to 2012. In 2012, he chartered the Central IL (CI) NSBE Jr. Chapter, in partnership with the Tri-County Urban League (TCUL), in Peoria, Ill., and has served as its adviser since its inception.

Horton constantly pursues opportunities to expose his students to unique STEM opportunities. He cofounded and serves as the lead facilitator for the

# GOLDEN TORCH HONOREES

CI-NSBE Jr./TCUL Girls Who Code Club, with the goal of bridging the gender gap in computer science careers. He has also mentored chapter members and connected them to local engineering competitions.

Horton feels it is important for students to develop key life skills, and he seeks to accomplish that by chapter workshops on topics such as resume prep, elevator speech development and dining etiquette. He believes we should not only have students engage with STEM but also teach them the soft skills necessary to thrive.



## Pre-College Initiative Program of the Year Martinsville/Henry County NSBE Jr. Chapter

The Martinsville/Henry County National Society of Black Engineers Chapter was chartered in 1999 and was the first NSBE Jr. chapter established in Virginia. The chapter membership has a 100 percent graduation rate from high school, and every student member has enrolled in college or enlisted in the military. This academic organization has high standards, instilling in its students the value of giving back to the community. The members are on a merit system that requires the students to earn 600 points to be eligible to attend NSBE's Annual Convention. The points are earned by maintaining a GPA of 3.0 or above and by taking leadership positions in other organizations and in the community.

Beginning with 32 students in 1999, Martinsville/Henry County NSBE Jr. has grown to 150 students in high school, middle school and elementary school. Members are visible in the community, volunteering with organizations such as the Boys and Girls Club, Virginia Museum of Natural History, Piedmont Arts, Grace Network and local churches. The chapter also presents a biomedical competition each year, educating the community about diseases that plague its community and recruiting local doctors to judge the competition. Members travel to Virginia Tech, North Carolina A&T State University, Danville Community College, Patrick Henry Community College, New College Institute and The Institute for Advanced Learning and Research to participate in STEM programs. Students from the chapter have also been invited to the SAE Government/Industry Meeting in Washington,

D.C., to build prototypes to present to engineers from around the world. Many students in the chapter serve on the Youth Harvest Foundation Board, awarding thousands of dollars each year to projects designed to improve the community. In addition, students are involved in local, state and national politics, and their organization has become an integral part of local academic programming.



## Professional Member of the Year

**Sierra S. Williams**

Systems Engineer

Department of Navy Space and Naval Warfare  
System Center Atlantic

Sierra Williams has completed her fourth year of employment with the Department of the Navy, where she has worked as an engineer for both surface ships and submarines. Williams is a 2007 graduate of Claflin University, where she received her Bachelor of Science in computer engineering. She came to the university's Alice Carson Tisdale Honors College as a Presidential Scholar, an honor she received because of her stellar academic record in high school and her extracurricular involvement. Based on her academic excellence at Claflin and her participation in summer internship programs, Williams received a fellowship from the National GEM Consortium to enter the Master of Science in computer engineering program at Clemson University, where she graduated in August 2009.

Williams was an employee of Northrop Grumman Electronic Systems before joining the Department of the Navy. There, she had the opportunity to rotate throughout the company to gain experience in different areas, including Test Engineering, System Supportability and System Security. Previously, as an intern at Lexmark International for two summers, in Lexington, Ky., she gained experience in the company's Firmware/Connectivity and Strategic Quality Excellence Departments.

Williams has held several leadership positions with the National Society of Black Engineers. She is the current president of the Charleston Professionals NSBE Chapter and has served as an officer for the Society's Baltimore Professionals and Claflin University chapters.

Williams' long-term goal is to contribute to increasing the number of African Americans in STEM fields by working closely with organizations such as NSBE and with local STEM professionals, growing the confidence of young women for a life of success. ■





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# THE POWER OF ‘GIVING BACK’

## *NSBE’s 2018 Dr. Arthur J. Bond Lifetime Members of the Year Leslye and Darryl Fraser*

By Cindy Atoji



Darryl and Leslye Fraser

**L**eslye and Darryl Fraser are the epitome of a “power couple” and have already been described as such by a black history website hosted by MIT. Leslye Fraser is a social activist and former environmental appeals judge, and Darryl, her husband of 38 years, is a retired corporate vice president for Northrop Grumman Corporation.

You wouldn’t guess that they’ve hung up their working hats, because their circle of influence continues on, as exemplified by their selection to receive the Dr. Arthur J. Bond Lifetime Member of the Year Award at the upcoming NSBE Annual Convention in Pittsburgh, Pa. Dr. Bond, as a Purdue University engineering professor and faculty advisor to NSBE’s founders, “the Chicago Six,” helped ensure the success of the new organization. The Arthur J. Bond Award recognizes lifetime members who continue to keep NSBE relevant and growing throughout communities of color and in boardrooms across the country. In the same way that Dr. Bond was an early influencer, the Frasers are movers and shakers.

Both are MIT graduates and engineers: Leslye received bachelor’s and master’s degrees in chemical engineering there, and Darryl a bachelor’s degree in chemical engineering. And both went on to receive more advanced degrees, Leslye a Juris Doctor and Darryl a Master of Business Administration. Leslye was the first person of color to serve as an environmental appeals judge for the U.S. Environmental Protection Agency appeals board and received several government awards for her excellent public service. In the meantime, Darryl moved up the ranks at Northrop Grumman, starting as an engineer and taking on increasing responsibility in the Space and Information Systems businesses, eventually leading the company’s global brand and communications strategy in the U.S., Europe, Asia and the Middle East as corporate vice president, Communications.

They both retired two years ago, splitting their time between the Washington, D.C., area and Boca Raton, Fla., and trying to enjoy golf and reading. But time for that is limited, because Leslye is president of a nonprofit organization dedi-

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***It’s been a long time since Leslye and Darryl met at MIT as chemical engineering majors, but it was groups like NSBE that helped them realize that becoming an engineer was an achievable goal.***

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cated to supporting African-American advancement into the senior ranks of the U.S. government: the African American Federal Executive Association. She’s also co-chair of the National STEM committee for The Links, Incorporated, which is dedicated to enriching and ensuring the culture and economic survival of African Americans. Leslye is spearheading the effort of The Links, a partner with NSBE, to establish 75 NSBE Jr. chapters, with 42 already established in the last two years. Darryl continues to stay connected to technology solutions, as he serves as an advisor to a Washington, D.C.-based technology company. He also is working on the national level as an advisor to the 50K Coalition — an initiative originally envisioned by NSBE — and its bold goal of producing 50,000 diverse engineering graduates annually in the U.S. by 2025.

It’s been a long time since Leslye and Darryl met at MIT as chemical engineering majors, but it was groups like NSBE that helped them realize that becoming an engineer was an achievable goal. NSBE was just getting started at Purdue at the time, and the MIT chapter formed a year later with Leslye as a charter member. They won’t forget the supportive role that NSBE had in their lives. That’s why at the upcoming Annual Convention, they won’t only be receiving their award but also will be training new NSBE Jr. chapter advisors and acting as judges for the NSBE Jr. competitions.

The Frasers are humble, so if you ask them whether they are indeed a power couple as described, they may laugh and defer to answer. Their power, they say, comes from giving back and serving others. That’s always been the NSBE way. ■



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# CONTINUING A COMMITMENT TO NSBE'S MISSION

*NSBE's 2018 National Chair Council Awardee* **Joyce Shinn**

By Cindy Atoji

**W**hen Joyce Shinn receives the National Chair Council Award at the 44th Annual NSBE Convention, in Pittsburgh, Pa., it will be as if her late husband, Mike Shinn, is right there next to her. Mike Shinn, a long-time GE engineer who spent his professional and personal life advocating for Black Engineers, passed away three years ago, but his influence more than lives on.

"Mike was committed to supporting NSBE's mission," says Joyce, pointing to the plaques, awards and pictures in his office in their Highland Heights, Ohio, home. The stately residence is far from Joyce's Australian Aboriginal roots in North Stradbroke Island, off the coast of Brisbane, Queensland, but her meager beginnings have always taught her the importance of gratitude and resilience. She came to the U.S. more than five decades ago to attend school and met Mike three days after arriving. They married two years later and were married for 50 years.

Mike attended the University of Kansas in the 1960s, when segregation was still both flagrant and rampant. He and his African-American classmates experienced resistance and overt discrimination, but that didn't stop him from graduating with a degree in aerospace engineering, says Joyce, who pursued a career in banking, starting in an entry-level position and working her way up to vice president and trust officer in the trust department.

Joyce herself was a forerunner, becoming the first African-American female trust administrative officer for Ameritrust Company, and was instrumental in helping change policy for equal pay rights for women at the Cleveland Trust Company, in Ohio. She has received several awards and recognitions over the years. In the meantime, Mike joined GE, eventually managing corporate recruiting and university development and spurring the creation of GE's African American Forum, a development program for the company's black employees. Even after his retirement almost 20 years ago, Mike was working long hours as a certified financial planner and columnist who wrote about money matters.

Both he and Joyce, with their banking interests and financial planning backgrounds, believed that providing endowments to increase diversity was a key responsibility. Thirty years ago, as part of their estate plan, they established scholarship funds for minority engineers at the University of Kansas and also locally in Cleveland. They also established a scholarship for graduating high school seniors at their church, in the name of their deceased daughter, Colynn.

Joyce, 74, is very outspoken about her plans for a NSBE bequest from her estate after her death. Mike was a NSBE lifetime member and one of the early organizers of NSBE's Board of Corporate Affiliates, a strategic alliance between the Society and its top-level supporters. His commitment to NSBE is why Joyce fully supports the Society and its ongoing initiatives.

Joyce's days continue to be busy, with frequent trips back to Mike's alma mater, KU, and even journeys back to Australia, where she visits family and friends. Her leadership roles at her church — Mt. Zion Congregational United Church of Christ, in Cleveland — and other charitable organizations, ensure that she continues to live her philosophy of giving back. She'll travel to NSBE's Annual Convention this year with her son Stephen, who works with special needs students in the Shaker Heights City School District. Unlike her last visit to a NSBE convention in 2012, Mike will not be with her, but in many ways, he will still be present.

"Mike exemplified NSBE's tenets of advancing opportunities for African Americans and served as a role model for aspiring engineers," says Joyce. "His accomplishments will continue to live on."

