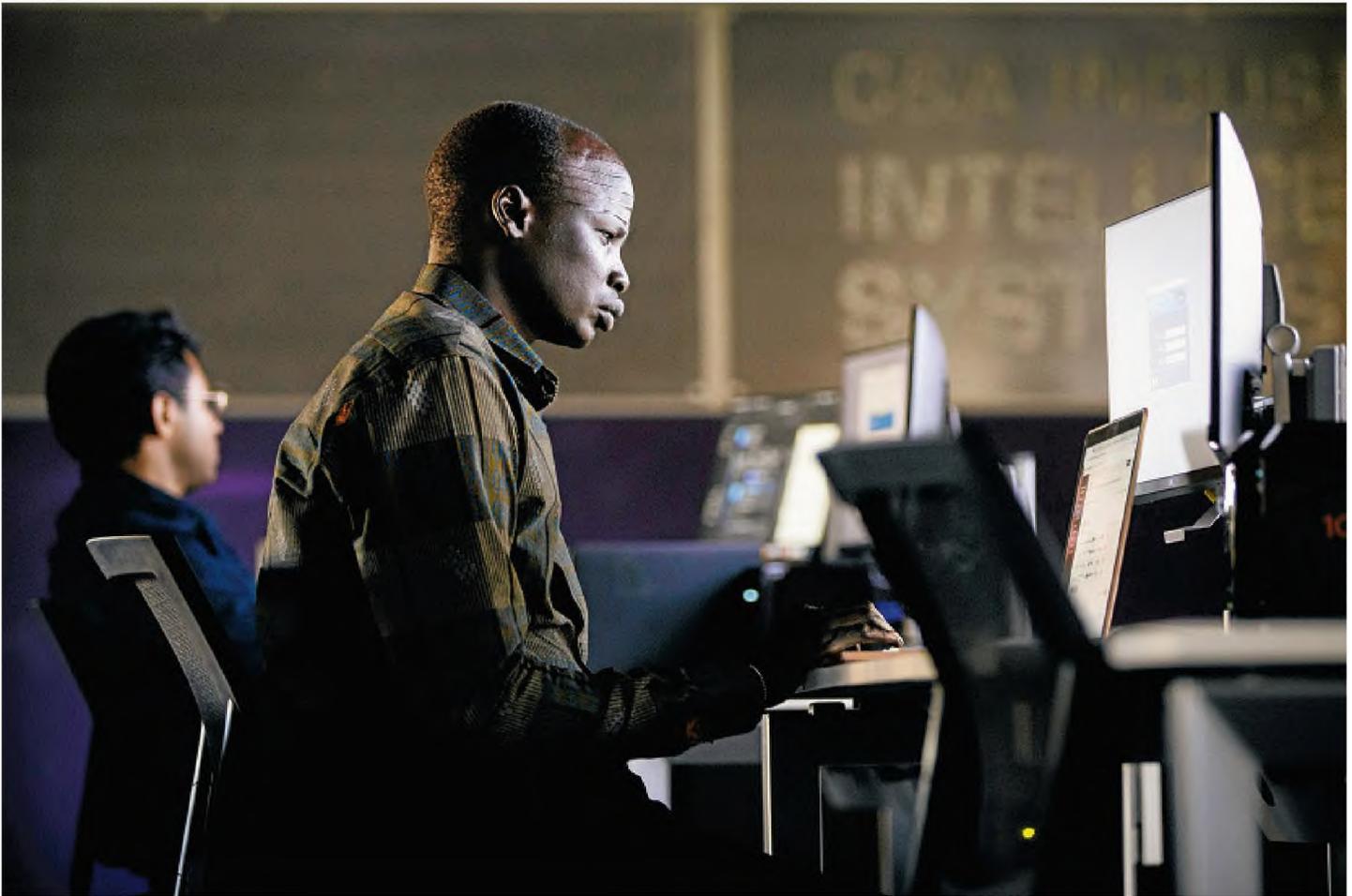




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RYAN SODERLIN/THE WORLD-HERALD

Abraham Yuek studies computer forensics at Bellevue University. The university has invested \$1.3 million into its new Intelligence Systems Lab.

# COLLEGES WORK TO FILL CYBERSECURITY SHORTAGE

By RICK RUGGLES  
 WORLD-HERALD STAFF WRITER

As computers have wedged their way into every aspect of society, scoundrels seeking to exploit computerization for criminal purposes have weaseled their way in, too.

Now a huge field has opened for people who can detect and play defense against breachers, hackers and attackers aiming to create chaos or make a buck by stealing organization and personal information.

The field of cybersecurity is prom-

With need for experts high, Nebraska and Iowa schools get 'in the game'

ising — too promising. Cyber Seek, a project funded by the Commerce Department, says Nebraska has more than 2,000 job openings in cybersecurity-related fields, Iowa has more than 2,400 and the nation has more than 310,000.

