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CONTACT: Mark D. Weinstein
Executive Director of Public Relations
937-766-8800 (o)
937-532-6885 (m)
Mweinstein@cedarville.edu
@cedarvillenews

Health Sensors Keep Air Force Airmen Safe

CEDARVILLE, OHIO -- When Loren Caleb Baum’s senior computer science design team worked on the Survival Health Awareness Responders Kit (SHARK), a health sensor for possible use by the U.S. military, little did he know it would lead to a career at Wright-Patterson Air Force Base (WPAFB).

Baum, a 2019 graduate of Cedarville University’s computer science program, worked on the health sensor that helps keep Airmen in training safe from potential medical crises for his capstone senior project. Now, six months after graduating, he is a contracted associate software engineer for Ball Aerospace Technology at WPAFB.

The project was the result of the university’s long-standing connection with the Air Force Research Laboratory’s 711th Human Performance Wing and a need to effectively monitor students undergoing physically demanding Survival, Evasion, Resistance, and Escape (SERE) training.

At Wright-Patterson, Baum is perfecting the remote vital signs monitoring system known as the Survival Health Awareness Responders Kit, or SHARK.

SHARK helps instructors monitor the real-time health conditions of Airmen in SERE training. During training, the recruit may face a sudden heatstroke or other medical emergencies on the field. Such medical conditions could hinder the recruits radioing instructors for help.

SHARK circumvents this situation by providing instructors with the recruit’s condition and location so they can send emergency medical personnel as soon as a problem occurs.

In his role as a contractor, Baum is refining the user interface on SHARK. Baum is interacting with military students and leaders to see how the technology impacts them and learn ways to improve it.

In the future, Baum expects the SHARK technology will be applied in other fields, including for many first-responders. Baum believes the SHARK system will better protect the health of firefighters who are in the midst of battling a blaze. The technology can track health conditions and provide preventative countermeasures to reduce the danger of heatstrokes and other medical issues.

“Cedarville effectively prepared me not only for this project but also for my current job with Ball Aerospace Technology,” Baum said. “I learned how to collaborate and ask questions of colleagues who have more experience, and my professors helped me to think critically and ask pertinent questions that provide the key.”
Baum is the sole developer for the cloud server that runs the SHARK program, which is steadily moving toward its completion. Afterward, he will work on other projects for Ball Aerospace Technology in conjunction with AFRL. He will continue to use the education and skills that Cedarville imparted on him to help protect the military.

Located in southwest Ohio, Cedarville University is an accredited, Christ-centered, Baptist institution with an enrollment of 4,380 undergraduate, graduate, and online students in more than 150 areas of study. Founded in 1887, Cedarville is recognized nationally for its authentic Christian community, rigorous academic programs, including its Bachelor of Science in Computer Science program, strong graduation and retention rates, accredited professional and health science offerings and high student engagement ranking. For more information about the University, visit www.cedarville.edu.