And so, indeed, will Joyce's, as an equal partner in positively impacting the community. ■



Joyce Shinn

---

***"Mike exemplified NSBE's tenets of advancing opportunities for African Americans and served as a role model for aspiring engineers. His accomplishments will continue to live on."***

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**General Session – Friday**

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**General Session – Saturday**

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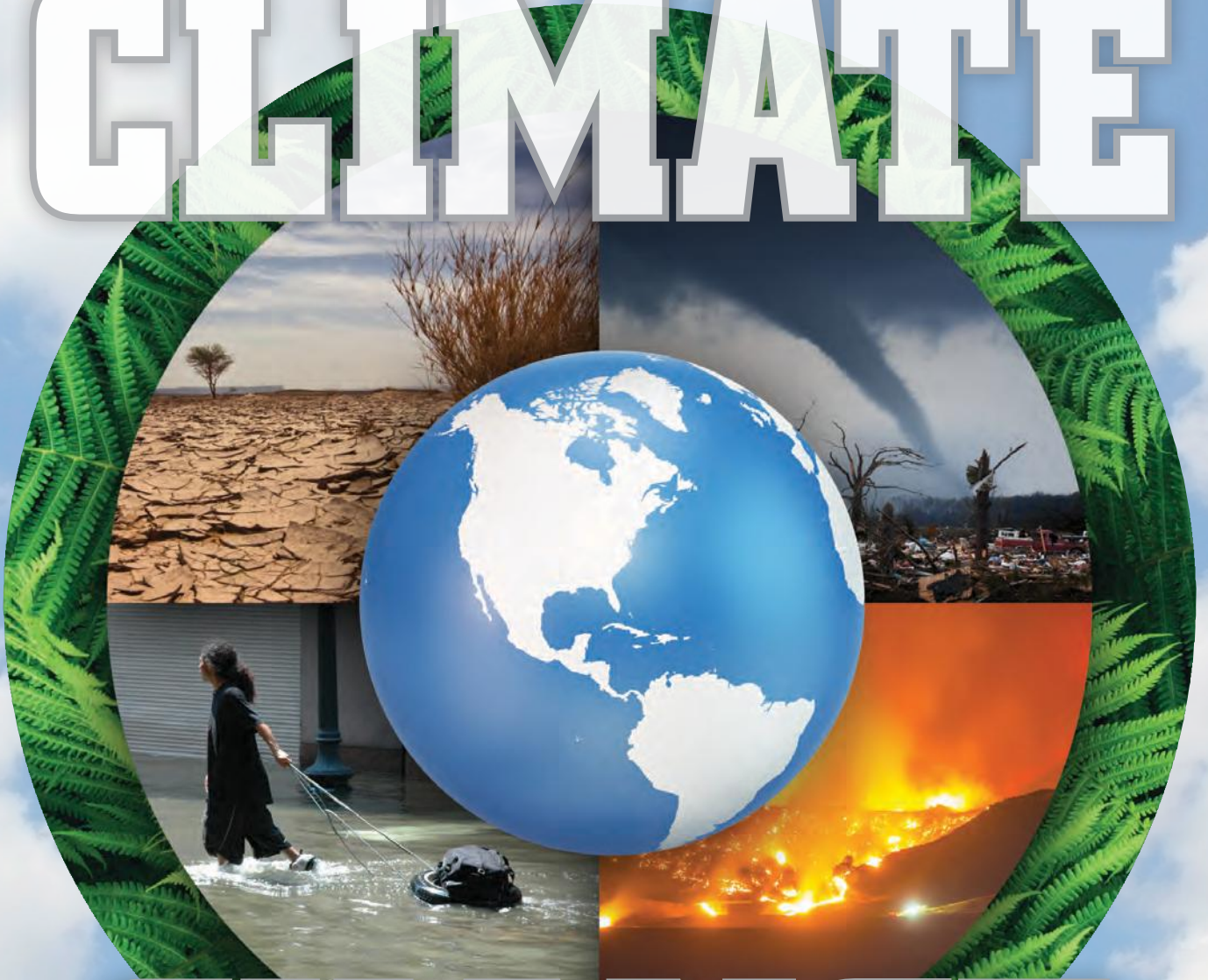
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# CLIMATE



# CHANGE



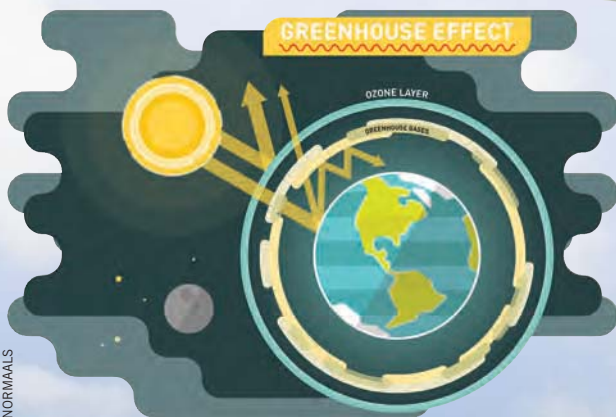
COVER STORY



# WHAT IS CLIMATE CHANGE?

Learn how to help solve the problem that many scientists are calling the greatest threat to future generations  
*By Chanceé Lundy Russell, Stacy Weisfeld and Jimena Larson, P.E.*

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NORMAALS

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**Albemarle NSBE Jr. Chapter Finds a Willing Partner in UVA**

Committed educators work with youth to build confidence and interest in STEM

*By Kevin M. Briscoe*

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Award reflects the accomplishments of last year's Chapter of the Year

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Take the challenge! Find the answers to our crossword puzzle in this issue of *NSBE Magazine*

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Here's a fun way to learn to understand how computers store numbers – *By Michael D. Alston, Ph.D.*

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# Albemarle NSBE Jr. Chapter Finds a Willing Partner in UVA

By Kevin M. Briscoe



**Pearl Early, Founder and Advisor, Albemarle County Public School System NSBE Jr. Chapter**

**F**or five weeks during the summer, students from Albemarle High School and Burley Middle School spend four half-days at the University of Virginia (UVA), exploring various fields of engineering. The teens and pre-teens make up the Albemarle County Public School System NSBE Jr. Chapter, in Charlottesville, Va. Focused on such areas as robotics, computer science and automotive and aerospace engineering, they get to operate high-tech equipment and work with UVA engineering students and faculty who mentor them and spur along their interest in STEM. They also receive supplementary instruction in language arts, marketing and math.

“(This program) provides a new gateway into science, technology, engineering and math for underrepresented students,” says John Fitzgerald Gates, Ph.D., the associate dean and engineering chief diversity officer who oversees the on-campus activities at UVA. “Our expectation is that students will go on to succeed and to apply to UVA’s school

of engineering and other (engineering) schools to fill the gap in the pipeline.”

The UVA-Albemarle County partnership is the brainchild of Pearl Early, a student support specialist in the Albemarle County Public Schools. After spending much of her 35 years in early childhood education, particularly in special education and sign language, she recognized a void that needed filling.

“In the Albemarle school system, technology was not something that blacks were encouraged to be involved in,” says Early, who goes by “Ms. Pearl.” “I was haunted by what I didn’t see.”

After a conversation with her son-in-law, who was a NSBE member at Norfolk State University, she sought out the NSBE chapter at UVA, which she said was “welcoming every step of the way.”

In addition to the summer program, members of the UVA NSBE Chapter meet weekly for 2-1/2 hours with 15 members of the NSBE Jr. chapter at Albemarle High (grades 9–12) and once

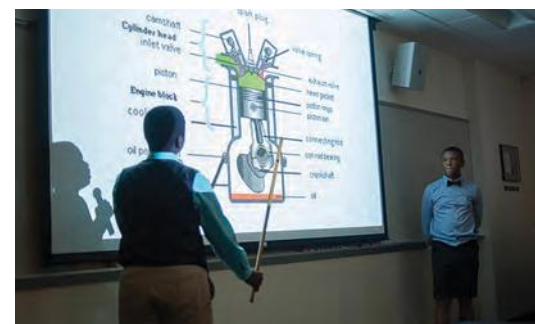
weekly for 2-1/2 hours with 15 members of the NSBE Jr. chapter at Burley Middle (grades 6–8).

“The NSBE chapter (at UVA) goes the extra mile in helping to ensure that we network with graduating (high school) students who aspire to attend college, work and beyond,” says Sherica Jones-Lewis, Ed.D., an assistant principal in the Albemarle County Public Schools. “NSBE has the unique ability to take students from populations underrepresented in the fields of (STEM) and ensure that they have the opportunity to gain confidence in these areas.”

“This program shows the kids how to relate and communicate with each other to make their projects work,” says Early. “They get to see the visual, to see their commitment to the work actually functioning. These kids are awesome, great minds. Engineering is the main tool to make them feel good about themselves.”

She added that building this confidence and interest in STEM fields is her job as an educator.

“Every educator who has their head in the right place has to understand their role and responsibilities,” Early says. “You want the students to go beyond the walls of the school they come into. Your job is to see that they get there. I make sure the students know these opportunities exist and go after them.” ■





# WHAT IS CLIMATE CHANGE?





By Chanceé Lundy Russell, Stacy Weisfeld and Jimena Larson, P.E.

President Barack Obama faced many challenges during his eight years in the White House, but it was clear that he thought one problem was the toughest. “No challenge poses a greater threat to future generations than climate change,” he said during his State of the Union address in January 2015, one of the many times he tried to focus the nation’s attention on this topic.

You’ve probably heard the phrase “climate change” often since then, listening to news about Hurricanes Harvey, Irma and Maria and the forest fires in California last year, for instance. But do you know what climate change is and how it impacts you?

### WEATHER AND CLIMATE

To understand climate change, we first need to understand the difference between weather and climate. Weather is the short-term conditions in an area, such as temperature, clouds, precipitation, humidity and wind. Climate is the long-term average of these weather conditions. Think about it this way: the weather in Honolulu, Hawaii, today is 78 degrees Fahrenheit and rainy. However, Honolulu’s climate during February tends to be mild (temperatures ranging between 65.4 and 80.4 degrees Fahrenheit) and rainy (average precipitation of 2.35 inches).

Our planet’s climate has been constantly changing throughout history, mainly because of variations in the Earth’s orbit that change the amount of energy the planet receives from the sun. But since the Industrial Revolution began, about 260 years ago, the planet has been warming at a much faster rate. Why?

### ‘THE GREENHOUSE EFFECT’

The Earth’s atmosphere is composed mainly of nitrogen (78 percent) and oxygen (21 percent). Among the components of the remaining 1 percent of the atmosphere are gases that trap heat, enough to make our planet livable. Scientists call these “greenhouse gases,” and they include mainly water vapor (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), ozone (O<sub>3</sub>) and nitrous oxide (N<sub>2</sub>O).

