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FOR THE CONSUMER ELECTRONICS RETAILER

A DEMPA PUBLICATION
OCTOBER 2004 • \$4.00

Digital Imaging's Market Stars



The 'quality' guy in custom

When Ted Rothstein designs a system, no matter the price, there are no compromises

Ted Rothstein, president of TR Technologies, New York City, has made a name for himself in both the professional recording studio and home theater custom installation arenas. Over the course of a career spanning four decades, he has worked closely with many recording artists and celebrities in other walks of life. He counts among his favorite projects his consulting role with former Pink Floyd member Roger Waters, whom he advised for his "The Wall" concert at the Berlin Wall site in February 1990, just a few months after it was dismantled. He is currently working on a "tricked-out" trailer for CSI original series cast member Paul Guilfoyle, and in L.A., is optimizing the acoustics of the Kodak Theatre, from where the Oscars broadcasts

originate, for former Madonna producer Patrick Leonard, whose musical will soon open there. He also operates a small recording studio in another suite in his building on Park Avenue South, which is used by his wife, a singer and songwriter.

AudioVideo International: *To what life events or experiences can you trace your interest in music and its faithful reproduction?*

Ted Rothstein: Even as a five-year-old, I was able to appreciate great sound. My dad was a classical pianist, and I would lie under the piano and just listen to him play, and say, "That's great!"

AVI: *What about later influences in your life?*

Rothstein: When I was just getting out



Ted Rothstein poses in his office with his TRDJ system



This consumer installation features an unusual custom cabinet, designed so that electronics elements could be rack-mounted and the center-channel speaker could slip into the allotted area. The floorstanding speakers are part of the Canton Ergo series

of college as a junior electrical engineer around '67 or '68, in my senior year, a head hunter came to my school. (I went to State University New York at Farmingdale [Long Island], then studied electrical engineering at Hofstra University). He interviewed me, and offered me a job at Grumman, which was a subcontractor for the F-111 fighter jet. The technology used on the F-111 was very cutting-edge, but when the design was completed, it was found that the plane was 20% too heavy, so we were asked to re-examine ways to make the design lighter. My area of focus was power supplies, and we worked on making them smaller and lighter, to the degree where we came up with a 300-watt version of a 1" power cube that weighed an ounce!

The R&D department head and I found each other and got friendly; I was an audiophile, and so was he. It was from him that I learned how to do

just about anything with a transistor.

After that, I got a job in the Media Sound Recording Studio in Manhattan, which was located in an old church on 57th Street. I took a pay cut and worked odd night hours just to get that job. I was awed by the equipment there, and awed by the great acoustics and the great recording masters they had in their vault.

I listened to the master tapes and compared the sound to what I could hear at home. I would synch the masters with the records and do A-B comparisons. Observing the differences between the two created a challenge for the rest of my life. I wanted to make the great sound available in a studio available to people in their homes.

After six months there, I realized that recording studio technology was antiquated compared with the level of technology we achieved with the F-111 project. So I would modify and tweak stuff in the studio, and other engineers would come in the next day after my night shift and say, "There's no hiss. What happened to the hiss?" In the early '70s, that's how I became a star in the field.

I worked with Stevie Wonder and his engineers at Media Sound, and later, with Jimi Hendrix, after I moved to the Electric Lady Studio in Greenwich Village.

AVI: *How did you make the transition from the professional recording studios realm into consumer electronics?*

Rothstein: I started something called ROR Audio Research, making studio recording consoles and speakers for studio mixing use that, because they were closer to home-type speakers [in character], made it easier for engineers to match studio sound to home sound.

In those days, when [the old retailer] Crazy Eddie's was around, a guy from the Electric Lady Studio had an idea to try the speakers in the store to get consumer reaction. So we did that, and the store sold them, and asked for 10 more pairs, and 30,000 speakers later... Actually, I still do one-of-a-



An early-stage consumer installation featuring a pair of Rothstein originals: custom-made floorstanding loudspeakers with anodized aircraft-grade aluminum front panels and wood cabinets. Special, laser-cut gaskets were designed to Rothstein's specifications to join the front panel to the speaker chassis for optimal sound reproduction. The TV was later replaced with a 50" plasma display

kind speakers, like the ones I did for Eddie Van Halen.

[My speaker business involvement was] all part of the crossover from recording studios to home theaters. I'm one of the few people in this business who knows both sides. I'm able to innovate in my designs so that the music sounds good where it lands at the consumer end. I have the ability to see fully the entire chain and every link in that chain, all the subtle elements that make it up.

