

UP&ATOM

Alum Makes Significant Contributions to Nuclear Power Industry

By JESSICA CREGGER '07

During his first few years of teaching, Asheville resident **Peter Freer '86 MAEd '93** met a young boy named John who became the inspiration behind a technology that would eventually lead Freer to speak to a United Nations agency.

John had attention-deficit hyperactivity disorder, then called “minimal brain dysfunction,” and was highly disruptive in class. Freer wasn't sure how to handle John in the classroom because he had never before encountered a student with the disorder. After seeking the advice of his former college professors, Freer made several changes in the classroom for John, including moving him closer to the front and creating a behavioral plan. Although these adjustments helped somewhat, nothing truly improved John's behavior. John's parents even tried medication, Freer said. “His parents couldn't cope with him and had medicated him, but they couldn't get it quite right,” he said. When John came into the classroom in a semi-unconscious state and put his head down on his desk, Freer could take no more. “Once I encountered John, I knew I had to do something educationally with students like this.”

Over the course of the next 10 years, Freer dedicated his time and energy to developing the Play Attention system, an educational enhancement of NASA-based technology called neurofeedback that monitors brain waves and alerts students of their concentration levels. Students put on a sensor-filled helmet, similar in appearance to a bike helmet, and use their concentration to control characters and situations on a screen. The system helps to increase students' attention spans and short-term memory sequencing, as well as to develop their ability to filter distractions.

In 2005, executives from Ontario Power Generation in Toronto discovered Freer's Play Attention system as they were searching for ways to improve attention and reduce anxiety levels of their nuclear power plant trainees. Although the industry spends more than \$1 million per person in preparation for certification, trainees often fail because of uncontrollable stress and anxiety. Through his company Freer Logic, Freer modified the software specifically for the nuclear power industry by creating a three-dimensional nuclear simulator, which in turn attracted the interest of the International Atomic Energy Agency in Vienna, Austria. Freer was asked to share his knowledge at the IAEA's headquarters at the United Nations this spring. He explained the fundamental basis and mechanics of the software and also gave a demonstration of the system. Since then, he has been asked to work with other groups, including the U.S. Marine Corps and the U.S. women's bobsled team. “It's amazing how far we can stretch the applications for this into virtually any field at this point,” he said.

Freer said that his education at Western has been a valuable resource to him. “I don't think I could have done any of this without my background in education and Western is responsible for that,” he said. “Coupling that with 10 years of extensive research in the field allowed me to create the software that is used internationally and will now become a heavy player in the field of nuclear power.

***Peter Freer '86 MAEd '93** presented to the International Atomic Energy Agency in Austria the Play Attention system he designed to help increase attention spans and filter distractions.*