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Howard University Alumnus Awarded Sloan Ph.D. Fellowship in Computer Science at UC San Diego

Jeremy Blackstone

Jeremy Blackstone is the first graduate student selected to receive a fellowship from the Alfred P. Sloan Foundation Minority Ph.D. Program to do a doctorate in Computer Science and Engineering at the University of California, San Diego. He graduated magna cum laude in computer science from Howard University, where he also earned his M.S. degree, but Blackstone is not a newcomer to the UC San Diego campus. For the past two summers, he worked in the lab of CSE Professor Ryan Kastner in an eight-week program for Master's and undergraduate students.

The fellowship follows the Sloan Foundation's naming of UC San Diego, MIT and the University of Illinois at Urbana-Champaign as University Centers for Exemplary Mentoring in the foundation program started in 2014. They join five previous universities selected for the Sloan Scholars program: Pennsylvania State, University of Iowa, Georgia Tech, and the University of South Florida. Cornell University was named in 2013.

At UC San Diego, the program provides support for 12 incoming Ph.D. scholars in the Jacobs School of Engineering or the Division of Physical Sciences. Each scholar is awarded $40,000 over four years in addition to other financial support typically provided to each student.

The Sloan Minority Ph.D. Program is a three-year, multi-million-dollar initiative to support underrepresented minority graduate students in STEM fields. According to the Computing Research Association, African Americans represent only 1.2% of Ph.D.'s awarded annually in computer science nationwide. Sloan Scholars will participate in professional development activities and attend the Institute for Teaching and Mentoring at least twice during their graduate program at UC San Diego.

Combining foundation and university funds, 122 minority graduate students will receive tuition, stipends, and professional development support at UC San Diego, MIT and UIUC over the next three years. "Increasing the diversity of graduate education in the sciences, mathematics, and engineering means getting talented minority candidates into quality Ph.D. programs and helping them succeed once they get there," says Elizabeth S. Boylan, Director of the STEM Higher Education program at the Sloan Foundation. "These universities really stand out for the depth of their commitment to minority Ph.D. students in the sciences and engineering."

UC San Diego itself is implementing ambitious campus-wide reforms aimed at ensuring that one of every five applications, offers, and acceptances to their graduate programs in engineering and physical sciences comes from a minority scholar. In addition to significant fellowship and tuition support, UC San Diego is aggressively recruiting and providing a host of services to entering students, including guest lectures, networking mixers, a one-month orientation for newly admitted students, and a peer-mentoring program that matches new students with more-advanced colleagues.

Jeremy Blackstone is originally from Annapolis, MD, and the Sloan Foundation was impressed with his credentials as a mentor to other minority students. "I became interested in mentoring during my experience as a teaching assistant at Howard University, which I began as a freshman," recalled Blackstone. "It helped me realize that some of the most powerful ways I can affect change in people's lives is through education and service."

According to Blackstone, as the computer science curriculum at Howard became more challenging, he helped fellow students understand difficult concepts and assisted them in debugging their code. He volunteered to help new computer science students during their lab, and even tutored his friends in math and taught them basic programming skills.

"I like that by helping others overcome their obstacles they can be afforded similar opportunities as I have been given," he added. "My parents and community sacrificed to ensure that I had a proper foundation for my education and I want to help provide that same foundation for others."

While at Howard, Blackstone became a team leader in Alternative Spring Break, a program that sent him as a team leader to New Orleans for spring break, where the students cleared fields so that displaced victims of Hurricane Katrina could return to their homes. The following year he was a team leader in Atlanta, mentoring elementary school students and encouraging them to achieve higher academic goals. During the school year, Blackstone worked for Project Dream Big and DC Metropolitan High School, an alternative school where he tutored students struggling in math and science.

Blackstone's desire to give back was amplified after a heart attack as a high school senior, when he was declared dead for 20 minutes. He had been misdiagnosed with asthma, but doctors discovered a rare heart condition that was later reversed with open-heart surgery. He missed some school, but

went on to graduate in the top one percent of his class. That same year his dream of going to college became a reality, after receiving a full scholarship to Howard. "I was ecstatic about this because my parents' level of income would not have been sufficient to pay for tuition, fees, room and board, especially with my younger brother about to graduate high school after me," explained Blackstone. "The scholarship lifted a huge burden and allowed me to focus on my studies and continue with my academic success."

"Overcoming these challenges has allowed me to be an example of hope for other African-American students who may have similar financial or health backgrounds," said Blackstone. "I seek to foster a community of students by openly sharing what I have experience and encouraging others to do the same. I hope this will empower them to believe that they can achieve as well."

While still at Howard, Blackstone was accepted into the UC San Diego-Howard University Partnership for Graduate Success program, which leverages the Summer Training Academy for Research in the Sciences (STARS) program to provide a mentored summer research experience for up to 10 Howard students for eight weeks each summer.

In 2013 and 2014, Blackstone was mentored by CSE Prof. Ryan Kastner on two of his key projects. The first year, he worked in the Engineers for Exploration program, co-directed by Kastner, to develop an "intelligent camera trap" to automatically detect and classify the behaviors of captive animals (first deployed in the tiger enclosure at the San Diego Zoo). Blackstone developed an infrared tiger detector as well as an automated computer-vision algorithm based on Haar features (using OpenCV) for detecting the tiger. Then in summer 2014, Blackstone helped a team in Kastner's lab developing the Reusable Integration Framework for FPGA Accelerators (RIFFA). The RIFFA system is a framework for communicating data from a host computer processor to an FPGA via a PCI Express bus. Blackstone created interfaces to a variety of external memories that sit on the RIFFA board (involving programming of device drivers and hardware).

Blackstone will return to work in the lab of Ryan Kastner as a Sloan Scholar this fall. "I am extremely excited that Jeremy accepted our admissions offer to come to UCSD to do his PhD," said Kastner. "He has a compelling record in scholarship, outreach, and contributions to diversity, and I have no doubt that he will continue to be an outstanding role model for everyone around him." Kastner expects Blackstone to mentor and tutor low-income students at local high schools and continue his efforts as a volunteer, in addition to offering support to UC San Diego graduate and undergraduate students. Added Kastner: "Jeremy will undoubtedly serve as an outstanding role model to *all* students."

Blackstone moved to San Diego in early August to get a jump on the academic year. The incoming student says he'll take his time before settling on a topic for his dissertation, but he is also thinking about life after he completes graduate school. "I may work in industry for a little bit after I get my Ph.D.," mused Blackstone, "but my ultimate career goal is to teach."

The mentoring he will do as a Sloan Scholar, particularly to help other minority students flourish in computer science, will undoubtedly position Blackstone for his choice of career, and hopefully empower other students to follow in his footsteps.

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