The manufacturing processes and manufactured products made possible by the Industrial Revolution helped people in many ways. Air conditioning, automobiles, and oil and gas heat are just a few examples. But those industrial activities and using those products also involved the burning of “fossil fuels,” materials such as coal, petroleum and natural gas, which are the ancient remains of plants and animals. Over the years, we have added more manufactured “stuff” to our households that requires burning fossil fuels, things such as automobiles, personal hygiene products, processed foods, components of our electronic devices, and more. Burning those fossil fuels releases greenhouse gases, especially CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O. And as people have released more and more of those gases by burning fossil fuels for more than two centuries, we have created a problem. More and more heat from the sun that normally would have

radiated back into outer space is being absorbed by the greenhouse gases and is warming the surface of the Earth too much. This is known as “the greenhouse effect.” The world is getting hotter, as heat-trapping gases are making the atmosphere act like a greenhouse, and that is causing climate change.



NORMAALS

### WHAT ARE THE CONSEQUENCES?

The effects of climate change are already being felt around the world. Glaciers, ice sheets and snow cover are decreasing; oceans are warming up and becoming more acidic; sea levels are rising; and the number of extreme weather events, such as hurricanes, floods, tornadoes, wildfires and droughts, is increasing. Last year, 2017, was the second-hottest year since 1880, according to NASA, with record-setting high and low temperatures in many places. Scientists predict that **unless we take action now**, these problems will only get worse.

Engineers are problem-solvers, so this article will give you, our future engineers, some of the basic information you need to know about climate change. But just as

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## RESTORING THE NATURAL ENVIRONMENT

**Rachel Toker**

*President and Chief Executive Officer  
Urban Ecosystems Restoration, Inc.*

**Rachel Toker** began her career as an attorney, but she has always been an environmentalist. In her current work, she and her colleagues create spaces that either recreate or restore the natural systems that were here before people removed them for buildings and hardscapes (human-made features used in landscape architecture, such as paths or walls). In doing this, she and her team restore forests and other native ecosystems that trap carbon in the vegetation and the land. Part of this work restores healthy and living soils, which hold carbon in the land as well. Also, by reducing “heat islands” and creating shade, they help reduce the need for power generated by fossil fuels.

important, we will tell you about some of the work engineers are doing in this field, to keep the world a cool place for our future.

### WATER

Climate change impacts water in many different ways, often stemming from increased global temperature, which melts glaciers. Glaciers reflect sunlight, keep the atmosphere cool and regulate weather patterns. As the glaciers disappear, their benefits do as well, causing problems like sea level rise, flooding and drought.

The number of dangerous floods has been increasing and is projected to continue to increase. Flood events that historically may have happened once every 100 years — on average, based on historical data — will start to occur more often. Although the intensity and frequency of precipitation events are expected to increase in many parts of the world because of climate change, rainfall will decrease in many areas that are already dry, causing increased and prolonged droughts. Surface and

groundwater supplies are being depleted at an alarming rate, and the water cycle processes that normally refill them are being disrupted. Moreover, droughts can greatly increase the risk of forest fires as well as mudslides.

### AIR

We’ve already discussed how greenhouse gases in the atmosphere are warming the planet, so we know climate change is being caused by greenhouse gas pollution. But did you know

climate change also makes air pollution worse? When air is hotter, it traps more pollution, makes allergy season longer and causes forest fires that release harmful smoke into the air. Air pollution is also a serious health concern. Climate change and air pollution have been associated with stroke, cancer, heart disease and respiratory illnesses such as asthma.

### ENERGY

Energy use, not including transportation, is responsible for more than half of the United States’ greenhouse gas emissions.



## DESIGNING BETTER LANDFILLS

**Tarek Abichou, Ph.D., P.E.**

*Professor of Civil and Environmental Engineering  
Florida A&M University/Florida State University College of Engineering*

**Dr. Abichou** develops solid waste management practices to reduce groundwater, soil and air pollution. By 2025, open dumpsites will produce 8 to 10 percent of the greenhouse gas emissions caused by human activity. Dr. Abichou helps mitigate climate change by researching new technologies that reduce emissions from landfills, such as bio-oxidation of methane (CH<sub>4</sub>) using natural bacteria.





## PREPARING FOR MAJOR STORMS

**Thzaira Charles, P.E.**  
Senior Airport Engineer  
*Port Authority of New York and New Jersey*

NSBE member **Thzaira Charles** is a chemical engineer with bachelor's and master's degrees in her field from Cooper Union. Today, she monitors compliance with environmental regulations during construction projects and other recovery efforts from Hurricane Sandy. Deeply concerned about climate change, she believes the most pressing issue is sea level rise: "Sea level rise has made us rethink how we have to manage our infrastructure, not just building new infrastructure that accounts for the changing environment but also how we make our existing infrastructure more resilient so that it does not fail us when the next storm hits."

unless they are charged using electricity produced by alternative fuel sources, they still cause greenhouse gas emissions.

Transportation, like energy use, is also hampered by climate change. Extreme weather can disrupt almost any type of transportation system. Floods, for example, weaken bridge foundations and submerge roads, railroads, tunnels and all other components of ground transportation. Severe storms can disrupt transportation by air, ground or water. Extreme temperatures can crack and deteriorate pavement, warp and crack railway tracks, ground flights and freeze waterways.

## AGRICULTURE

Climate change is already affecting food supplies. Many plants and animals are only able to survive in certain climates and are very sensitive to changes in temperature and water levels. For example, flowers might bloom too early because of abnormally warm temperatures and then experience frost damage when the temperature returns to normal. Since livestock are often fed corn and wheat products, reduced yields in these crops because of climate change might limit livestock



## WORKING FOR CLIMATE JUSTICE

**Pamela Bingham**  
*Consultant Program Manager for Universities/Environmental Researcher*  
*Howard University*

Before she earned her degree in industrial and systems engineering, NSBE member **Pamela Bingham** grew up in a Mississippi community with significant cancer among children. Environmental justice sparked her interest in combining engineering, environmental science, public policy and social equity. She has done food justice work, encouraging indoor growing to mitigate the impacts of "food deserts" (neighborhoods where it is difficult to buy fresh food) and climate change on food production, and public policy work to try to ensure that climate change mitigation is fair for the more vulnerable populations in society. Today, she is calling for "guerrilla environmentalism," including setting aside land to plant or preserve city-sized forests and choosing renewable energy sources such as solar and wind.

Since producing, distributing and burning fossil fuels, such as coal and oil, contributes to climate change, many places around the world are looking at alternative sources of energy that are better for the planet, such as wind, solar, biomass, geothermal and tidal. Climate change also hampers our ability to produce and distribute the energy we need. For example, extreme weather events can affect energy distribution by downing power lines and disrupting transportation of coal, gas and other energy sources. Moreover, since energy generation often requires a lot of water, droughts caused by climate change will make producing the energy we need difficult.

## TRANSPORTATION

Transportation causes almost a third of greenhouse gas emissions in the United States. Although vehicles are becoming more fuel-efficient, the number of vehicles on the roads is increasing every year, reducing the benefit of this increased efficiency. Fully electric vehicles are slowly becoming more common, but



## CREATING CLEAN ENERGY SOURCES

**Nikkia M. McDonald, Ph.D.**  
*Principal Research Scientist*  
*University of Birmingham, United Kingdom*

**Dr. McDonald** was known for constantly asking questions when she was a child, and she never lost the desire to know how things work and how to make them better. These days, she creates new materials for hydrogen-powered fuel cells. These energy conversion devices operate similarly to batteries. They provide an environmentally friendly alternative to conventional energy systems because of their high efficiencies in producing energy and their lower greenhouse gas emissions.

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## COOLING THE PLANET WITH PLANTS

**Dan Medina, Ph.D.**  
Senior Engineer  
LimnoTech

**Dr. Medina** was always fascinated by the natural environment, and water in particular. Lately, he's been focusing on "green" infrastructure for stormwater management. That means using plants, soils and other natural systems to soak up rainwater into the soil, so it doesn't flood and contaminate drinking water sources. "Vegetation and soils have a huge potential to help us solve climate change," Dr. Medina says. Aside from helping manage rainwater, these plants can also absorb carbon dioxide from the atmosphere and push carbon into the soil. If the plants have deep roots, carbon can stay buried ("sequestered") in the soil permanently, reducing greenhouse gases.

production. Extreme temperatures also put stress on animals, stunting their growth and their production of milk and eggs. Also, plants and animals need more water when temperatures are high, which is, of course, problematic if a drought is occurring.

### HOW ENGINEERS ARE HELPING

Here are just a few of the ways engineers are making a positive impact on society in the fight against climate change:

- Civil/biological/mechanical engineers are researching new sources of water such as reclamation.
- Mechanical, chemical, and environmental engineers are investigating wastewater and waste as sources of energy.
- Transportation engineers and planners are developing more sustainable and resilient modes of transportation such as trains and buses, as well as researching the relationship between land use and transportation.
- Civil, biological and environmental engineers are implementing "green" (environmentally friendly) infrastructure in lieu of "gray" (conventional) infrastructure to manage stormwater volume and quality.
- Mechanical engineers are making more energy-efficient vehicles.
- Engineers are developing new energy technologies and energy sources (solar panels, hydrogen fuel cells, wind, geothermal).
- Structural/civil engineers are working with architects to develop more environmentally sustainable buildings that consume fewer natural resources and less energy and utilize more reused materials.
- Materials engineers are developing new products to reduce the urban "heat island" effect in major cities.
- Agricultural engineers are developing mechanisms to mitigate greenhouse gas emissions from animal agriculture and to adapt to extreme weather events.
- Electrical/systems engineers are making processes more efficient through network communication and graphical interfaces.
- Data engineers are obtaining climate change data to assess conditions and better plan for the future.

With all of these exciting options, how will you help fight climate change?! ■



## BUILDING CLIMATE SOLUTIONS

**Chandra Varma Ponnuram**  
Energy Engineer  
CVAL Innovations, LLC

**Chandra Ponnuram** is passionate about optimization — perfecting things — and he cares deeply about renewable energy and climate change. His work these days is designing sustainable buildings that reduce energy waste and our "carbon footprint," which is the amount of carbon we release in the atmosphere as greenhouse gases. What can students do to reduce climate change? Educate others about the topic, he says. "The most powerful word: ACT!"

