Cyber
defenders

Defending against cyberattacks is a top concern for Boeing and its military and government customers

By Lynn Farrow and photos by Paul Pinner

"Partnering with universities for new technologies and talent is a key initiative within Boeing."

– Barbara Fast, vice president of Cyber and Information Solutions

PHOTO: The Global Network Operations talent pool includes (clockwise, from top right) Salil Pandit, Brian Trimmer, Sarah Tran, Ernesto Morales-Perea, Tin Tam, Jarrad Sims and Matthew Gill.

It's nothing short of a war, and the weapons can cause damage on a global scale. But this war is not being fought at some remote location far away. The battlefield is invisible. And the enemy could live right next door.

In what some have termed a "virtual 9/11," today's cyberattacks do not target a person or place, but a person's personal data, a corporation's intellectual property or a government's network infrastructure.

In the face of increasingly sophisticated cyberattacks, the demand for computer-security experts has become so critical that U.S. Homeland Security Secretary Janet Napolitano announced in October that her agency would hire 1,000 more to tackle what she called one of government's most urgent priorities.

The need for cybersecurity is no less important for a company the size of Boeing, where 300,000 users, including employees, customers and suppliers, collaborate and share information daily in more than 90 countries.

Boeing's Cyber and Information Solutions, part of the Intelligence and Security Systems division created two years ago to address cybercrime and other homeland security issues, is using some unconventional recruiting methods to find these cyberwarriors—including keeping an eye on university "cyber competitions."

"Partnering with universities for new technologies and talent is a key initiative within Boeing," said Barbara Fast, vice president of Cyber and Information Solutions. "These cyber competitions,

which are held nationwide, are a lot like the TV show *Jeopardy* on cybersteroids. To win one is quite a feat."

That's how Paul Ambrosini, Raffi Erganian, Matthew Gill, Jeff Henbest, Jarrad Sims and Tin Tam landed jobs at Boeing.

The Cyber Six, as they have been called, are 2009 graduates of California State Polytechnic University in Pomona, Calif., where as students last year they won the Western Regional Collegiate Cyber Defense Competition. Their efforts caught the eye of Jim Ross, Boeing senior systems security engineer. Eventually all six were hired by Cyber and Information Solutions, which is designing and integrating cybersolutions for Boeing's network as well as the

U.S. Defense Department and other government agency platforms.

"In order to design a good defense against hackers, there's nothing better than knowing exactly what tools are being used by the bad guys so you can incorporate that knowledge into your defensive capabilities—precisely what these students did to win the [collegiate] competition," said Rich Wada, chief segment engineer with Boeing's Global Network Operations, part of Cyber and Information Solutions.

The Global Network Operations team has a deeper talent pool than just the Cyber Six. There's Sarah Tran, a recent UCLA graduate, Zach Nelson from the Missouri Institute of Technology, Brian Trimmer from the University of Southern

California, Ernesto Morales-Perea from Rensselaer Polytechnic Institute, Andrew Huah from the University of Michigan, and Salil Pandit from Cal Poly. "We've been able to integrate the strengths of the Cal Poly team with the rest of our talented [Global Network Operations] staff in Anaheim, Calif., who also share a passion for the cyberdomain. And together they've come up with some pretty innovative ideas," Wada said.

The group's focus is on research and development projects that will ultimately produce solutions that protect the company and customer networks. To do this, the team examines system weaknesses and determines possible infiltration methods. The Cyber Six also built a replica of the computing
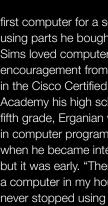
environment they used to win the Collegiate Cyber Defense Competition and have turned it into a training tool.

The Cyber Six meet through a Cal Poly club that provides a forum for students to explore computer security. But their interest in network infrastructures and how to protect them started very young.

"I didn't have a computer but I'd go to the local library and mess around in their computer lab," Tam said. "Every time I broke something I had to learn how to fix it myself, so I learned a great deal about how computers function."

Henbest's parents enrolled him in a computer class and by the time he and Tam were 8, they were skilled at computing and hooked on the technology. Ambrosini was in the sixth grade when he built his

first computer for a science project using parts he bought commercially. Sims loved computers as a kid and with encouragement from his father enrolled in the Cisco Certified Network Associate Academy his high school offered. By the fifth grade, Erganian was already interested in computer programming. Gill isn't sure when he became interested in computers, but it was early. "There has always been a computer in my house and I've just never stopped using one," Gill said.

Their passion and enthusiasm for computers spills over into everything they do. At their Boeing office, they work in a wall-less area referred to as "the cave" so they can interact with one another and work more efficiently. But no matter how they do it, they

remain focused on one thing: helping protect computer systems from hackers and making sure, along with Boeing's other cyberwarriors, that the company and its customers always have the upper hand in this war. ∎

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Matthew Gill:
There was always a computer in my house and I just never stopped using one.

Jeff Henbest:
It's amazing to be able to work with all of your friends—people you already trust and know will always pull their weight.

Raffi Erganian:
Our friendship transformed us into a group that has been able to work well together.

Paul Ambrosini:
In the sixth grade, I built my first computer for a science project using parts bought commercially.

Jarrad Sims:
I loved computers as a kid and with encouragement from my father enrolled in the Cisco Certified Network Associate Academy my high school offered.

Tin Tam:
I got interested in computers when I was four years old. At that age, I didn't even have a computer but I'd go to the local library and mess around in the computer lab.