U.S. AIR FORCE TECHNOLOGY TRANSFER PROGRAM OFFICE

SUCCESS WITH

EDUCATION PARTNERSHIP AGREEMENTS

AIR FORCE PARTNERSHIP

with University Enables 3D Technology Research

COMPANY NAME:
Bowling Green State University School of Human Movement, Sport and Leisure Studies
Bowling Green, OH

TECHNICAL PROJECT OFFICE:
711 Human Performance Wing
Wright-Patterson AFB, OH

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WRIGHT-PATTERSON AIR FORCE BASE, Ohio — The Air Force Research Laboratory 711th Human Performance Wing signed an Educational Partnership Agreement with Bowling Green State University's School of Human Movement, Sport and Leisure Studies due to a mutual interest in the areas of human biomechanics and three-dimensional (3D) motion analysis.

An EPA is a type of technology transfer agreement between a federal laboratory and an educational institution that enables the transfer or development of technological resources and applications, such as equipment, facilities and professional expertise.

Under this agreement, AFRL/711 HPW and BGSU, a public university in Ohio, collaboratively developed research projects to be conducted at BGSU. The 711 HPW loaned motion analysis equipment to BGSU, which enabled BGSU students and faculty to conduct research of benefit to both parties. Several research

A test participant receives a 3-D full body scan at Bowling Green State University in Ohio. The participant is attempting to conceal an illegal object under their clothing through a simulated security checkpoint. (Image courtesy of Bowling Green State University.)

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papers have been published regarding the multiple projects that were conducted through the equipment loan.

“The purpose of the EPA is to encourage and enhance study in scientific disciplines. AFRL/711 HPW found that working with BGSU was mutually beneficial and validated the importance of partnering with academia,” said Jennifer Whitestone, biomedical engineer, AFRL 711 HPW.

“Sharing technologies and assets with our BGSU colleagues offers a unique collaborative opportunity that can lead to new ideas, innovations, and solutions to help solve our current Air Force challenges as we help to develop the bright young minds that will become part of tomorrow’s workforce.”

Access to collaborative resources allowed researchers to analyze concealed objects of various sizes in the torso and the changes that occurred to the size, shape and motion of an individual. The datasets collected are expected to result in improvements of defense and security processes for the military.

Research efforts were also made in the area of simulated entry control point development for evaluating human deception and its influence on human dynamics when individuals were near a simulated air base, town or other restricted security checkpoint. When illegal objects made it through the checkpoint undetected, individuals received a monetary incentive of $100.

Projects of interest to the School of Human Movement, Sport and Leisure Studies have been conducted to analyze soccer kicking and hockey slap shot techniques. Results from this research included a discovery in the differences between how skilled and unskilled soccer players use the torso when kicking and developing novel gait assessment models for a specialized non-motorized treadmill.

“The partnership with AFRL has helped every facet of our research to grow and has added significantly to our opportunities for student instruction,” said Dr. Matt Laurent, an associate professor of exercise physiology at BGSU.

This agreement supports the Air Force goal of promoting science, technology, engineering and mathematics, or STEM education. In addition, undergraduate and graduate students of BGSU were also provided with invaluable opportunities to participate in innovative research. The research is scheduled to continue until 2019.

“I believe my experience with the Air Force set me apart from other students and played a vital role in my admission into a doctoral program,” said Dano Tolusso, BGSU graduate and current doctoral student at the University of Alabama.

For additional information about technology transfer or how to partner with the Air Force, please contact the Air Force Technology Transfer Program Office at 937-904-9830, af.techtransfer@us.af.mil, or visit the T2 website at www.wpafb.af.mil/t2.