**Chanceé Lundy** is a civil engineer and environmental scientist from Selma, Ala., who served as NSBE's national chair from 2004 to 2006. She is the cofounder of Nspiregreen LLC, an environmental consulting, urban planning and public engagement firm based in Washington, D.C.

**Jimena Larson** is a senior environmental engineer and urban planner with Nspiregreen LLC. Originally from Bogota, Colombia, she is interested in water, infrastructure and urban design challenges and has worked on water infrastructure projects around the globe.

**Stacy Weisfeld** is a city planner and public policy outreach specialist with Nspiregreen LLC. She is passionate about creating sustainable communities, particularly in the transportation sector. She is the treasurer of Women's March DC and has served as a board member for Women in Transportation's DC chapter for four years.



# NSBE Jr. Advisor Receives Honor for 'Helping People'

By Cindy Atoji

People helping people: that's what STEM activist Rhonda Thomas has long been about, creating opportunities for underserved youth to explore careers in science, technology, engineering and mathematics. She created LEAP Forward, Inc. in 1998, a nonprofit organization based in Calvert County, Md., that encourages kids to "learn, excel, achieve, perform, explore, and rise." Her commitment to making an impact was recently recognized by a statewide award. She received the William Donald Schaefer Helping People Award for her public service.

LEAP Forward, Inc., closes the achievement gap by providing STEM literacy, academic enrichment, tutoring and mentoring, and financial assistance. Its programs include a NSBE Jr. chapter named Creative and Striving Hard (C.A.S.H.). Launched only five years ago, C.A.S.H. has already earned the NSBE Jr. Chapter of the Year title, in 2017, and had two of its members selected to receive NSBE's highest honor, the Golden Torch Award, this year: Malcolm Roy Brown and Kenadi Parran Wilkerson were named Pre-College Initiative (PCI) Students of the Year.

"I don't know where we would be without the support and connections that LEAP provides," says Brown.

None of these accomplishments would have been possible without Thomas' own life story, which includes being rescued from underachievement. She credits the intervention of a thoughtful high school counselor, Wallace Leeper, whose name and legacy LEAP pays tribute to. Leeper worked tirelessly to direct local Calvert County students toward the engineering profession in the 1970s. Those students included Thomas, who had not considered an engineering career before she spoke with him.

"I didn't even know what an engineer was," says Thomas, who, thanks to Leeper's encouragement, went on to become an electrical engineer and the first African-American woman to graduate from a joint academic and employment program with Tennessee State University and Patuxent Naval Air Test Center.

She was working as an engineer for the Federal Aviation Administration when she saw local kids in the community being satisfied with merely getting a high school degree and a job at a big box store so they could buy a car.

"Young people weren't making a lot of good choices, so I saw a need to help direct and inspire kids for a better future," says Thomas, who is proud of the fact that of 12 C.A.S.H. graduating high school seniors, 75 percent will be pursuing STEAM majors in college.

When Thomas received the Helping People Award from Maryland Comptroller Peter Franchot, she immediately started lobbying to bring benefit to the organization.

Attendees at the award ceremony were exposed to information about all of LEAP's programs and ways they could contribute. She and Franchot discussed internships for LEAP students, and Thomas is also hoping the award will help her raise funds for her community efforts.

The award wasn't the first for Thomas, a NSBE lifetime member who has been lauded frequently for her work with LEAP, but she is quick to say that she's proud that LEAP and

C.A.S.H. make many firsts possible for disadvantaged students.

"The first time attending a convention like NSBE's and, for many, the first airplane ride because of that; the first time meeting professional engineers; the first time learning about new STEM topics and ideas: I am proud of opening up all these firsts for students and exposing kids to new experiences," says Thomas.

Wilkerson, the PCI Student of the Year, is grateful to her.

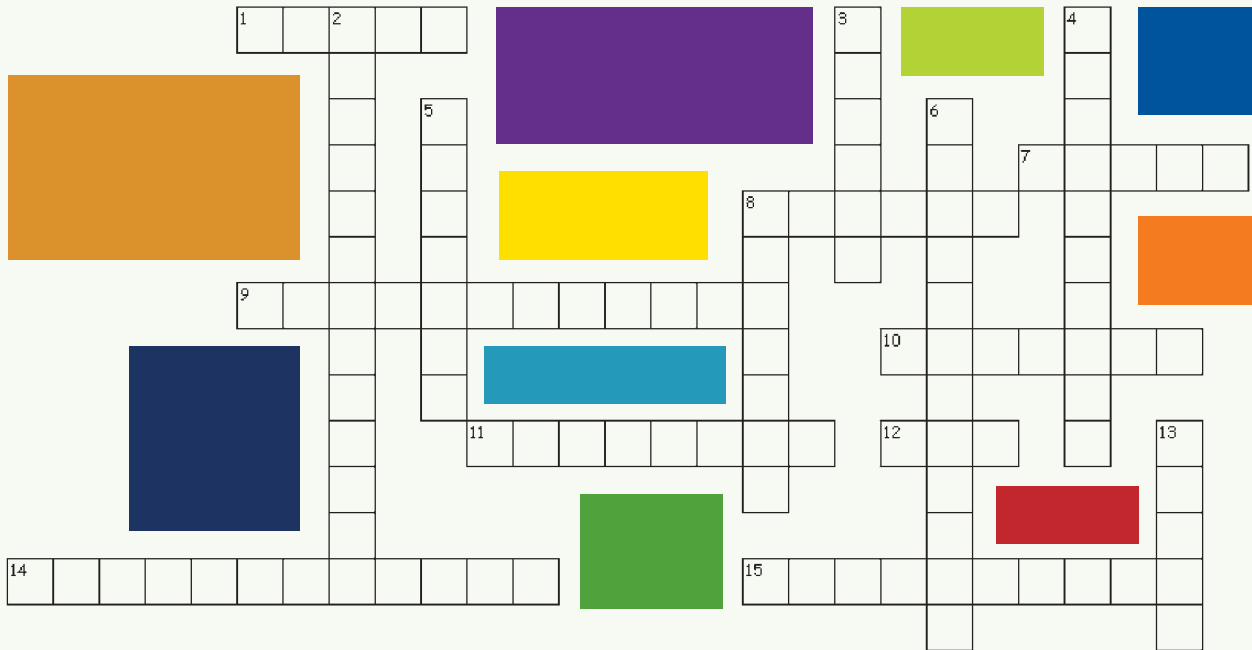
"I am grateful to LEAP Forward, Inc. for establishing C.A.S.H. NSBE Jr.," she says. "I've become a more confident leader, expanded my knowledge and gained exposure to students with common goals and professionals working in STEM fields. I am but one of the many students that LEAP Forward, Inc. and C.A.S.H. NSBE Jr. have positively impacted." ■



COMPTROLLER OF MARYLAND

Rhonda Thomas, founder and chapter advisor of C.A.S.H. NSBE Jr., receives the William Donald Schaefer Helping People Award from Maryland Comptroller Peter Franchot. (Feb. 21, 2018)

## TAKE THE CHALLENGE!



### ACROSS

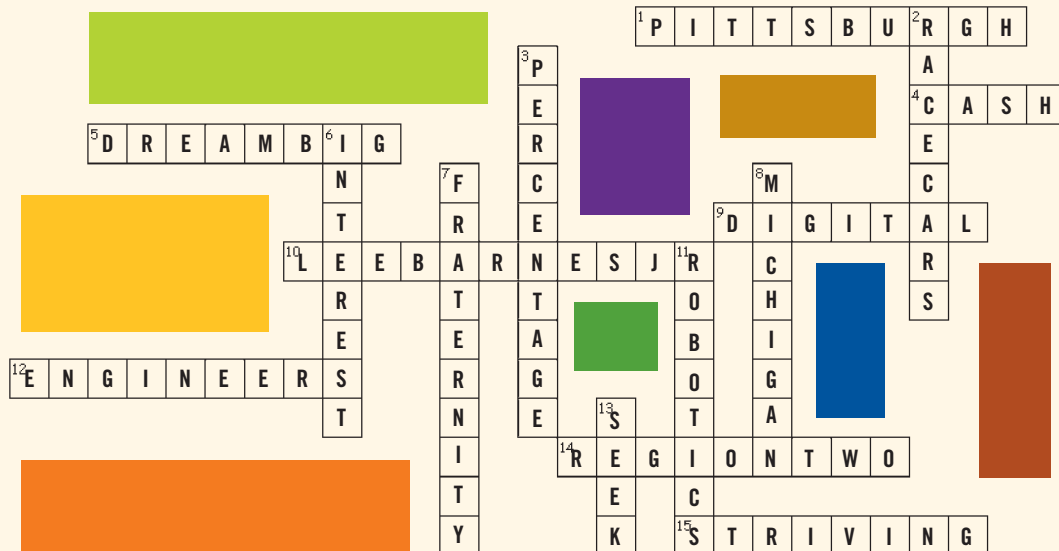
1. Florida A&M, Howard and North Carolina A&T State Universities are all \_\_\_\_\_
7. Number of engineers in the U.S. Senate
8. NSBE's most preferred employer in 2017
9. Black Girls Rock! gave this STEM achiever an award in 2017
10. One way to earn a living with your technology idea
11. Delaware's Health and Human Services leader is a medical doctor and a \_\_\_\_\_ engineer
12. This important organization gave \$1 million to NSBE SEEK
14. The campaign to increase our members' political awareness
15. Climate change is being caused by the recent increase in these types of gases in the atmosphere

### DOWN

2. President Obama called this your greatest challenge
3. NSBE's newest Rhodes scholar is planning research on this type of nuclear reactor
4. This card game may help you to understand computers
5. Chance the Rapper is supporting STEM education in this city's schools
6. It makes your learning shallow and spotty
8. This former NSBE leader was just elected to the National Academy of Engineering
13. NSBE's core values

*Tip: You can find the answers by reading this magazine! The answers will be published in the next issue of NSBE Bridge.*

## SUMMER 2017 PUZZLING ANSWERS





# The 'Power of Two' Cards Game

Introduced by Michael D. Alston, Ph.D., Qualcomm Technologies, Inc.

One of the first things a student learns when studying how computers work is binary numbers. The Winter 2017 "Math Tips" column introduced binary numbers. Below is a game you can play with family, friends or classmates that is based on binary numbers.

## VALUE OF THE GAME

Playing this game, which is called the Power of Two Cards Game, provides insight into how computers store numbers. The "Yes" and "No" responses correspond to "1" and "0" digits used to represent a number in binary.

## HOW TO PLAY

By asking only four questions, the first player can know the number (between 0 and 15, inclusive) that the second player is thinking. Let's call the first player "the Engineer" and the second player "the Intern."

