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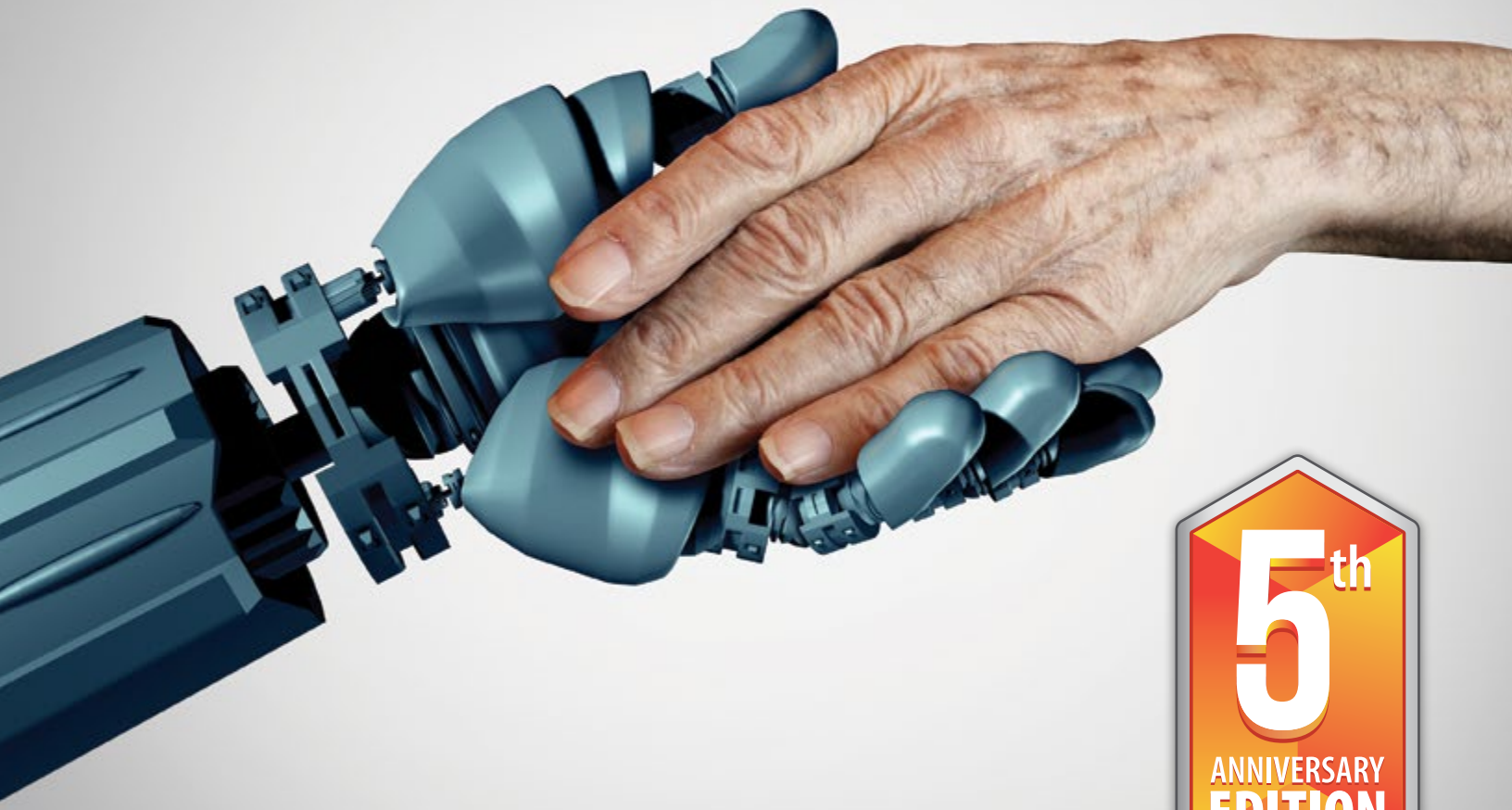

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Founded in 1961, LeadingAge California is the state's leading advocate for quality, non-profit senior living and care. The association's advocacy, educational programs and public relations help its members best serve the needs of more than 120,000 of the state's older adults. LeadingAge California represents over 625 nonprofit providers of senior living and care – including affordable housing, life plan communities, assisted living, skilled nursing, and home and community-based care; as well as our business partners and residents.

