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CES Roundup: Holoportation, Empathic Robot, Aging Suit, Bionic Prosthetic Arm, Headband For Better Sleep

by [Marion Webb](#)

In this second roundup from CES, *Medtech Insight* shines the light on Proto Hologram's many use cases in health care, Intuition Robotics' ElliQ robot to help the elderly feel less lonely, MIT AgeLab's Aging Suit, Siemens/Unlimited Tomorrow's partnership on a bionic prosthetic arm, and Earable Neuroscience's Frenz Brainband to promote better sleep.

CES 2024 was dominated by “artificial intelligence” and tech solutions to better our lives, including many solutions in the health and wellness space. Below is *Medtech Insight's* final roundup of some of the most interesting new devices seen, and in some cases demoed, at this year's biggest tech event in Las Vegas. (Also see "[Roundup: AI-Powered Assistive Hearing Devices Scream With Personalization; Femtech From Baby Makers To Menopause](#)" - Medtech Insight, 12 Jan, 2024.)

Proto Hologram

[Editor's note: *This article was updated on 24 January, 2024 to make the following correction: Hoffman said that neurologists specializing in gait disorders used the tech to beam in patients with Huntington's disease (not Parkinson's disease) for observation as part of an international fellowship program.*]

Proto Hologram CEO and founder David Nussbaum joined Bari Hoffman, associate dean of clinical affairs at the University of Central Florida's (UCF) College of Health Professions and Sciences, on the AARP stage at CES 2024 to discuss the various use cases of Proto's hologram tech in patient care.

“Beaming doctors into medical centers to train future health care providers [is one of many use cases in health care],” Nussbaum said.

Hoffman outlined some of the multiple-use cases of hologram technology at UCF College of Health Professions and Sciences, from training graduate students in various health disciplines to “beaming in” patients, including cancer patients, to give students a better understanding of what it means to live with a certain disease.

Because the technology is life-like, it allows students to see the whole patient virtually and pick up on non-verbal cues.

Hoffman gave the example of using hologram technology to observe and examine patients who may live in rural areas and have difficulty accessing the clinic in person. The clinic also uses the technology as an “anatomy lab” for students. The tech has the potential to help specialists cut the time to complete a fellowship program.

Hoffman said that neurologists specializing in gait disorders used the tech to beam in patients with Huntington's disease for observation as part of an international fellowship program. This could allow them to create a library of movement disorders much faster than observing patients in person. The tech is also used as a “skills lab” such as how to train in wound care or develop assistive technologies for older adults.

UCF Bari Hoffman shows how medical school uses Proto hologram. More details on holograms in health care to come in [@MedtechInsight1](#) [@CES](#) pic.twitter.com/6e12gbRjno

— Marion Webb (@medtechMarion) [January 10, 2024](#)

Intuition Robotics

Intuition Robotics' ElliQ, a voice-operated, AI-powered companion robot has already made it way to helping thousands of older adults alleviate social isolation and loneliness. The company presented the latest iteration at CES. (Also see "[Preview Of HealthTech At CES 2024: MagicMirror Of Health; Hologram Surgeon; Loud Whispers](#)" - Medtech Insight, 8 Jan, 2024.)

ElliQ 3 is a significant upgrade with a smaller footprint, increased memory, enhanced computer power and a new Generative AI component, all of which allows it to have “much deeper and more

meaningful conversation while maintaining this ability to be contextual and goal-oriented,” Intuition Robotics CEO and founder Dor Skuler told *Medtech Insight*.

ElliQ, which launched commercially in 2022 after seven years of testing and pilot studies, looks like a small table lamp with a head that lights up and swivels toward the user when called by name “ElliQ.” The robot is designed to proactively initiate conversations with users, suggest activities such as trivia games, and do stress reduction exercises. (Also see "[Intuition Robotics Is Trying To Build A Market For Robotic Companions, Launches ElliQ In US](#)" - Medtech Insight, 14 Apr, 2022.)

“She’s not just talking to you for the sense of talking to you,” Skuler explained. “She’s trying to help you achieve certain goals. In every conversation she will retain information about me [or you] and she uses that in the next conversation.”

Skuler gave the example of telling ElliQ that he has not slept well, which will prompt the device to ask him the next day if he slept better and maybe suggest before-bedtime activities, such as breathing exercises or tell a bedtime story or offer soothing background white noise to help him sleep better. The algorithms have been trained on hundreds of activities, he said.

“The core of them are designed to reduce loneliness and isolation, but what we found is this relationship gets formed between the human and AI, so we can use that relationship to influence their wellness – so things like stress reduction and cognitive training and physical exercise and hydration and nutrition – to actually influence their health,” he said.