- ▶ The Engineer asks the Intern to think of a number from 0 to 15 (inclusive).
- ▶ The Engineer shows the Intern Card A then Card B then Card C and, last, Card D.
- ▶ While showing each card, the Engineer asks the Intern, "Is your number on this card?"
- ▶ The Engineer then silently adds to a running Total (in his/her head). To start, Total = 0.
  - a) If the Intern says "Yes" to Card A, add 8 to Total, if "No," add 0 to Total.
  - b) If Intern says "Yes" to Card B, add 4 to Total, if "No," add 0 to Total.
  - c) If Intern says "Yes" to Card C, add 2 to Total, if "No," add 0 to Total.
  - d) If Intern says "Yes" to Card D, add 1 to Total, if "No," add 0 to Total.

*Below is a set of four double-sided Power of Two Cards that you can tear out and practice with:*



D  
  
**44<sup>TH</sup> ANNUAL CONVENTION**  
NATIONAL SOCIETY OF BLACK ENGINEERS  
  
**2018 Pittsburgh, Pa.**  
Power of Two Cards  
 Beginner Set (4)

B  
  
**44<sup>TH</sup> ANNUAL CONVENTION**  
NATIONAL SOCIETY OF BLACK ENGINEERS  
  
**2018 Pittsburgh, Pa.**  
Power of Two Cards  
 Beginner Set (4)

C  
  
**44<sup>TH</sup> ANNUAL CONVENTION**  
NATIONAL SOCIETY OF BLACK ENGINEERS  
  
**2018 Pittsburgh, Pa.**  
Power of Two Cards  
 Beginner Set (4)

A  
  
**44<sup>TH</sup> ANNUAL CONVENTION**  
NATIONAL SOCIETY OF BLACK ENGINEERS  
  
**2018 Pittsburgh, Pa.**  
Power of Two Cards  
 Beginner Set (4)

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## Sample 'Power of Two' Cards Game

**Engineer:** "Think of a number between 0 and 15, but don't tell me what it is."

**Intern:** "OK, I'm thinking of a number."

**Engineer** shows numbers on Card A to Intern and asks, "Is your number on this card?"

**Intern:** "Yes."

**Engineer** shows numbers on Card B to Intern and asks, "Is your number on this card?"

**Intern:** "Yes."

**Engineer** shows numbers on Card C to Intern and asks, "Is your number on this card?"

**Intern:** "No."

**Engineer** shows numbers on Card D to Intern and asks, "Is your number on this card?"

**Intern:** "Yes."

**Engineer:** "Your number is 13! Would you like to play again?"

**RELATED EXERCISE:** On paper, draw a table with 16 rows and four columns. Down the left side, label the rows "0" through "15." Across the top, label the columns "Card A," "Card B," "Card C" and "Card D." For each column, fill out the table with 1 for "Yes" or 0 for "No," to indicate whether the row number is present on the card.

Do you notice any patterns in the columns of 0's and 1's?

*Below is a set of four double-sided Power of Two Cards that you can cut out and keep in your backpack.*



4	5	6	7
12	13	14	15

1	3	5	7
9	11	13	15

8	9	10	11
12	13	14	15

2	3	6	7
10	11	14	15



# NSBE Jr. Chapters

If your chapter is not listed, please contact the NSBE Membership Department at [membership@nsbe.org](mailto:membership@nsbe.org) to ensure your information is correct in our account management system, *NSBECONNECT*.

*Celebrating NSBE's Partnerships with The Links, Incorporated and Kappa Alpha Psi Fraternity, Inc., and the Establishment of 42 The Links/NSBE Jr. Chapters and Six Regional Kappa Alpha Psi Guide Right NSBE Jr. Chapters!*



## ALABAMA

RAMSAY HIGH SCHOOL – LINKS – BIRMINGHAM  
NORTH ALABAMA CENTER FOR EDUCATIONAL EXCELLENCE – HUNTSVILLE  
C.F. VIGOR HIGH SCHOOL – MOBILE  
GREATER MOBILE CHAPTER OF THE LINKS, INC. – MOBILE  
BREWBAKER TECHNOLOGY MAGNET HIGH SCHOOL – MONTGOMERY  
CENTRAL ALABAMA – MONTGOMERY  
MONTGOMERY – LINKS – MONTGOMERY  
SELMA HIGH SCHOOL MECHANICAL MINDS – SELMA  
UNIVERSITY OF ALABAMA – TUSCALOOSA – TUSCALOOSA

## ARKANSAS

NORTHWEST ARKANSAS – BENTONVILLE

## CALIFORNIA

BERKELEY HIGH SCHOOL – BERKELEY  
CALIFORNIA ACADEMY OF MATH AND SCIENCE – CARSON  
TOMORROW AERONAUTICAL MUSEUM (TAM) – COMPTON  
EASTSIDE COLLEGE PREPARATORY ACADEMY – EAST PALO ALTO  
KORNBLUM SCHOOL – HAWTHORNE  
SOUTHERN CALIFORNIA – INGLEWOOD  
FAIRFAX LIONS – LOS ANGELES  
LEADERS INNOVATORS FORWARD THINKERS OF TOMORROW (LIFTT) – OAKLAND  
EAST BAY – PITTSBURG  
INLAND EMPIRE YOUNG ENGINEERS – SAN BERNARDINO  
GREENE SCHOLARS – SANTA CLARA

## COLORADO

SOCIT: STUDENTS OF COLOR IN TECHNOLOGY – DENVER

## CONNECTICUT

ACCESS BRIDGEPORT/NEW HAVEN – BRIDGEPORT

## DISTRICT OF COLUMBIA

FRIENDSHIP COLLEGIATE ACADEMY  
FRIENDSHIP SCHOOLS – CHAMBERLAIN CAMPUS  
FRIENDSHIP PUBLIC CHARTER SCHOOLS TECH-PREP CAMPUS  
METRO WARRIORS STEM – NATIONAL COLLEGIATE PREP  
PHELPS ACE

## FLORIDA

SOCIETY OF ETHNIC ENGINEERING BUCS (SEEB) – DAYTONA BEACH  
EASTSIDE HIGH SCHOOL – GAINESVILLE  
MENTORING FAMILIES AND KIDS – JACKSONVILLE  
CLUB ESTEEM – MELBOURNE  
GREATER MIAMI CHAPTER OF THE LINKS, INC. – MIAMI  
MIAMI KAPPA LEAGUE – MIAMI  
NEWBERRY HIGH SCHOOL – NEWBERRY  
FLORIDA EAST COAST – PALM BAY  
FLORIDA EAST COAST – PALM BEACH GARDENS  
MIDDLETON HIGH – TAMPA  
STRIVE – HILLSBOROUGH – TAMPA  
STRIVE – POLK COUNTY FL – TAMPA

## GEORGIA

CSRA AUGUSTA JR. CHAPTER – AUGUSTA  
CHAMBLEE HIGH SCHOOL – CHAMBLEE  
TRI-CITIES HIGH SCHOOL – EAST POINT  
ARABIA MOUNTAIN HIGH SCHOOL – LITHONIA  
100 BOYS OF CODE INC. – MCDONOUGH

## ILLINOIS

FAMILY FOCUS EVANSTON, ILLINOIS – ANDORRA  
CHICAGO – WEST SUBURBS – AURORA  
CHICAGOLAND – CHICAGO  
CHICAGO STATE PCI – CHICAGO  
EARLE STEM ACADEMY ELEMENTARY – CHICAGO  
LINDBLOM – CHICAGO  
MILES DAVIS MAGNET ACADEMY – CHICAGO  
NICHOLSON STEM ACADEMY – CHICAGO  
BARACK OBAMA SCHOOL OF LEADERSHIP AND STEM – CHICAGO HEIGHTS  
EVANSTON TOWNSHIP HIGH SCHOOL – EVANSTON  
CENTRAL IL – PEORIA  
RICH TOWNSHIP JR. NSBE – MATTESON

## INDIANA

NSBE AT PIKE HIGH SCHOOL – INDIANAPOLIS

## LOUISIANA

MCKINNEY BYRD ACADEMY – SHREVEPORT  
YOUNG TECHNICAL PROFESSIONALS – SHREVEPORT

## MARYLAND

BALTIMORE LINKS – BALTIMORE  
BALTIMORE POLYTECHNIC INSTITUTE – BALTIMORE  
VBM BALTIMORE – BALTIMORE  
WOODLAWN HIGH SCHOOL – BALTIMORE  
YOUNG ENGINEERS OF THE FUTURE – CLARKSBURG  
METRO WARRIORS STEM – FORT WASHINGTON  
METRO WARRIORS STEM – NATIONAL CHRISTIAN ACADEMY – FORT WASHINGTON  
ELEANOR ROOSEVELT HIGH SCHOOL – GREENBELT  
SOUTHERN MARYLAND – LEXINGTON PARK  
C.A.S.H. (CREATIVE AND STRIVING HARD) – PRINCE FREDERICK  
GAPBUSTERS LIT – RIVERDALE  
PATRIOTS TECHNOLOGY CENTER – SEAT PLEASANT  
CHARLES H. FLOWERS HIGH SCHOOL – SPRINGDALE

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# NSBE Jr. Chapters

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TAKOMA ACADEMY TIGERS – TAKOMA PARK  
FIRE (FUTURE INNOVATIVE RISING ENGINEERS) –  
UPPER MARLBORO  
CHARLES COUNTY – WALDORF  
MILFORD MILL ACADEMY – WINDSOR MILL

## MASSACHUSETTS

MASSPEP OF BOSTON – ASHLAND  
BOSTON LATIN SCHOOL – BOSTON  
BROCKTON SCIENTIFIC – BROCKTON  
JEREMIAH E. BURKE HIGH SCHOOL – DORCHESTER  
MYSTIC VALLEY ENGINEERING STUDENT SOCIETY –  
MALDEN

## MICHIGAN

EARLY COLLEGE OF EXCELLENCE – ALLEN PARK  
UNIVERSITY PREP SCIENCE AND MATH – DETROIT  
SOUTHFIELD CITY-WIDE: UNIVERSITY HS ACADEMY –  
LATHRUP VILLAGE  
SOUTHFIELD CITY-WIDE: BRACE-LEDERLE K8 –  
SOUTHFIELD  
SOUTHFIELD CITY-WIDE: MACARTHUR K8 UNIVERSITY  
ACADEMY – SOUTHFIELD