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Improving ease and efficiency through technology

Welcome to the Summer issue of *Engage Magazine*! In this issue we focus on artificial intelligence (AI) and its potential to improve the lives of the residents we serve. Technologies like voice and facial recognition are becoming more integrated into our daily lives and changing how we communicate within many fields, including senior care.

But what is "AI" exactly? Majd Alwan, Senior Vice President of Technology for LeadingAge and Executive Director of the LeadingAge Center for Aging Services Technologies (CAST), kicks off this issue by defining artificial intelligence and explaining the concept of "machine learning." Majd provides an overview of some of the ways AI-augmented technologies are being applied in aging services today and where we could be headed in the near future.

Moving forward, we spotlight some of our members already utilizing AI and smart home automation in their communities today – Sodexo talks intelligent robots, and Eskaton shares how voice technology helps keep residents connected at one community. Eskaton's Teri Tift follows up with practical advice on how to choose the right technology partner. Learn how Embodied Labs is using virtual reality to put healthcare students and caregivers in their patient's shoes, and get some tips on improving resident buy-in when transitioning new technology into your communities from James Wyman, co-founder and COO of Pillo Health.

Aging2.0's Executive Director Rebecca Hughes fills us in on the new Aging2.0 Collective, a data-driven platform that connects innovators with providers and offers a "knowledge repository" of resources and best practices.

The ethics behind brain implants for neurological patients are discussed in "The Future of Artificial Intelligence: Symbiosis with Your Brain" from our own Jesus Mata. As always, LeadingAge COO Eric Dowdy details the latest legislation updates in his "View from the Capitol."

Dr. David Lindeman, Director of Health at the Center for Information Technology Research in the Interest of Society (CITRIS) at UC Berkeley, and Director of the Center for Technology and Aging, rounds out this issue with a discussion on privacy concerns and shares a wish list of what he would like to see happen in tech and senior care.

With this issue, we are also celebrating the fifth anniversary of *Engage*, so we want to say thank you to all of our readers and to everyone who has contributed to the magazine over the years! We are looking forward to the continued growth of *Engage* and your voice is essential to that.

If you have any suggestions or feedback, please email me at rdouglas@leadingageca.org.

Enjoy the rest of your summer!

Robin Douglas
Editor-in-Chief

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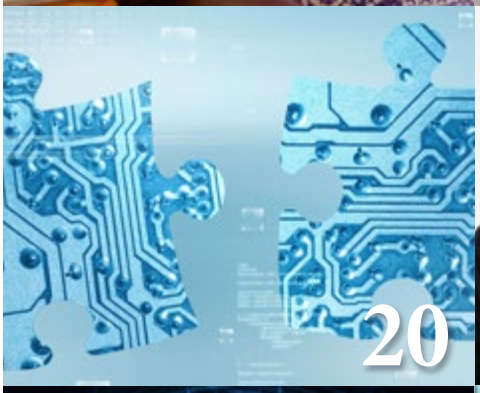

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Years of
engage

The Future

Over the past several decades I have listened to myriad experts on AI (artificial intelligence) describe potential uses, benefits, and risks of this interesting, yet elusive technology. And for three years, I have heard various computer scientists and entrepreneurs talk about its application from search algorithms to board games – from performing 'back-office' tasks like folding laundry and monitoring parking lots, to expansive educational applications in virtual reality, to Siri, Alexa, autonomous car, and more. AI is not tomorrow's technology, it is here and being used in many, if not all, of our communities in some form or another. I'm excited by the potential applications of AI and machine learning technology as we consider public policy, 21st century accessibility to education and training, workforce, and innovation at LeadingAge California. And, we want to act responsibly by understanding potential risks and implications to the residents, staff and visitors to our member communities. This issue of Engage provides insights into this 'new' world of AI and how you might adapt in your communities.