AVI: *What sort of challenges do you meet on a daily basis in trying to achieve your goal of creating an environment of "best sound" for your clients?*

Rothstein: MP3 sound! The reason for the success of MP3 is that the average person is interested in quantity rather than quality. Those are not my customers. I'm the "quality" guy, not the "quantity" guy! I can always deal with customers to work through a musical solution of some sort, without resorting to MP3.

Another of my main goals is to bring high-quality music and sound to

public spaces. To this end, I developed the TRDJ project, consisting of professional CD multi-disc changers (they are always models that can play two CDs at once) and a touch-screen from which you can select from a music database. What's different is that you pick the music by parameters: the right music for the right mood or moment for your space.

You can choose fast, slow, good, or even bad music categories. If you have, say, 7,000 tracks available in a club or disco, for example, they can be programmed to play certain music at off-peak hours when there's no crowd, or "end-of-night" music. [Alternatively] they can be programmed to build up to a certain level: soft, to louder, to really loud, to use as a crowd-control device. That type of music organization doesn't exist in anyone else's database. We currently have 50,000 tracks in ours and are constantly adding new music. We've designed a system that crosses seamlessly from track to track at certain cue points. This keeps the music new and fresh, and it's also a good way to keep a club's staff happier, which



The Dig It Audio Productions studio in New York City. Here, Rothstein designed both the 7.1-channel audio and video monitoring systems. The installation represents one of the earliest "multi-curve" audio systems, enabling engineers to switch seamlessly between cinema sound's Academy (classic theater) Curve and Dolby-X (new theater) Curve

means that the customer is happier, too. It was designed for club and disco use, but we've installed variations of it in homes, too, at prices ranging anywhere from \$15,000 to \$35,000, depending on the CD capacity.

We are getting into the hard-drive storage area to a degree, using the Audio ReQuest hard-drive system. I want to stress that we're very quality- and copyright-minded. We don't allow copying of music, which is easier to do using hard-drive-based systems. We also will not accept quality reduction in music. Compressed MP3 files are unacceptable. There's no place for MP3 in my systems. It would be like using a cassette, because it [destroys] the quality. There are lossless compression techniques available out there; the ReQuest device can take WAV and FLAC compressed files [which can be reconstituted without loss of data].

AVI: When did you begin your own business?

Rothstein: In 1980. At that time, it was about 90% professional and commercial and 10% consumer. Now, it's almost the reverse, with about 75%

consumer and 25% professional and commercial.

AVI: Who are your clients, and where are they located besides New York City? How do you promote your business among them?

Rothstein: Most of my clients tend to be businesspeople. I also have customers that are musicians. They're all over the world. I've done work in Sydney, Melbourne, Singapore, Kuala Lumpur, Prague, Moscow, Europe and Tel Aviv. My business is promoted almost completely by word of mouth but occasionally, someone finds me through my Web site. Because my business is global, one important parameter of the systems I do is reliability. It has to work properly, and it must be easy to fix a problem over the phone. The way I design systems, I can usually lead people to the answer over the phone.

AVI: What is the price range of systems do you work on?

Rothstein: Anywhere from \$2,000 to \$750,000. I am the super-optimizer. I'm also a photographer. I'm into "capturing." For me, it's all about delivering a wide-angle audio experience, optimizing every parameter in

the equation, and taking budget into consideration. There is no one who can better optimize parameters for a budget. That's my finest art.

AVI: Do you also work with video?

Rothstein: I do lots of video. I've been through the ISF (Imaging Science Foundation) training, and use Sencore calibration equipment. It's a perfect extension of my sound-system stuff, since it has to do with analysis and measuring. Sound measurement is an invisible thing. It's about what happens in the air, acoustically. The real trick is to rely on instrumentation and understand it fully, and then temper that with what you see, and feel. No instrument invented can cover all parameters.

AVI: What does it take to convince clients of the importance of great audio?

Rothstein: Customers come to us, generally, with their focus on video first, but I've proven to them many times that audio is at least as important as, if not more than, video.

A great demonstration of this fact can be conducted with a 10" LCD screen, if you pair it with an incredible sound system. The customer gets a good experience because of the great sound, and that makes up for the mediocre video. [Then] try that in reverse. Let them see a big picture with small sound: You just don't get that experience. Great video does not make up for mediocre sound. People need to be shown that they need to spend at least as much money on sound, if not more, than on video.

I can say that I've done a lot of systems with the sound costing way more than the video. One that I just did a few blocks from here was for \$100,000 in video and \$200,000 in audio. Then I did another system for that same customer, in an eight-seat room, using a \$200,000 digital projector.

AVI: What is your strongest selling point to clients?

Rothstein: I tell them I can evaluate the whole picture, and get them where they need to be from where they are.