## MINNESOTA

TWIN CITIES – PURSUIT OF EXCELLENCE – SOUTH  
SAINT PAUL

## MISSISSIPPI

MISSISSIPPI ROSES LIFE STEAMERS – LINKS –  
BYHALIA  
DE&I (DELTA ENGINEERS & INNOVATORS) – NESBIT  
JACKSON STATE UNIVERSITY – JACKSON  
VBM MISSISSIPPI – VICKSBURG

## MISSOURI

ST. LOUIS METRO GATEWAY – HAZELWOOD  
ASTEAM VILLAGE KANSAS CITY – KANSAS CITY  
BENJAMIN BANNEKER CHARTER ACADEMY OF  
TECHNOLOGY CHAPTER – KANSAS CITY  
FAITH ACADEMY – KANSAS CITY  
UNIVERSITY OF MISSOURI-KANSAS CITY – KANSAS  
CITY

## NEBRASKA

OMAHA NORTH HIGH MAGNET CENTER – OMAHA

## NEW JERSEY

AFTTEAMS – ATLANTIC FUTURE TECHNOLOGIST... –  
ATLANTIC CITY  
BURLINGTON CITY HIGH SCHOOL – MOORESTOWN  
MORRIS COUNTY – LINKS – MORRISTOWN  
PLEASANTVILLE HIGH SCHOOL – PLEASANTVILLE  
SCYPE (SALEM COUNTY YOUNG PROMISING  
ENGINEERS) – WOODSTOWN

## NEW MEXICO

GREATER ALBUQUERQUE – ALBUQUERQUE  
SATURDAY SCIENCE AND MATH ACADEMY –  
ALBUQUERQUE

## NEW YORK

HARLEM NSBE PCI – BRONX  
ASHANTI – BROOKLYN  
BROOKLYN TECHNICAL HIGH SCHOOL – BROOKLYN  
ADJ LITTLE ENGINEERS – LINKS – BUFFALO  
SUNY BUFFALO STEP-PCI – BUFFALO  
CORNELL-ITHACA – ITHACA  
LONG ISLAND LINKS – MANHASSET  
SYRACUSE CITY SCHOOL DISTRICT PCI – SYRACUSE

## NORTH CAROLINA

CROWN JEWELS LINKS – PHILLIP O. BERRY ACADEMY  
OF TECHNOLOGY – CHARLOTTE  
MALLARD CREEK HIGH SCHOOL – CHARLOTTE  
QUEEN CITY – CHARLOTTE  
NORTH CAROLINA SCHOOL OF SCIENCE AND  
MATHEMATICS – DURHAM  
E.E. SMITH HIGH SCHOOL – FAYETTEVILLE  
NINE DIME (910) ONSLOW COUNTY – JACKSONVILLE  
WILMINGTON, N.C. – LINKS – WILMINGTON

## OHIO

CINCINNATI STEMULATES CITY-WIDE – CINCINNATI  
GREATER CLEVELAND – CLEVELAND  
E-STEM SWCI – DELAWARE  
BEECHCROFT HIGH SCHOOL – COLUMBUS  
COLUMBUS TECH CORPS – COLUMBUS  
E-STEM KJ – COLUMBUS  
E-STEM METRO – COLUMBUS  
NORTHLAND HIGH SCHOOL – COLUMBUS

## PENNSYLVANIA

STRIVE LEHIGH VALLEY – ALLENTOWN  
HARRITON HIGH SCHOOL – BRYN MAWR  
PENNSBURG HIGH SCHOOL – FAIRLESS HILLS  
HARRISBURG CHAPTER OF THE LINKS, INC.  
AND MARSHALL MATH SCIENCE ACADEMY –  
HARRISBURG  
HARRISBURG HIGH SCHOOL SCITECH CAMPUS –  
HARRISBURG  
WEST CATHOLIC PREPARATORY HIGH SCHOOL –  
PHILADELPHIA  
LEGACY STEM PROJECT – PITTSBURGH  
YMIC D.B.A. YMWIC FOUNDATION, INC. – WEST  
CHESTER

## SOUTH CAROLINA

TRI-COUNTY JR. CHAPTER – CLEMSON  
ORANGEBURG 5 TECHNOLOGY CENTER –  
ORANGEBURG

## TENNESSEE

MEMPHIS NSBE JR. ACADEMY PROGRAM – MEMPHIS

## TEXAS

TOWN LAKE – LINKS – AUSTIN  
SAN ANTONIO CITY WIDE CHAPTER – CONVERSE  
CY-FAIR – CYPRESS  
SCIENCE AND ENGINEERING MAGNET – DALLAS  
SIGMA BETA CLUB @ HARRELL BUDD – DALLAS  
THE COLLIN COUNTY CHAPTER OF TEXAS – DALLAS  
HARMON RANCH COMMUNITY – FORT WORTH  
S.T.E.A.M. KIDS – LINKS – FORT WORTH  
ENERGY EXPLORERS – HOUSTON  
FIVE GIRLS R.O.C.K. @ YWCPA – LINKS – HOUSTON  
SOUTH EARLY COLLEGE ENGINEERS – HOUSTON  
SOUTH HOUSTON – HOUSTON  
MID-CITIES FUTURE ENGINEERS – LINKS – IRVING  
LANCASTER JUNIOR ENGINEERING ALLIANCE –  
LANCASTER  
MAGIC-DFW (MAKING A GENERATION IMAGINE  
CHANGE) – PALESTINE  
PEARLAND – PEARLAND  
KREATIVE MINDZ – RICHARDSON  
STAFFORD HIGH SCHOOL – STAFFORD  
S.T.E.A.M. WORKS – LINKS – SUGAR LAND

## VIRGINIA

ALEXANDRIA-FAIRFAX – ALEXANDRIA  
AT LARGE PCI (REGIONS I-VI) – ALEXANDRIA  
ALBEMARLE COUNTY PUBLIC SCHOOL SYSTEM –  
CHARLOTTESVILLE  
NEIL DEGRASSE TYSON – CHESAPEAKE  
NUBIAN VILLAGE ACADEMY – CHESTER  
POTOMAC RIVER – DAHLGREN  
RAPPAHANNOCK – DUMFRIES  
NOVA-LEESBURG – LEESBURG  
MARTINSVILLE/HENRY COUNTY – MARTINSVILLE  
PETERSBURG CHAPTER – LINKS – PETERSBURG  
DANVILLE/PITTSYLVANIA – RINGGOLD

## WISCONSIN

MCNEEL NSBE: ENGINEERING AT THE HOME OF THE  
LANCERS – BELOIT  
MADISON EAST HIGH SCHOOL – MADISON

## BAHAMAS

NSBE JR. BAHAMAS (G.E.A.R.S) – FREEPORT  
SUNLAND BAPTIST ACADEMY – ELITE PRODIGIES –  
FREEPORT

## CANADA

ST. MOTHER TERESA CATHOLIC ACADEMY –  
SCARBOROUGH, ON

## UNITED ARAB EMIRATES

DUBAI – AL AIN



CONVENTION 2018



NATIONAL SOCIETY OF BLACK ENGINEERS

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ON THE MOVE

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## 2018 PROFESSIONAL DEVELOPMENT CONFERENCE (PDC)

Details available at [NSBE.ORG/PDC](http://NSBE.ORG/PDC)

Learn more about a discounted early bird registration rate at the 2018 Technical Professionals Conference (TPC) during #NSBE44.



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# The Path to Substantial Impact



By Maurice Patterson, National NSBE Professionals Chair

It has truly been a blessing and an honor to serve as the 2017–2018 NSBE Professionals chair. My board and I did not take lightly the task of serving the Society this year. Progress is something that does not happen overnight but instead takes a sustained, concerted

effort. Our effort to make substantial change will begin to flourish soon, like a seed growing into a beautiful specimen.

Our goals for the year were simple: we wanted to focus on 1) Membership Engagement and 2) Membership Value. Our members are the foundation on which this organization stands. It was only natural to make you the focus of the year and ensure we were meeting your needs.

## MEMBERSHIP ENGAGEMENT

Through membership engagement, we have shown that together we can tackle any problem. Engagement from the national and regional levels enables us to meet our chapters and members where they are and work to enhance their experiences. By affecting one, we enable that one to affect others and create a ripple effect that is a force to be reckoned with.

## MEMBERSHIP VALUE

The value of being a NSBE Professionals member is unmatched. As we continue to expand our membership base, we must ensure we are constantly showcasing the value of our chapters, our Special Interest Groups, the Professional Development Conference, the Technical Professionals Conference at Annual Convention, our networking opportunities, our enhanced programmatic offerings, our leadership development activities, our partnerships with other organizations, and so on.

Our members had the opportunity to weigh in this year on what they wanted from NSBE. This was the first step as we began to ensure that our members were helping lay the path we walk down as an organization. We learned from the membership survey we conducted earlier this year that our members want to see more programs provided to them. Although the Professional Development Conference (PDC) and the Technical Professionals Conference (TPC) provide great opportunities

for our members to participate in workshops and networking and explore other career opportunities, we are now working on a strategy to go beyond our conferences and provide great programs 12 months a year.

In addition to national and regional efforts, our chapters provide the best access point into the organization for professionals. This year, we revamped the chapter reporting process and instituted the “Chapter Health Initiative for Professionals.” This framework builds upon the Chapter Data Collection Initiative of previous years, taking into account feedback received from that process. Chapters are now able to report events more frequently, at their convenience and in quarterly reports. This process enables us to understand how well our chapters are

“Working together, we will become a well-oiled machine moving full steam ahead toward NSBE 2025 and beyond.”

performing and create tailor-made solutions to help them reach new heights. Along with the reporting forms, we also provide toolkits to help chapters execute their plans throughout the year.

We made great strides internally this year to improve our processes and put ourselves in a better position to serve our members. But still have far to go. Working together, we will become a well-oiled machine moving full steam ahead toward NSBE 2025 and beyond. I look forward to seeing and being a part of the continuing progress of NSBE Professionals.

As we transition to Anthony Murphy’s term as NSBE Professionals chair, he will continue to work on elevating the brand and value of our organization. I wholeheartedly believe that we will reach sustainable heights we have never seen before.

Thank you for allowing me to serve you in this role, and know I will continue to serve you and NSBE. I look forward to seeing you in Pittsburgh! ■



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*FORTUNE Magazine, 2017*

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# Inter. Generational Impact

Talent, NSBE and Fate Help  
Continue an Engineering Heritage

BY DONNA M. OWENS



*"I met Tom my first year after graduation, in 1989, at the Cincinnati NSBE (convention)."*

— Mitzi Beebe, BP

**T**here are some families who bond around sports, whereas others share a passion for the arts or, perhaps, travel. For the Beebe family of Illinois, there's a mutual love of science, technology, engineering and math (STEM).