There will be many opportunities to see AI in action at the LeadingAge Annual Conference in San Diego. As the host state this year, we have some special things in store to help welcome our peers from around the country to California on October 27-31. We hope you will bring your staff, residents and guests to experience this incredible networking, learning and fun annual meeting.

When you are in the neighborhood, please stop by our office in Sacramento to experience our new open office environment. Our office refresh has modernized our team collaboration and allows for burst meetings in small spaces. We've experienced new energy as we execute on the Strategic Plan 2019-2021 on our key initiatives – Lead Public Policy, Advance 21st Century Leadership & Education, Grow the Workforce, Foster Innovation, and Elevate Public Awareness. While we visit your member communities and region meetings, we'd love for you to see your LeadingAge California team in action in Sacramento!

Enjoy these last weeks of summer,

Jeannee Parker Martin

President and CEO

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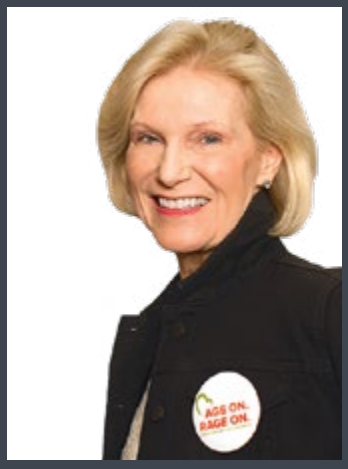
From The CEO



Jeannee Parker Martin
President and CEO

HAVE YOU HEARD

Therapy Specialists' Vickie Harris retired in May after 23 years with the organization.

Institute on Aging received the 2019 "Excellence in Community Engagement" Award from the San Francisco Office of Economic and Workforce Development.

PEP Housing's Executive Director Mary Stompe was interviewed by KSRO Radio in Sonoma County in June.

Bethany Center was featured in an article in the publication *Mission Local* called "Ruth's Table opens in SF Mission, celebrates community and creativity."

Covia Service Coordinator Margarita Molina-Hinkley retired after 11 years with the organization.

Retirement Housing Foundation (RHF)'s Cheryl Howell retired after 20 years with the organization. Cheryl served as vice president of administrative services and as Executive Assistant to the president and CEO.

Sequoia Living announced that Sarah McVey will succeed David Berg as Chief Executive Officer when he retires in September.

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ARTIFICIAL INTELLIGENCE:
Applications in Aging Services

By Majd Alwan, Ph.D., Senior Vice President of Technology and Executive Director of the LeadingAge Center for Aging Services Technologies (CAST)

Our perceptions of artificial intelligence (AI) are often molded by pop-culture, science fiction novels and movies, which on the one hand may expand the imagination and open our eyes to promising potential applications. However, most of these novels and movies usually have a plot that adds a malicious twist that raises a lot of concerns that may not be factually based. This tends to throw a wet blanket over the initial excitement about the positive potential.

Nevertheless, innovations in AI continue and its applications are invading every industry and almost every aspect of daily life, from your iRobot's Roomba, robotic vacuum cleaner, to voice assistants embedded in our smartphones and home speakers! Of course, the aging services sector is certainly not immune! Indeed, we are starting to see some promising applications, and we can potentially harness AI's powers to better serve older adults populations if we have a better understanding of the capabilities and the right tools.

In this article, I will attempt to demystify AI, providing distinctions between terms that we often inaccurately use interchangeably, and briefly provide an overview of its history and evolution. I will then share areas where applied AI may help us address issues relevant to older adults and aging services in the short and medium-term.

Basic Definitions

According to Wikipedia's definition, artificial intelligence (AI), sometimes called machine intelligence, is simply intelligence demonstrated by machines, as opposed to the natural intelligence displayed by humans and living beings. Computer science defines AI research as the study of "intelligent agents" – any device that senses, and/or receives input, from its

i Russell & Norvig 2009, p. 2.
ii McCorduck 2004, p. 204.
iii Maloof, Mark. "Artificial Intelligence: An Introduction, p. 37" (PDF). georgetown.edu.

environment and then takes actions that maximize the chance of successfully achieving its goals[i]. More specifically, Kaplan and Haenlein define AI as "a system's ability to correctly interpret external data, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation."[ii] Colloquially, the term "artificial intelligence" is used to describe machines that mimic "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving."[iii]

