Science, tech —and lives

Inventor contributes at work, in community

By Stacey Ritter

"Nobody cares how much you know, until they know how much you care."
—Theodore Roosevelt

Carl Vorst knows a lot and cares a lot. About technology and ideas that make for a better world. About helping Boeing teammates succeed. And even about abandoned children in Haiti.

A technical fellow with Training Systems and Services, a division within the Integrated Defense Systems' Support Systems business, Vorst has aimed high and succeeded in his career at Boeing, which has lasted more than 40 years. He's made numerous contributions as an inventor, as a teacher and as a member of his community—all of which reflect the Boeing leadership attributes.

Eureka!

Here are some of Carl Vorst's top inventions.

The **Image generating means** patent was the basis for VITAL III, the first in a series of low-cost out-the-window visual systems for pilot training that provided a display of airport runways and other features. This technology forever changed pilot training.

The **Digital-to-analog converter interpolator** invention created a hybrid between the early VITAL III technology and that of modern visual simulation systems. Specifically, it allowed the display of textured images by the VITAL system.

The **Gaze tracking system, eye-tracking assembly and an associated method of calibration** invention allowed the control of an eye-tracked high-resolution display system for fighter pilot training. It used the pilot's helmet visor to give a tracking camera an unobtrusive view of the pilot's eyes.

Early in his career, Vorst invented the Raster Blaster. This device creates an airport picture for a simulator pilot by drawing each element of the scene, such as a runway paint stripe, one at a time, letting the eye combine the separate elements into a complete picture. The Raster Blaster expanded the capability of McDonnell Douglas' VITAL product line—a digital visual-simulation pilot-training system—by adding depiction of airport runway surfaces and terrain at a very low cost.

Since then, Vorst has continued to lead the way by acquiring an additional six U.S. patents. He's twice received Boeing's annual Special Invention award, which honors top inventions across the enterprise for unusual innovation and strategic business value.

Vorst and teammate Tom Heiligenstein were recognized in 2000 for their Apache Longbow Crew Trainer display system. which gives pilots in an Apache Longbow aircrew trainer a realistic view of the outside world. And in 2006, he and teammates John Aughy, Steve Swaine and Mike Rohr were acknowledged for their Visor Eye Tracker invention. Through this new technology, Boeing provided "an economical approach in providing pilots with the capability to see targets at real-world ranges," Vorst said. "We are able to provide 20/20 acuity with 11 projectors instead of 99. This is a huge cost savings for our customers."

Both inventions gave Boeing a competitive advantage in the visual system markets and contributed to the growth of its Training Systems and Services division.

"What is really exciting about looking back over Carl's career is not just all that he's seen, but how much of a difference he has made," said Steve Swaine, director of the Training Technology Center. "It is this expertise that makes him a valuable leader, inspiring those around him."

Vorst takes this leader role very seriously, as a mentor both inside and outside the company. "By allowing others to leverage my knowledge and build on it for their own success, I get a chance to see a part of myself in what they do," he said.

PHOTO COURTESY OF CARL VORST

Tech fellow Carl Vorst with a resident at House of Hope, a home for orphaned and abandoned girls in Haiti. Vorst and his wife have worked at the home for 17 years.

Thomas Knize is lead display systems engineer for Training Systems and Services. "Over the course of my nearly 30 years at Boeing, I have been influenced by a select few individuals whom I have chosen as role models. Carl Vorst is, without a doubt, at the top of that list," Knize said. "His technical knowledge, tireless work ethic, and commitment to excellence are unparalleled in our industry."

Yet Vorst's dedication and care are not limited to his profession. He and his wife, Carole, are responsible for House of Hope, a home in Haiti that cares for orphaned and abandoned girls aged 3 to 14.

Vorst and his wife began their service in Haiti as a result of a church mission trip in 1990. In 1995, the founder of House of Hope asked them if they would be interested in taking over the work. They accepted and received management responsibilities for the orphanage.

Vorst travels to Haiti at least four times a year to ensure the house is running smoothly and to visit with the girls. While in the United States, he manages the organization and is responsible for bookkeeping, fundraising and keeping the supporters advised. "Our time spent with these children is not just an investment in their lives, but an investment for generations to come," Vorst said. ■

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