Indeed, you might say it was chemistry that brought Mitzi and Tom Beebe together years ago at a National Society of Black Engineers (NSBE) Annual Convention.

"I was a member of NSBE in college and found it to be great," says Mitzi Beebe, a Georgia native whose father was among the early African-American engineers in the aerospace industry. The discrimination of that era barred him from attending certain colleges, but his daughter earned a Bachelor of Science in mechanical engineering from the University of Pennsylvania.

"I met Tom my first year after graduation, in 1989, at the Cincinnati NSBE (convention)," says Mitzi. "He was representing Amoco at the time. I came independently, and we met at one of the professional conference events."

Tom, who also earned a Bachelor of Science in mechanical engineering, from Valparaiso University, remembers the convention atmosphere as conducive to professional networking and meeting new people.

"I met Mitzi at one of the regional Alumni business meetings," says the Michigan native. "We ran into each other again at one of

the social events after the main convention dinner. I had a list of jazz clubs in Chicago, and she was new to town. At some point, I asked her out to dinner."

The rest is history, as they say. Now married for 25 years, the couple has

*"I feel like engineering is in my DNA."*

— Giselle Beebe, NSBE, University of Minnesota Twin Cities

balanced family life and building successful careers in the corporate world. They're both employed by BP.

## IMMERSED IN ENGINEERING

Mitzi serves as emergency services superintendent of the company's Health, Safety, Security and Environmental Department. In that role, she is accountable for crisis and continuity management, emergency response and security at the Whiting Refinery in Indiana.

Tom, whose educational background includes an M.B.A. from the University of Chicago's Booth School of Business, is employed with BP Products' North America Strategy & Portfolio team. He provides strategic leadership and project management support to the Toledo Refinery, a 50/50 joint venture between BP and Husky Energy, in Ohio. And he's actively engaged with various efforts to encourage youth to pursue careers in the STEM fields.

The couple's own offspring have grown up immersed in engineering. And apparently, they've absorbed some of their parents' STEM proficiency. Giselle Beebe is a fourth-year student majoring in materials science and engineering at the University of Minnesota Twin Cities. Her brother, William Beebe, a high school senior, is part of NSBE's Pre-College Initiative Program, which supports

K-12 students in STEM to move them toward engineering careers.

## FOCUSED ON BLACK COMMUNITY

"I feel like engineering is in my DNA," says Giselle, who credits her parents with nurturing her early interest in math and science. "When I was younger, I'd go with them to 'Take Your Child to Work' days. And I attended my first NSBE (convention) with my father, who was there working. He let me go off by myself and explore. I had fun."

Today, she's in her second year as president of her campus NSBE chapter. Her leadership since 2016 has included facilitating programming to support and retain African-American engineering students.

"I know from my personal experience that college can be a major adjustment," says Giselle, who's done a summer internship with Land O'Lakes, Inc. and will intern with Procter & Gamble this summer. She also studied in Italy and served as a mentor/instructor with NSBE's Summer Engineering Experience for Kids (SEEK) program. Meanwhile, she and the members of her chapter are fostering relationships with everyone from corporate sponsors to the local African-American community.

"We've organized two STEM-related volunteer events per semester that were focused (on) the black community," she says. "And we have sparked and nurtured interest in middle and high school students who want to pursue STEM careers."

## 'YOUR NS-BAE'

Although Giselle is focused on academics, it's not all work and no play. Just like her mom and dad at their fateful NSBE Annual Convention, she's open to meeting someone special should the opportunity arise.

"I know people in NSBE regions who are dating," she says. "We call it your NS-Bae," she adds, laughingly using the pop culture term "Bae," shorthand for "before anyone else." "So we'll see."

Giselle has good memories of attending past NSBE conventions with her father, but her

brother William hasn't yet experienced one. However, the college and engineering experiences his sister has shared with him have William excited about attending the 44th Annual Convention in Pittsburgh

this March, with the rest of his family. He'll be participating in the event's Pre-College Initiative Conference.

"I'm eager for my son to experience NSBE," says Tom. "This organization has been so important to us."

Mitzi agrees.

"With my father, myself and husband, and now our children interested in the field, this is three generations of engineers. I'm very proud." ■

*"I'm eager for my son to experience NSBE. This organization has been so important to us."*

— Tom Beebe, BP

*Donna M. Owens is a national journalist based in Baltimore, Md.*



# Kara Odom Walker, from Engineer to M.D.

Former NSBE Leader Makes Good as Delaware's Health and Social Services Secretary

**V**iewed through the lens of NSBE's mission, Kara Odom Walker, M.D., is a prime example of professional success. A NSBE chapter president, regional officer and national academic excellence chair while she earned her bachelor's in chemical engineering, on a full academic scholarship, at the University of Delaware, she now serves as Health and Social Services secretary in the Cabinet of Delaware Gov. John Carney, overseeing one of the largest agencies in the state. Dr. Walker earned her M.D. at Jefferson Medical College, in Philadelphia, Pa., and has worked as a family physician in primary care settings and as a professor of medicine. She has an M.P.H. from The Johns Hopkins University and a master's in health services research from UCLA, where she also completed a postgraduate fellowship. In 2017, she left her previous job, which was helping to guide national healthcare policy and managing a \$1.6-billion budget for five years as deputy chief science officer of the Patient-Centered Outcomes Research Institute.

But what has encouraged her to climb that career path? It turns out the answer is at the very end of NSBE's mission statement: "positively impact the community." She spoke with *NSBE Magazine* recently about her life of service and what has helped her along the way.

## What sparked your interest in chemical engineering?

I grew up in the state of Delaware, which historically has been a place of huge commitment to science and technology careers. The state's economy was built on the DuPont company, and families worked around chemical engineering plants. Also, chemical engineering caught my interest because I was really enthralled with science and math in general, in school, and it just seemed like a natural extension of some of the areas of interest that I had. But I also was very interested in the intersection with health and healthcare and thought maybe one day I would be in the pharmaceutical industry.

I think in some practical ways it was also my parents' encouragement that even if I was thinking about being a pre-med student, that it might be useful to have a backup career plan in place.

## How did you stay excited about a STEM career when so many other black kids don't?

Both of my parents were educators.... Because of their commitment to education as a path forward, I was involved with all kinds of programs during the summer and during the school year: academic enrichment programs. One of the programs that made a big difference in my younger years was a program called

FAME, the Forum to Advance Minorities in Engineering. The state had invested in the fact that they needed more minorities in engineering, and on Saturday mornings I would get up early and do SAT prep. They would have people who had careers in science and engineering talk to us on the weekends. In the summers, it would be a six- to eight-week commitment to do academic enrichment to prepare you for pre-algebra and chemistry class. And I really benefited from that. I'm certain my SAT scores were higher because they were challenging us on the important SAT vocabulary words that we had to memorize and know, and also on test prep and readiness. And they made science fun! I must say, the teachers who were committed to doing those kinds of academic enrichment programs were really talented and really inspired by helping minorities succeed. They were really interested in making us excited about science and math. And that just made a big difference.

## You did vaccine research while you were pursuing your bachelor's in chem-E. How did you learn about engineering career paths like that, from being in the FAME program?

Yes, I did. Also, the fact that NSBE existed was really huge. I didn't necessarily know the name NSBE, but we met NSBE students and alumni who were pursuing their engineering careers....



But I also was fortunate that, again, employees and employers in our state were in the engineering and medical fields. I met people who were engineers but also making drugs, and, fortunately, those programs were trying to get more young people to spend their summers doing internships in fields that really intersected with medicine and engineering, which I thought was a great option for me.

### Why were you attracted to medicine? Was it to help people?

Yes, I've always been focused on community service and helping others, and I really enjoyed thinking about how to give back. But when I was trying to enter medical school, (I had) to learn things differently to succeed in the MCATs. Engineering teaches you to do things that are much more about problem-solving, and it's much more collaborative. Whereas getting into medical school is about, "How much can you memorize? Can you remember this formula and how to plug into it?" It's a very different kind of learning process.

### Has your training as an engineer helped you in your work and career?

There aren't that many engineers who go into medicine. And so it's hard to put my finger on exactly how that background has helped me. In some ways, it was probably the hardest path to where I am now. Engineering is a very rigorous major. And if I had been more thoughtful about it, maybe I would've taken a less difficult path. (laughs)

I mean, I do think that the training in engineering prepares you to be a problem-solver, to really understand how to use data, how to leverage expertise outside of your domain and really think about the intersections with other fields.... All of that problem-solving analysis has benefited me tremendously. I never use P-chem (physical chemistry) anymore. I don't think about organic chemistry. I don't think about calculus. So those things are not directly relevant. But I think the general mindset has been tremendously beneficial.

### Your experience with NSBE: you said it was very beneficial to you. How so?

Again, I came to engineering through a series of programs focused on minorities in science and engineering careers. So NSBE felt like home. Also, University of Delaware had a program (RISE) that supported all the minority engineering students. And so NSBE was an opportunity to think together with my colleagues and be responsive and serve others.

When I went to medical school, we had a very similar organization: the Student National Medical Association, which had a very similar mission focused on minority medical students and issues around health disparities and diversity. And I carried lessons over from NSBE to the Student National Medical Association, where I wasn't just a regional board member: I actually ended up running for national president of that organization. And some of the core tenets of my presidency in that yearlong leadership role were really carried over from work that we had done at NSBE

National Leadership Institute meetings.

### Do you still believe in NSBE's mission?

Absolutely. I mean, every phrase in that mission statement is still critical today. We need to "increase the number of culturally responsible Black Engineers." The "culturally responsible" piece is even more critical than ever, given the presidential administration and some of the threats on successful black people in our society today. But we also need to focus on being better. I always say we have to be better than our white peers in so many arenas that it is really critical to "excel academically" and "succeed professionally" and to (raise) that bar. And then the commitment to community is first. I mean that's why I got so attached to this career path in public service, because I can really "positively impact the community," not just with the individual interaction as a physician but also the entire state, or in my prior role at the Patient-Centered Outcomes Research Institute, the country.

