

GEORGIA TECH GRAD PART OF A NEW-AGE MILITARY MACHINE

By Anne Wainscott



*EMS Technologies offers engineering students
a unique job with a global impact.*

Eric Williams has had an eventful first month at EMS Technologies, a satellite communications and advanced radio frequency system manufacturer in Norcross. The project design engineer, hired in June, is working on a radio frequency electronic component that allows satellites to operate securely.

His design is being evaluated for a next-generation European military secure communications satellite contract that EMS hopes to win. The EMS systems, called beam forming networks, also are used on MILSTAR and will be part of Advanced EHF, the U.S.'s next-generation military satellite systems. EMS develops advanced switching antenna technology that protects satellites from enemy jammers and ensures the security of the communications link – so that ground troops and battlefield commanders can communicate and coordinate the battle strategy without interference from the enemy.

“What drew me to EMS is that they are doing cutting-edge technology design,” said Williams, who specialized in electronics and analog design at Georgia Tech. “It’s exciting to work on something international – the war on terrorism is international and affects everybody. Any contribution makes you feel patriotic.”

The Atlanta-based company supplies key components and electronics to all the major military prime contractors, including TRW, Boeing, Lockheed Martin and Raytheon. EMS’s advanced communications technology and high-speed data products have been credited with giving military commanders in Afghanistan and now Iraq a detailed, real-time view of the battlefield that was unheard of as recently as the first Gulf War.

Williams said his Georgia Tech education prepared him well for the challenges of his new job. The school’s graduate engineering program ranks in the top five in the country.

“Engineers are problem solvers – and Georgia Tech prepares you for problem solving better than most institutions,” he said. “They gave me real-world problems to work on – problems that don’t have one answer to them. It’s not like two plus two and the only answer is four.”

At EMS, Williams is finding plenty of mathematical challenges that don’t immediately add up. He is focused on the art and science of placing components on a very small board – where it is not unheard to have to fit 1,000 transistors on a board the size of a penny. Williams emphasized the critical role math and science studies play in applying engineering concepts into the real world.

“Math and science are the fundamental building blocks for understanding the new technology that is emerging. To understand the next evolution of technology, you have to understand the basics – the things that have been done before. So even though you may find that physics or math class boring, all of that will help you build knowledge and take you to the next generation of things that haven’t been done.”

His advice to up-and-coming engineering hopefuls is to make sure that “engineering is something they love and want to do” before committing to it.

“Don’t just do it for the money if your heart is not into it. Engineering is like so many things. It takes a minimal amount of talent just to be able to succeed at getting decent grades. Then it takes commitment.” **e**