bounce off objects, return and create a kind of standing wave, something you can feel pressing against your body before you actually touch something."

Mann's inventions are adopted by the public in varying degrees. "The EyeTap seems to be something people can immediately relate to and use," says Mann. He says that there is a growing awareness of accessibility, and also a growing awareness of the need for autonomy. "Accessibility is not just making it possible for somebody to access something - it's also about making it easy for people to access it themselves without having to rely on others," says Mann. "A really important element of accessibility is self-sufficiency. Mere signage is not necessarily way-finding. Technologies that are just in the environment to help are not necessarily enough. We also need to think about technologies that people have their own control over, so that there's a sense of self-esteem that comes to the special needs technologies."

Special needs, in Mann's estimation, are those needs that, when met, allow a person to become an equal citizen and "fully able." Mann also thinks that technologies that bridge the gap between people with disabilities and the wider population are important, both for commercial viability and to bridge social gaps.

One of his most popular inventions is the hydraulophone, shown on this issue's cover. It is an organ made from water pipes. (See a video of it in action at http:// wearcam.org/hydraulophone/.) It works like a wind instrument (you cover the holes to direct the water and change the sounds), and it's used for water and music therapy. "It's a fun technology for people with special needs, but also fun for everybody, and therefore it allows the special needs populations to experience this benefit without the possible stigmatization of isolating themselves from the rest of society. It even has immediate appeal to everybody as a form of sculpture."

Beneath Mann's cyborg gear lurks the soul of an artist, and it's obvious when he describes the benefits of the hydraulophone. A key part of the instrument's appeal is that it enables people to create and explore. "A lot of people identify with the ability to really, really express yourself through subtle changes in the sounds," says Mann. "The other nice thing is that you can see those changes, because it uses water. It's like a pennywhistle, where you can half-cover up the hole to change the pitch a little bit and bend it down and make it sound really sad, like the call of a loon in the wilderness."

People's skills improve quickly, Mann adds, because they watch other people playing, see the way the water is squirting out and mimic those movements. "The water...allows you to feel the resistance and do finger exercises to increase agility, and at the same time, it gives you some intricacy and lets you play music. There's a feeling of accomplishing a skill, which is kind of nice."

Mann sees the potential of technology to improve the human experience. "There's all these cyborg-type technologies out there now, but at the same time, I find the water instrument is something very primal, very soothing, very back to basics," says Mann. "Maybe we've seen all the cyborg stuff already, and we as a society are looking for a unifying thing that brings us all together as human beings."

For more information about Steve Mann and the EyeTap Personal Imaging Lab, visit www.eyetap.org.





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