



Eric Buckland

PHOTO BY BRAND FORTNER

"It's a very interesting job," he said. "This job is unique in that you get to do a mix of forecasting, outreach, and research. I really enjoy that mix and the challenge that comes from working with high-impact weather."

Brennan says there's never a dull moment when it comes to his career.

"I like the real-time forecasting challenge," he said. "And I like to be involved in longer-term applied research projects."

Brennan's graduate work at NC State focused on applied research, studying how to improve weather forecasts related to winter storms and snowfall. At that time, he worked closely with local National Weather Service offices in the Carolinas and Virginia. That real-world experience helps him to this day.

"I'm most proud of my ability to deal with complex problems in a level-headed and deliberate way," he said. "I think a lot of that comes back to my experience working with people who had to make operational weather decisions in a high-pressure environment."

For Brennan, it all comes down to taking a problem that needs to be addressed in a scientific way and connecting it with something that impacts people in their everyday lives.

"My Ph.D. advisor, Dr. Gary Lackmann, has a long history of translating basic and applied research into real improvements for operational weather forecasters. His mentorship and guidance helped me to learn to approach research in a similar way."

The thing he remembers most about his time at NC State is its sense of community, not only among undergraduates but also among the graduate students. It's

a big university with a small family sort of feel to it, he says, which is the best of both worlds.

"NC State is still a large part of who I am today," he said. "A lot of the ability I have seen grow in myself, I can trace back to the professors and people I knew there."

## PHYSICS

### Eric Buckland B.S. '85, M.S. '92 Physics

#### *Bioptigen, Inc.*

You could say it was the precursor to what he does today.

Before he would go on to become the president and chief executive officer of a company that provides state-of-the-art imaging equipment to ophthalmologists around the country, Eric Buckland was an undergraduate student who was interested in learning how to make photographs look three dimensional.

During the summer between his sophomore and junior years, he decided to study holography, the science of bringing depth to one-dimensional images. To this day, he remembers how the Department of Physics set him up with a room in a lab and an optical bench, telling him "Go at it."

Buckland said the experience was intensive, frustrating and fun, and at the end of the summer he had completed one photograph: An image of an electrical plug.

"I had full reign to explore and learn on my own," said Buckland, who recalls using the full arsenal of equipment—a laser light source, beam splitters, high-

resolution photographic plates—to bring depth of field to that flat image. "The most important thing, it gave me a place to learn that wasn't just constrained to the classroom."

The independent learning project wasn't the end of the undergraduate opportunities that Buckland said positioned him for success as he went on to earn his Ph.D. and embark upon the professional world. As an undergraduate, he joined a research lab where he and others grew complex semiconductor structures and learned how to characterize them. He also had the opportunity to author scholarly papers, and it was as an undergraduate that he gave his first academic talk.

Today, Buckland is at the top of the ladder at Morrisville-based Bioptigen, which he co-founded. With more than 25 years of experience in developing and bringing to market optical technologies, he is a leader in his field. He holds 25 patents and has been the principal investigator on several federal grants.

Like many alumni, Buckland said NC State's combination of close-knit departments and major university resources were just the thing to jumpstart his academic journey and professional career track.

"It's first-rate in terms of the intellectual and academic challenges, but it's also world-class in terms of the environment it provides to its students," Buckland said. "I loved it."

## MATHEMATICS

### Sabrina Hessinger Ph.D. '97 Mathematics

#### *Armstrong Atlantic State University*

Sabrina Hessinger, an associate professor of mathematics at Savannah's Armstrong Atlantic State University, is all about the students. Working with them is the best part of her day.

"I have been about students since I graduated from undergraduate," she said. "I am about developing students as scholars and developing them as mini professionals."

Hessinger just wrapped up a 10-year National Science Foundation grant that sought to examine and enhance the

working relationships between faculty at the K-12 level and in higher education.

In the first phase of the grant, Hessinger and her colleagues rolled out a massive implementation of new strategies across Georgia, reaching thousands of teachers through hundreds of “learning communities,” which are sessions during which teachers and faculty meet to study the literature and share expertise on effective practices for student learning.

Traditionally, these groups are composed of teachers within a single school. Under the NSF grant, officially titled “Partnership for Reform in Science and Mathematics,” the groups were combinations of K-12 and higher education faculty groups from across STEM disciplines.

The second phase of the grant involved vigorous research, in which Hessinger and her colleagues found encouraging data.

“Students in both K-12 and higher ed do better when K-12 teachers and STEM faculty are working together in learning communities,” she said. “That’s a big

thing to find, and I’m pretty proud of that.”

NC State’s prestigious Department of Mathematics made a mathematician out of Hessinger, but they also made her a strong teacher and leader. It was here that she developed a passion for connecting with her community, not to mention some pretty good presentation skills. She also picked up a knack for writing grants with the NSF Math Science Partnership, the organization that made her most recent work possible.

Hessinger said her mentors at NC State modeled the professional characteristics that she came to appreciate. She molded herself mathematically after Michael Singer, her adviser, who taught her how to present well to people—whether they had a mind for math or not. Her teaching strategy, she said, is very similar to that of Jo-Ann Cohen, who really engaged the students during every minute of class, Hessinger said.

The second thing that made her into the academic professional she is today,

Hessinger said, is that NC State provided rich opportunities as a graduate student to participate in leadership, teaching, conferences and community outreach.

The end result? Hessinger emerged as an educator with professional goals that were atypical of many math professors. Among them: She wants to engage women and underrepresented minority groups in mathematics; she wants to work with teachers and students in the K-12 schools to promote mathematics excellence; she wants to get administrators to reward mathematicians and scientists who do scholarly work that leads to success in education from kindergarten through college. And she underscores the importance of doing undergraduate research on mathematics teaching with math majors who will be high school teachers.

## CHEMISTRY

### Sherice Nivens B.S. '98 Chemistry

#### *Intuitive Surgical*

If you’re looking for Sherice Nivens, you’ll have to check a few different places. The cardiac specialty sales manager for California-based Intuitive Surgical, a company at the forefront of the minimally invasive, robot-assisted surgical movement, has her hands in a lot of projects.

With job responsibilities in the clinical, technical, marketing and financial aspects of providing the da Vinci Surgical System to hospitals around the country, it’s safe to say that Nivens doesn’t often have a free moment. One day she may be in the operating room and the next she’s meeting with marketing professionals and hospital executives to make sure they’re getting the most out of their investment.

The da Vinci system mimics open surgery, allowing surgeons to perform complex procedures through small incisions in the body. It’s named after Leonardo da Vinci, who some credit with creating the very first robot.

“I spend a big part of my day working with cardiac surgeons and training them on the application of the da Vinci system,” said Nivens. “I do spend time working with hospital CEOs to ensure they are happy with their investment.”

Sabrina Hessinger



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