University of Southern California • Fall 2011

USC Viterbi // Engineer

THE CHANGING FACE OF ENGINEERING

ROMANCING KIDS WITH ROBOTS // MANY LIVES OF ENGINEERS
THE WiSE WOMEN OF ENGINEERING

Where Art Meets Science

INVENTOR AND MUSICIAN NEIL SIEGEL '74 REFLECTS ON A CAREER OF CREATIVE ACCOMPLISHMENTS *by Alana Klein-Prisco*

Robyn and Neil Siegel

When Neil Siegel '74, vice president and chief engineer at Northrup Grumman Information Systems, isn't inventing groundbreaking military systems, he's likely reading one of his 10,000 books or playing his favorite Persian instruments, the ney and tár. The Brooklyn-born, but L.A.-raised award-winning scientist and engineer, who added a Ph.D. from USC to his long list of accomplishments last May, has bridged the proverbial arts & sciences divide, proving that creativity is an integral part of discovery.

Simply put, "I like to create stuff," Siegel says. "I find the creative process very satisfying because it combines technical skills and art, which explains why I have been a musician my whole life and why I chose the field of systems engineering."

As the son of an electrical engineer (his mother, USC '57 and '62) and a chemical engineer (his father), Siegel was destined to follow suit. He majored in mathematics as an undergraduate at USC, and then earned a master's degree in the field two years later. "Math was not very popular in those days. It was very rigorous, but I liked it," he says.

He then took a job at TRW, which was later bought by Northrop Grumman, as a computer programmer. He continued a career in computer programming for another few years, but increasingly felt a pull toward systems engineering. "I fell in love with it. I found it so interesting and foundational," he says.

From then on, systems engineering became his focus and passion. As a systems engineer, he invented several successful military and intelligence systems, including the Blue-Force Tracking system, a GPS-enabled system that has also found its way into consumer products, the Forward-Area Air Defense systems, and the Army's first unmanned aerial vehicle, among many others.

One work assignment took Siegel and his wife, who is also an accomplished singer and dancer, to the Bristol region of England, where he worked for the British Ministry of Defense. "I had always dreamed of living overseas," he says. Opting for an adventure, he and his wife chose to live in the village of Castle Combe, with a population of 100, in North Wilshire, England.

For such a prolific inventor of military programs, Siegel says he got involved in military projects by happenstance. "I didn't know much about the military or anyone who had been in it. But that's what I was assigned to and it turned out to be a lot of fun," Siegel says.

Even with more than 20 patents and the Simon Ramo Medal, Siegel still hungered for new challenges and enrolled in a Ph.D. program in Systems Engineering at USC in 2008, finishing in 2011. "I probably had some disadvantages as an older student, but also some advantages having seen so much of the world," Siegel says. //

SIEGEL'S FAVORITE INVENTIONS

PHOTO 1: This is the U.S. Army's Forward-Area Air Defense Command-Control-and-Intelligence system, known as "FAAD C2I." It's responsible for protecting U.S. military land forces (and civilian personnel and structures in the areas near U.S. military land forces) against threats that travel through the air, engaging these threats at ranges up to about 6 km. **PHOTO 2:** The RQ-5 Hunter is the U.S. Army's first unmanned air vehicle in flight. It was originally intended to serve as the United States Army's Short Range UAV system for division and corps commanders. **PHOTOS 3, 4 & 5:** This is the Force-XXI Battle Command, Brigade-and-Below System, known as "FBCB2." As the U.S. Army's principal combat battle command system, it provides command-and-control, situational awareness, logistics management, and other functionality to front-line combat forces in all Army branches.