The device can be connected to the physician’s office for updates on medication adherence, pain levels, collect blood pressure, glucose and weight, and [also be connected with] family members for updates and sharing photos, he said.

ElliQ is a wellness product available to Medicare Advantage members and offered in certain state governments. The company has a partnership with the New York State Office for the Aging (NYSOFA), which has deployed ElliQ to more than 800 of the state’s individuals aged 65 and older that are homebound, he said.

According to NYSOFA data, 95% of their clients who deployed the device reported reduced feelings of social isolation and loneliness and improved well-being. ElliQ is sold for a monthly subscription cost of \$60 and a \$250 initiation cost.

ElliQ robot for seniors to help with loneliness and isolation boasts smaller, lighter design, generative AI integration. Avail through state and local governments, Medicare and Medicaid. State of NY offers it free to elderly at home. Consumer price is \$60/ms subscription. [@cespic](https://twitter.com/cespic) [pic.twitter.com/TV0cTIPdfI](https://twitter.com/cespic)

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MIT AgeLab

MIT AgeLab's researchers Taylor Patskanick and Samantha Brady showcased AGNES, which stands for the Age Gain Now Empathy System, on the AARP stage.

The AGNES suit, which was designed by MIT researchers, simulates what it may feel like to be a person in their 80s with health problems. MIT AgeLab, a sponsor-funded lab, has been working with major industry partners on creating spaces for people of all ages. For instance, it partnered with CVS Pharmacy to redesign retail stores to make them more accessible and easier to navigate for older adults.

“We are very much in the social science and behavioral research space,” Brady told *Medtech Insight*. “Health overlaps with that ... but we are not necessarily doing interventions around health care. It’s more thinking about how people are planning for their futures? How are their families planning for their futures?”

MIT AgeLab presents Agnes [@CES](#) a suit simulating how people aged 70 and older experience daily life; used to help designers of AgeTech solutions make better products for older people. Worked with CVS to remake stores, wider aisles, better shelf orientation. [#agetech](#) [pic.twitter.com/VQXvh5VeWx](https://twitter.com/cespic)

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MIT AgeLab does a lot of work around caregiving, such as leveraging existing technologies to allow the elderly to stay in their homes longer.

“We go into people’s homes and observe older adults how they interact with their homes and where smart technologies could be most useful and also have them test out a variety of different technologies,” she explained.

Unlimited Tomorrow, Siemens Partnership

Aaron Frankel, vice president of additive manufacturing software at Siemens, showcased Unlimited Tomorrow’s customizable bionic prosthetic arm, which uses [Siemens plc](#)’ software to engineer and manufacture the product and ensure the proper fit.

The bionic limb is custom-fitted for each patient using 3D scanning, 3D modeling and 3D printing, and algorithms.

“A family member or friend can do a 3D scan at home using a mobile device and an attachment to get a high-fidelity scan of the person’s anatomy,” Frankel told *Medtech Insight*. Unlimited Tomorrow’s TrueLimb is fitted on the residual arm and works by reading muscle data through the sensors embedded within the socket.

TrueLimb costs about \$8,000 compared to \$80,000 for a traditional prosthetic, he said. It can be made in less than 12 weeks compared to 12 months for a traditional prosthetic, he said.

Aaron Frankel from Siemens demos 3d printed bionic arm developed by Unlimited Tomorrow using Siemens software. \$8k, develops less than 12 wks, customizable color, fingernails and even tattoos. [@CES](#) [#healthcare](#) pic.twitter.com/rbqZFJQhom

– Marion Webb (@medtechMarion) [January 9, 2024](#)

Earable Neuroscience

Doan Kieu, head of growth at Earable Neuroscience, demonstrated the company’s Frenz Brainband, an AI-powered sleep wearable to help people sleep better. The Frenz Brainband is paired with the Frenz AI Sleep Science app to deliver non-invasive audio therapy.

“We track in real-time brain activity and bio vitals, such as heart rate, SpO2 (pulse oximeter), and from that we know the person’s cognitive functions levels, especially the sleepiness and concentration level,” Kieu explained to *Medtech Insight*. “From that, the AI will automatically personalize the audio content to deliver digital therapeutics in real time.”

Tam Vu, founder and CEO of Earable Neuroscience and former professor at the University of Colorado and the University of Oxford, said the Brainband has shown 89% precision rate compared to the gold standard polysomnography in large-scale trials.

The Brainband is designed for a broad user base and retails for \$490.

Earable Neuroscience wants to help you fall asleep faster with Frenz Brainband. \$490 sales price to consumers. Co is planning development of medical device says Kimi Doan. [@CES2024 pic.twitter.com/V8LqiAZfZB](https://twitter.com/V8LqiAZfZB)

– Marion Webb (@medtechMarion) [January 8, 2024](#)
