

# technology Pet Project

Hall Research On The Care And Feeding Of The Mini-Cat

by Carolyn Heinze

To Ali Haghjoo, going to work every morning doesn't really seem like work—at least the day-in, day-out, daily grind kind of work. "I really enjoy my job," he said recently. "When I am developing new products, that, to me, is where I get my reward. When I design something and I see it work, and I see people buying it and they are happy with it, that gives me satisfaction."

Founded in 1984 by Haghjoo and Leonard Rezac as H&R Technology, what eventually grew into Hall Research Technologies got its start by servicing DEC monitors and manufacturing transducer signal conditioners for the aerospace industry. H&R expanded into the PC peripherals market in 1990 with the development of its Dual User Interface. Two years later, Haghjoo bought Rezac out, transforming the partnership into a sole proprietorship. The next several years

were spent growing the company's PC business while continuing to service the aerospace industry. H&R was incorporated in 1995 under the name Hall Research Technologies. The newly incorporated company began developing video distribution products and continues to do so today at its headquarters in Santa Ana, CA.

Haghjoo, who received his Masters in Electrical Engineering from the University of California at Irvine, began his career in the aerospace industry in 1981, and started working for H&R full-time in 1992. His wife, Gail, who holds a Medical Microbiology degree from California State University, Long Beach, is chief financial officer and corporate secretary at Hall Research. Today, the company manufactures a number of

## inventor profile

product lines encompassing video/audio over Category 5 cable, SVGA video splitters/distribution amplifiers, dual user interfaces, switch matrices, distribution systems, cables (both stock and custom), data acquisition systems, signal conditioning systems and industrial controls.

"We listen to the customer very, very carefully," Haghjoo said. "Whereas a big company may be inflexible to the customer's requirements, we are usually extremely receptive to their requirements because we feel that if one customer has a requirement, there are others out there that do, too."

Such was the case for Hall Research's development of the company's AV over Category 5 technology. "It was for a county court in New York; they didn't want to use multi-coax cable, and we were already selling courtroom evidence presentation AV systems," Haghjoo explained. "At the time, it was all based on multi-coax cables and standard AV cables, but they insisted that they wanted to use Cat-5; there was no way they could pull any other cables."

The team at Hall Research set about constructing a Cat-5 matrix switch for the courtroom. "From there, we went on to develop a series of AV splitters and receivers called the UVA-2," Haghjoo related. "In some instances, however, people wanted to just send a simple VGA signal out of their PC or notebook instead of buying a splitter that had two outputs and a local loop through it. They wanted something at a lower cost, and that is where Mini-CAT came from."

One of the latest additions to the company's product line is the Mini-CAT KVM Extender (with audio), designed for facilities that are seeking a more efficient means of locating computers in central areas for both security and IT accessibility. The KVM Extender is part of Hall Research's Mini-CAT line of video extension over Cat-5 cable products. The line also includes the Model UV1, which is comprised of a sender that is capable of connecting to a PC or laptop computer, and a receiver that connects to the display



▲ Working out the details on a product are Hall Research engineers (l-r): Dick Johnson, Ali Haghjoo, Patricia Gussler, Kodiak Jensen and Aaron Barnes.



▲ The Hall Research team makes it all happen in Santa Ana, CA.



▲ Building on its courtroom evidence presentation offerings, Hall Research initially began to develop its AV over Category 5 technology for a county court in New York. Starting with a Cat-5 matrix switch for that application, eventually customers sought a simple VGA signal out, and the Mini-CAT was born.

device. A standard Cat-5 cable is used to connect the two devices. With this setup, video signals can be boosted to resolutions of up to 1600 x 1200 at any refresh rate. The UV1 is intended for laptop users, home theaters, HDTV, and various video presentation applications, including meetings and conferences.

In Hall Research's early days developing video products, one of the biggest challenges was establishing compatibility between the company's systems and the display devices that were on the market. "One of the obstacles was the number of companies that were out there making display devices," Haghjoo admitted. "You make a product line and test it with a dozen different projectors, and it seems to be working well, and you would sell 1,000 of them, and a percentage of users would call and say that they were not working correctly on their display device. We would run into that after the original release for a period of time. Once we hit upon what was causing the problem, it was easy to fix."

These days, this isn't an issue. "Because we have been in video since 1990," Haghjoo said, "we have seen it evolve even before there was VGA. We have been able to come up with something that is truly universal and that works with everything. We believe now that we have,

because we haven't gotten those kinds of calls for quite a while."

For now, Haghjoo is wishing there were a better way to deal with control over Internet Protocol (IP). "We have some IP add-ons that can be integrated into our existing products, but the AV market is tied very tightly to the computer market," he said, noting that the standards that currently exist don't take into account the data rates or cable requirements for AV applications. "It suddenly becomes a major issue in a case where you want to run cable hundreds of feet, and you want switches and all sorts of things. Until the Intels, the Microsofts and the Compaqs change their ideology in terms of what next year's PC should be, it directly affects what is happening. The main challenge is that we have very little control over them; we are not even a speck on their radar scope."

Regardless, Haghjoo and his team are pushing on. "I have learned that we have to keep evolving, because people want to go further with higher resolution and lower cost."

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Featured in June 2004 issue of  
Systems Contractor News