We really do have a lot to do, and having more minorities in these roles ensures that we have a well-rounded perspective, that we are the ones who are speaking out for those who are most forgotten, most vulnerable, most likely to be discriminated against. And so I think it's a privilege to serve, but we also must give back as a way to honor those who have sacrificed so that we can be in these roles. ■



*"I came to engineering through a series of programs focused on minorities in science and engineering careers. So NSBE felt like home."*

# Baltimore Professionals Host 'Minority Innovation Weekend'

**A** one-day conference hosted by NSBE-BMAC, the Baltimore chapter of NSBE Professionals, brought more than 50 engineers, technologists, entrepreneurs and others to Hotel RL in downtown Baltimore this past November. The goal of the event, named Minority Innovation Weekend (MIW), was to provide knowledge to enable individuals to turn their technology-based ideas or concepts into viable startup companies.

The conference included presentations by subject matter experts on seven topics, among them "Defining the Competition," "Going to Market," "The Pitch" and "Innovating on the Side." McKeever Conwell of Maryland Technology Development Corporation (MD TEDCO) presented on "Defining & Validating Your Idea" and "Funding Your Idea." TEDCO supports the Minority Business Pre-Seed Fund, a partnership between TEDCO and The Harbor Bank of Maryland to fund minority entrepreneurs who have tech-focused ideas.

A panel of four startup founders discussed "The Startup Scene in Baltimore," and entrepreneur Luke Cooper gave the keynote address, sharing with the audience some of the challenges he's overcome in his life journey, from his youth in housing projects near New York City to his current position as founder and CEO of Fixt, a fast-growing smartphone and tablet computer repair company. The goal, Cooper said, is not "building great businesses" but to "use them for some greater purpose."

Lack of racial diversity among financially successful technology entrepreneurs motivated NSBE-BMAC to hold its event.

"With the number of funded tech startups among people of color being around 1 percent, we felt that this was an important program to help get more people of color into the tech startup world," said Chapter President William Redmond.

The Minority Innovation Weekend was a collaborative effort: NSBE-BMAC's partners to promote the event were the Society of Hispanic Professional Engineers – Washington, D.C. Chapter, the National Society of Black Engineers – Washington, D.C. Metro Area Chapter, the Greater Baltimore Urban League's Greater Baltimore Leadership Association, the Arab American Association of Engineers and Architects – Capital Area, the Morgan State University

Entrepreneurial Development & Assistance Center (EDAC), the Black MBA Association – Washington, D.C., and the National Society of Black Engineers – Greater Philadelphia Professionals.

The conference was sponsored by The Harbor Bank of Maryland, Will Holmes Consulting, Thomas & Wynter, and Ricky Venters Enterprises.

Calvin A. Young, a former NSBE national chair (2012–13), participated in the event. He said his current work as vice president for The Harbor Bank Community Development Corporation aligns with NSBE's mission.

"Harbor Bank was founded to fill the need of access to financial products and services in this urban market," Young

*"With the number of funded tech startups among people of color being around 1 percent, we felt that this was an important program to help get more people of color into the tech startup world."*

— William Redmond, NSBE BMAC President

said. "Sponsoring this event tied in well with initiatives in our community development corporation such as our pre-seed fund used to invest in minority startups."

Teresa Clower, CEO and founder of a start-up company, joined others in giving Minority Innovation Weekend a good review.

"...The conference generated a lot of ideas about how to continue to expand my market position and my qualifications as a viable partner for more established entities," Clower said.

Derek Westray, the conference coordinator, said NSBE-BMAC plans to expand the chapter's entrepreneurship training.

"NSBE-BMAC hopes to build upon the success of MIW 2017 and increase the amount of content provided for MIW 2018," Westray wrote. "We hope to partner with other organizations in order to build a Minority Innovation Entrepreneurship Program." ■



**Duane Rollins explained the advantages of "MVP" over prototyping.**



**Sherika Wynter led the MIW session on "Going to Market."**





## RISING IN THE ACADEMY



NSBE Lifetime Member **Gary S. May, Ph.D.**, chancellor of the University of California, Davis, has been elected to the National Academy of Engineering. The Academy, whose peer-elected members are among the world's most accomplished engineers, seeks to advance the well-being of the nation by promoting the profession and providing independent advice to the federal government on

matters involving engineering and technology. Dr. May took the top office at UC Davis in August 2017 after serving for six years as dean of the College of Engineering at Georgia Tech, where he had also joined NSBE as an undergraduate in electrical engineering. Dr. May was elected national chair of NSBE in 1987 and served two consecutive terms, while earning his Ph.D. in electrical engineering and computer science at UC Berkeley. He later was a longtime member of NSBE's National Advisory Board.

## DIRECTING THE ACTION



**Michele Lezama**, who served as NSBE's executive director from 2000 to 2005, is the new president and CEO of the National Action Council for Minorities in Engineering (NACME). NACME is the largest provider of college scholarships for underrepresented minorities pursuing degrees at schools of engineering. Lezama comes to NACME from Purdue University, where she worked as a strategist on

graduate recruitment and retention programming for the Minority Engineering Program. Before that, she was CEO and executive director of The National GEM Consortium (GEM) for 11 years. During her tenure at NSBE, Lezama built strong relationships between the Society's stakeholders, World Headquarters and student leadership, while creating a strong, diversified financial foundation for the organization. She is a lifetime member of NSBE.

## STEM ACHIEVER ROCKS!



**Njema J. Frazier, Ph.D.**, a theoretical nuclear physicist at the National Nuclear Security Administration (NNSA) since 2001, and a member of NSBE's National Advisory Board, was honored for her achievements in STEM last year by the nonprofit organization Black Girls Rock! The awards ceremony was broadcast on BET. Dr. Frazier's tireless work to improve STEM education for African-American

children fits well with Black Girls Rock!'s mission, which is "to change the world by empowering black girls to lead, innovate and serve." Now acting director of the NNSA's Office of Inertial Confinement Fusion, she is also chair of the Algebra by 7th Grade (Ab7G) Initiative and founder and CEO of Diversity Science, LLC. Dr. Frazier earned her Bachelor of Science in physics from Carnegie Mellon University and her Ph.D. in nuclear physics from Michigan State University. She is a lifetime member of NSBE.

## UT ALUMNI SHINE



**Mieah Turner**, president of the NSBE Nashville Professionals since 2015, has been selected as one of *Building Design & Construction* magazine's "40 Under 40" for 2017. Turner is a senior project

manager for Messer Construction Company in Nashville, Tenn., working with a team that manages a wide range of multimillion-dollar construction projects. She earned her bachelor's and master's degrees in civil engineering at the University of Tennessee, Knoxville, her home town, where she also joined NSBE as an undergraduate in 2004. Turner has broad leadership experience, both at NSBE, where she has served as an officer or committee chair on the national, regional and chapter levels, and in the workplace, where she has served as Nashville lead for the Messer Construction Young Professionals Group for the past three years.



And congrats to another University of Tennessee (UT) civil engineering alumnus, **Jessica Beasley** of the NSBE Memphis Professionals, who was selected for the *Memphis Flyer's* "20

Under 30" Class of 2018. Beasley is a structural engineer and designer for Varco Pruden Buildings, responsible for providing estimates for projects valued at up to \$1 million. Beasley is a NSBE Jr. chapter advisor in Memphis and Region III secretary of NSBE Professionals, continuing her 10-year advocacy for increased college access and educational opportunity for low-income and minority youth. She earned her Bachelor of Science and Master of Science degrees in civil engineering at UT. ■

# ARE YOU READY



# TO RUN?

By Alicia "AC" Lane

Research Director, NSBE Public Policy  
Special Interest Group (SIG)



*“If you are a citizen of the U.S. and meet the age and residency requirements, you are probably qualified to run for the political office you desire.”*



**J**ust as our nation represents a wide spectrum of political interests from conservative to liberal, we NSBE members can also represent a spectrum of political engagement, from apathetic to elected. No matter where you fall on either spectrum, here are tips and resources to help you get more involved and #StayWokeNSBE.

“Innocent Bystanders” make up one end of our political spectrum, with the least amount of experience in politics. They are sporadically active, mostly voting in major elections. If this sounds like you, the best way to get more involved in policy is to find out who represents you and what they stand for, which can lead you to determine whether you agree with them or not. Use this search to inform your voting in the future or to contact your representatives and share your views on their policymaking.

Further along our spectrum, “#StayWokeNSBE Supporters” strive to be as politically engaged as possible and can be motivated to stay involved beyond elections. To move from motivation to action, Supporters are encouraged to “follow the money” and serve their elected officials as technical experts. How your elected officials get and spend money tends to be a good indicator of their influence while in office. With your STEM background, you can lend your expertise, particularly on issues that reach into your pockets.

Even further along the spectrum are “Prospective Candidates,” our most politically active members, who may be ready to run and yet wonder whether they are even qualified. If you are a citizen of the U.S. and meet the age and residency requirements, you are probably qualified to run for the political

office you desire. Unless you are a prospective POTUS or vice POTUS candidate, your birthplace may not even have to be within the U.S. Also, you may not need any specific educational background or previous political experience. In fact, 18 members of the 115th House of Representatives have no educational credentials beyond a high school diploma.

According to VoteRunLead.org, running for office may be as simple as asking: “Why, When and Where?” The “why” is knowing what you care about, within and/or beyond your area of technical expertise. The “when” is answered by doing research on elected offices opening soon. The “where” narrows your scope to one or two upcoming offices. Once you’ve decided to run, take one or more of the following actions. Yes, running could be as easy as “A-B-C.”

### 12 WAYS TO START RUNNING AND #STAYWOKENSBE

- Apply for NSBE roles to hone your skills.
- Analyze the landscape with @L2Political.
- Activate a @314Action STEM endorsement.
- Advocate for women with @SheShouldRun.
- Begin campaigning on NationBuilder.com.
- Brush up on your civics at ed.TED.com.
- Build a LGBTQ platform with @VictoryInst.
- Be on alert with the @BallotReady app.
- Canvass with eCanvasser.com.
- Capture a swing district with @Flippable.
- Comment as a STEM expert on 5Calls.org.
- Contribute to a PAC on GuideStar.org.

## #STEMinCongress

Approximately 7 percent of members of Congress have a STEM background.

HOUSE	SENATE
1 Engineer	1 Chemist
1 Optometrist	4 Dentists
3 Physicians	7 Engineers
2 Software Company Executives	1 Microbiologist
	2 Nurses
	1 Pharmacist
	11 Physicians
	1 Physicist
	3 Psychologists
	6 Software Company Executives
	3 Veterinarians

Source: U.S. Congressional Research Service

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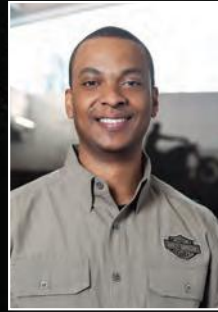
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**ARLYN  
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