However, the history of our current understanding of machine intelligence dates back to the early days of computer science, when English mathematician and computer scientist Alan Turing came up with what is known as the Turing Test back in 1950: *Can a computer convince a human they're communicating with another human?*

Types of AI and Evolution

Early machine intelligence implementations started with what was known as Expert Systems, programs designed to solve problems within a specialized domain that ordinarily requires a human expert. Each system was if/then rule-based, for example:

"If the weather is hot and humid, *then* turn on the air conditioner. "

These systems were traditionally built by humans called "Knowledge Engineers," observing "human experts" and crafting rules in a process called "Knowledge Acquisition." These early systems had no learning capabilities, however, and their evolution was through humans tweaking the system, for example, Knowledge Engineers adding new rules, and amending or deleting existing rules based on further observations from the "human experts."

The Machine Learning branch of AI has evolved to address the shortcomings of Expert Systems. It entails building a mathematical model based on a sample of observed data, typically referred to as "training data." The models built are typically tested using other sets of data not used in the training phase for model verification and validation. For example, when classifying images to identify faces of people, they perform really well if the raw data has been pre-processed, a technique that involves transforming raw data into an understandable format, and key features were identified/extracted by a human. To recognize images of people from objects, one would need to write an algorithm to detect the edges of objects, identify shapes that could represent a face, and then looking for distinct features (for example, eyes, nose, mouth) based on their sub-features (oval shapes in a upper half of the potential face area with two concentric circles in the middle).

Deep Learning, on the other hand, is part of a broader family of machine learning methods based on learning data representations, as opposed to running task-specific algorithms. Such a system uses neural network structures inspired by the brain to perform multi-level abstractions. In the previous example of facial recognition, a machine learning system could be implemented with one hidden layer neural network, with an additional input that is fed the preprocessed data, as well as an output layer that would indicate, for example, whether the image contains a face of an orange. A deep learning system would be capable of working with raw image data without any preprocessing. Such systems would need to be implemented in a multi-layer neural network; the more complex the task, the more layers would be needed to get good results.

Promising Applications of AI in Aging and Aging Services

AI-Augmented Electronic Health Records (EHRs): Most aging services providers today have an EHR - in fact, more than 80 percent of LeadingAge's largest 200 organizations have an EHR. Most EHRs have a number of Clinical Decision Support Systems (CDSSs), for different applications like preventing falls, pressure ulcer prevention, and drug-drug and drug-allergy interactions to name a few. A CDSS is traditionally implemented as Expert System capturing best practices as rule. However, some EHR vendors are exploring a new breed of AI-based Learning CDSS that leverages actual condition, interventions, and outcome patient data from the provider to build patient as well as population level Predictive Models, as well as decision systems that alert clinicians and caregivers and provide them with suggestions of preventive intervention that have been shown to be effective for this patient, or patient population, hence improving prevention.

Workforce Applications

Aging services providers everywhere are experiencing challenges in scanning candidates' CVs, finding appropriate candidates, and attracting, recruiting, hiring and retaining them successfully. AI tools can save Human Resources (HR) staff time by prescreening applicant's CVs and responses to prescreening questions to quickly short list qualified candidates that are most likely to succeed and stay in the posted position - the ones with compassion and heart, who are likely to find a calling in aging services.

Moreover, AI powers are being tapped to model and learn organizational, supervisor and employee traits associated with longer retention in a specific position under a certain supervisor. Such models are then used to prescreen candidates and identify not only those that are a great fit for the position, but also most likely to be retained the longest.

Another issue where AI application can help is candidate engagement, to shorten the interview and hiring cycle. Today we have chat bots designed to interact with identified candidates quickly and autonomously, via text messages or email, to schedule a phone or in-person interview with busy HR staff and hiring managers. Such tools maximize engagement with candidates and the likelihood of being hired into aging services before they take another job from a competitive employer.

Finally, AI-powered employee engagement tools that use data from employee satisfaction and quick pulse surveys to engage employees, strengthen their loyalty and increase the likelihood of retaining them, thus reducing the high turn-over rates plaguing the aging services sector.

