

6-27-2018

Data Defenders

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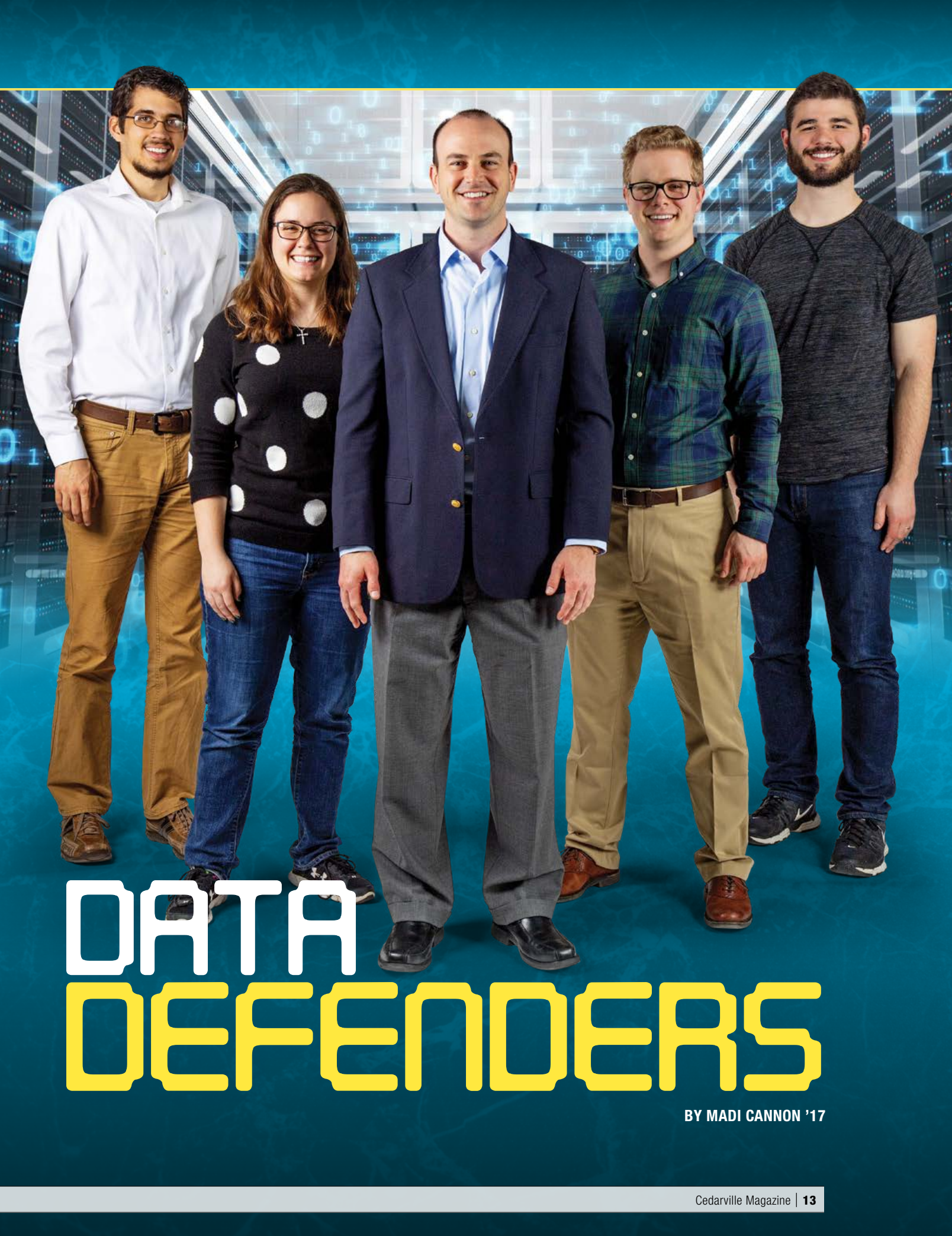


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Recommended Citation

Cannon, Madison Claire, "Data Defenders" (2018). *Alumni Publications*. 613.
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DATA DEFENDERS

BY MADI CANNON '17



You use technology every day. But just how safe is your personal information online? With every credit card purchase or text you send, someone could be watching. More than ever, cybersecurity professionals are necessary to protect the privacy of personal information online. Through its cybersecurity program and new Center for the Advancement of Cybersecurity, Cedarville University is preparing an elite force of data defenders.

In May 2018, Cedarville graduated its first class of computer science students with specialized training in cybersecurity. Nine students graduated with a Bachelor of Science in computer science degree with a specialization in cyber operations, but many other computer science and computer engineering students have benefited from courses in the track. These graduates are well-equipped to meet the latest security demands and to defend the safety of individuals, businesses, and the nation.

“We live in a world that is oriented around cyberspace and is becoming more so all of the time,” said Seth Hamman, Associate Professor of Computer Science and Director of the Center for the Advancement of Cybersecurity. “Cybersecurity is now crucial to the proper functioning of our economy, the well-being of our citizenry, and even to the safeguarding of our freedoms.”