Higher education wants to catch

up. Bellevue University has invested \$1.3 million into a cybersecurity laboratory in which students learn how to thwart criminals from breaching supposedly secure computer networks.

"What used to be in here was a ceramics lab and darkrooms," Doug Rausch, director of the university's cybersecurity program, said of his new Intelligence Systems Lab. In that lab, students learn in part how to make a computer network safer by breaking it "and then making it more

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## Cybersecurity: Programs at Bellevue U., UNO, Metro are endorsed by NSA

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secure,” Rausch said.

The centerpiece of the Bellevue lab is a 25-foot-wide, almost 5-foot-tall data wall that can show slides, students in remote locations, videos, websites, data analysis results and many other things. The university placed a smaller data wall in a meeting nook in the back of the lab.

Veronika Pinkerton, who is pursuing a master’s degree in cybersecurity at Bellevue, said she wanted a career change and cybersecurity has proved to have potential. “I love it,” she said. “You have to work hard. ... I have been around the block, but I want to get a little bit different direction.”

The National Security Agency and the Department of Homeland Security honor strong academic cybersecurity programs with the designation of “center of excellence.” In Nebraska, Bellevue University received the designation in 2012, the University of Nebraska at Omaha received it in 2017, and Metropolitan Community College and Norfolk-based Northeast Community College earned it in 2018.

In Iowa, only Iowa State has been deemed an NSA center of cybersecurity excellence. Iowa State was one of the first seven schools in the nation to win that designation, in 1999, said Doug Jacobson, director of the Information Assurance Center there.

“Since the adversary is dynamic and persistent, the field changes constantly,” Jacobson said. “We need more schools in the game to help produce the students.”

The need for cybersecurity experts is great, and the compensation is attractive.

Cyber Seek said salaries vary depending on the person’s expertise and responsibilities. But the average for cybercriminal investigators is \$85,000 a year, and the average for cybersecurity architects, who design system concepts, is \$129,000.

The NSA’s website says about 270 four- and two-year schools have designated cybersecurity programs now, most involving either courses or research. Among regional colleges hoping to gain the designation soon are the University of Nebraska at Kearney and Eastern Iowa Community Colleges, based in Davenport.

The endorsement means that a college has put the necessary resources and expertise into creating sound, current cybersecurity classes.

Diane M. Janosek, commandant of the NSA’s National Cryptologic School, said all 50 states must work together to combat cybercrime.

“Cybersecurity is both a national security issue and an economic security issue,” Janosek said this week. Computer networks drive defense, energy, agriculture, manufacturing, water use and many other things, she said.

Gary Sparks, director of Metropolitan Community College’s cybersecurity center, said it’s typically the human behind the computer, and not the computer, who lets in the malicious characters.

Sparks quoted Frank Abagnale (a former con artist on whose life the movie “Catch Me If You Can” is based) as saying that when an attack on a computer system succeeds, it’s typically the user who did something he shouldn’t have or didn’t do something he should have.

“The computer itself doesn’t cause the breach,” Sparks said. “It’s the human that causes the breach.”

Brad Vogt, an information technology instructor at Northeast Community College, said too few high school guidance counselors know about the opportunities in cybersecurity. Meanwhile, the need for those specialists grows.

“And a lot of businesses are just starting to wake up to how much they do need cybersecurity,” Vogt

said. “It’s going to be relentless.”

Many high-profile attacks have taken place over the past several years. Hackers have struck the computer networks of the Democratic National Committee and the federal Office of Personnel Management. They have hit businesses such as Target, Home Depot and Equifax.

Rausch said there are four basic kinds of attackers: jokesters and tricksters who want to cause chaos; criminals digging for credit card and bank information to steal money; “hacktivists,” activists seeking to disrupt an organization or industry they oppose; and foreign powers such as Russia that aim to topple governments or sow unrest in other nations.

Cybersecurity experts described a conflict between breachers and defenders similarly to that between bacteria and antibiotics — as soon as the defenders thwart one strategy, the malicious forces adapt and get around defenses.

Janel Nelson, a Bellevue faculty member, said school counselors too often tell students to follow their passion and don’t explain the potential in cybersecurity.

Nelson has a civilian job with the U.S. Navy in systems engineering on a project at Offutt Air Force Base. And as a member of the Air Force Reserve, she works in cybersecurity for U.S. Special Operations Command at MacDill Air Force Base in Florida.

She routinely hears from job recruiters, she said, and she isn’t even looking for something new. Working in cybersecurity is difficult but provides job security, she said.

“We’ve had 20 years to work on this problem — more than 20 years — and it’s just as bad as when I started,” she said. Cybersecurity was undermanned then, she said. And it’s undermanned now.

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