STRONG FOUNDATION

Cedarville’s cybersecurity track began in 2016, but the field of cybersecurity has played a significant role in the computer science program since its inception in 1999. The computer science program was founded and established by three Cedarville professors: David Gallagher, Professor of Computer Science; Keith Shomper, Professor of Computer Science; and Robert Schumacher, Associate Professor Emeritus of Mathematics. They had all retired from the U.S. Air Force and had extensive experience teaching at the Air Force Institute of Technology (AFIT) at Wright-Patterson Air Force Base (WPAFB), and the U.S. Air Force Academy.

“These men not only brought an incredible amount of expertise to guide them as they started our program at

Cedarville, but also amazing connections that would help our program grow, especially in the area of cybersecurity,” said Hamman.

Cedarville was a prime location to create a computer science program because it is only 20 miles from WPAFB and AFIT, a major national hub of cybersecurity activity. As Cedarville maintained close ties with WPAFB and AFIT, many graduates were welcomed into AFIT’s graduate programs. From there, many have entered cybersecurity careers.

By 2012, Cedarville’s computer science program had matured and established an outstanding reputation as a technical program. It was time to hone an area of expertise. With a long history of cybersecurity involvement, students’ strong desire to study it, and the increasing need for cybersecurity worldwide, Cedarville chose to develop an expertise in the field. Cybersecurity education is a new field, only recently emerging as an offshoot of computer science, which itself has only been around 50 years.

Cedarville’s movement toward cybersecurity was enhanced in 2012 by the hiring of Hamman, who earned his Ph.D. in cybersecurity at AFIT. Two years later, Cedarville hired Patrick Dudenhofer ’04, who had 10 years of experience working in the Air Force Research Laboratory. Dudenhofer is completing his Ph.D. in computer science at Wright State University, focusing on cybersecurity research.

“Because of God’s providential leading over the past several years, Cedarville’s computer science program has cyber-trained faculty, many alumni working in cybersecurity, and a great reputation among cybersecurity communities in academia, industry, and government,” said Hamman.

The strength of Cedarville’s program was recently acknowledged by the National Security Agency, which named Cedarville a National Center for Academic Excellence in Cyber Operations. “This is a powerful stamp of approval for our program,” Hamman said.

CAREER PREPARATION

One strength and distinctive of Cedarville’s cyber program is its focus on technical skills. Students spend less time

Pictured on the previous page are computer science graduates Richard Lively '18, Emily Wolf '18, Noah Shinabarger '18, and Christopher Brauns '18, with Seth Hamman, Associate Professor of Computer Science, center.



studying cyber policy so they can devote more time to learning the tools and tricks of the hacking trade, a rare and valuable skill. This opens up opportunities for graduates to work in cyber operations at the world's premier cyber organizations, such as the National Security Agency or U.S. Cyber Command.

"Our graduates understand computing at a deeper level, which makes them versatile and also able to push through obstacles and accomplish objectives," said Hamman. "They know how to get things done, and their employers love them for that."

Nathan Shinabarger '18 is working as an Assistant Cybersecurity Researcher at the Massachusetts Institute of Technology Lincoln Laboratory. The Lincoln Laboratory is a trusted cybersecurity development center that is regularly consulted by the U.S. government.

Not all graduates will end up working in cybersecurity-specific jobs, but they all benefit from an understanding of cybersecurity practices, no matter what career they choose. Having a specialty in cybersecurity is attractive to employers and can open up additional opportunities.

"Cybersecurity is a specialized job function, but no computer science graduate is off the hook from making responsible choices in how they develop the technology that society will end up using in the future," said Hamman.

Richard Lively '18 is one example of that. Lively works as a Software Engineer Associate at Lockheed Martin in Florida. While he does not directly deal with cybersecurity, his time in the cyber program has given him a deeper understanding of the field, which helps him develop more secure software and systems.

DEMONSTRATION OF CHRIST'S LOVE

Through cybersecurity, Cedarville students are demonstrating the love of Christ in ways the New Testament authors could not have imagined. The Center for the Advancement of Cybersecurity, which opened June 1, will develop cyber leaders in the classroom who can also promote cyber awareness in society. This will mean using their skills to defend others, but also educating others on how to stay safe

online. For instance, in the fall of 2017, Shinabarger and Lively both helped lead a cyber-awareness event for students at the local Cedar Cliff high school and middle school. They each presented basic cybersecurity principles to help students stay safe online. They shared this same message during a program on campus. These are the kind of activities the new center will actively promote.

"Many people don't know what cybersecurity is or how to do it," said Lively. "By educating others, I hope to help people be aware of what's going on in the world and know how to better protect themselves online. This is one way I can show my love for God and my neighbor."

"Cybersecurity is now crucial to the proper functioning of our economy, the well-being of our citizenry, and even to the safeguarding of our freedoms." – Seth Hamman

In security contexts, Christian character and integrity are indispensable. "Cybersecurity is concerned with protecting the rights of individuals and organizations in cyberspace, and it is a field that Christians can not only wholeheartedly support but also enrich," said Hamman.

Because Cedarville is grounded in biblical truth, students are taught to cultivate their character and live in a way that shows their love for God. "In the 21st century, technology plays such an instrumental role in everything we do," said Shinabarger. "As Christians, part of glorifying God is protecting the technology we have designed and enabling other people to continue using it."

Madi Cannon '17, a former Public Relations Writer for Cedarville University, is a Research Assistant at Empower Ministries International. She is currently pursuing a Master of Theology degree at Dallas Theological Seminary.