Voice Recognition/ Voice Assistants

Recent successes of AI in voice recognition and natural language processing have led to an explosion of voice assistants that are serving as intuitive and accessible computer interfaces - easy to use even for older adults not typically comfortable using computers. Such assistants are helping older adults in automating tasks like calendaring, timers, check-ins, access to news, entertainment, media, activity calendars, and concierge services. We, at LeadingAge CAST, are seeing significant interest in the adoption of these technologies by service providers and older adults alike! We are even starting to see these AI-augmented technologies used as an interface to needs-based applications, like medication management, telehealth, and wellness, adding an entertaining and fun aspect. Some emerging solutions are even starting to proactively prompt users in appropriate contexts (as opposed to waiting for the user to wake the device and interact with it) to manage their health, engage with family and friends and participate in community activities that the system knows they would like!

Facility Automation and Management

AI can help providers using motion sensors, smart thermostats, lighting, shades and appliances that learn occupancy, activities, lighting and temperature patterns, to automate lighting and heating, ventilation and air conditioning (HVAC) to reducing energy consumption. In addition, data from such devices is used to build predictive failure models, which monitor operations and identify abnormalities, and generate alerts and preventive maintenance requests.

Smart Home

AI-powered smart home applications are identical to the aforementioned facility automation and management; however, they may also entail learning a resident's normal activity patterns, identifying sudden or gradual deviations that could be indicative of an arising health issue or cognitive decline, warranting interventions from clinicians or a caregiver. Some of these applications have the ability to objectively infer the performance of activities of daily living (ADLs/ IADLs) by the resident to determine, anticipate, plan for and provide the needed level of support.

Promising Robotics Applications

I would not be a roboticist in a previous life if did not include any robotic applications!

Service Robots: I personally see service robots as the most promising and the most likely to see used by older adults and aging services providers in the short and medium term. These include autonomous robots for disinfection that use pulsed xenon light to kill germs in skilled nursing communities. Other applications - robots used to cook meals uniformly in large quantities,

cleaning - vacuuming and sweeping - and lawn mowing robots, both in the home and potentially in retirement communities.

Assistive and Rehabilitation Robots: This is another promising category and it would include AI-augmented walkers, autonomous wheelchairs, and exoskeletal robotic suits. The latter category are considered collaborative robots as they use motors to aid the wearer's limbs in responding to muscle activation signals from the brain, detected by electrodes on the skin, and performing activities. These robots can be used as short-term rehabilitation, after a stroke for example, or longer-term assistive devices that help the person maintain remaining function as long as possible. Japanese researchers are also exploring using these robotic suits to increase the strength of staff in long-term care to enable them to lift disabled residents, while minimizing injuries.

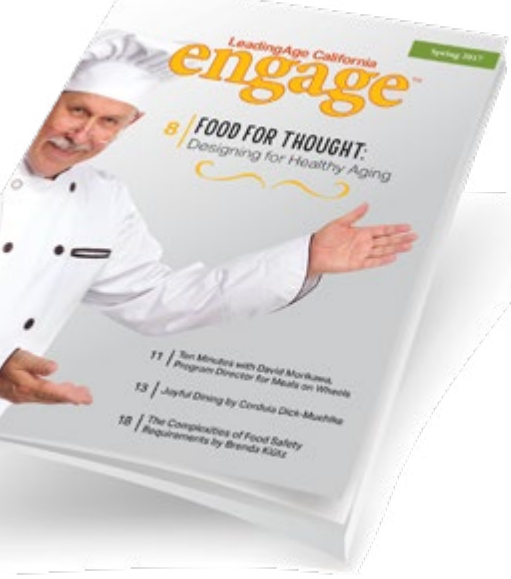
Self- and Assisted-Driving Cars: A majority of modern cars today are using cameras, radar and other sensors to augment the driver in a variety of assisted-driving modes that turns cars into essentially autonomous or semi-autonomous robots. These augmented capabilities include forward-collision mitigation, reverse cross traffic detection, emergency braking, lane keeping, and pacing cruise-control. These capabilities all have the potential to extend independence and driving time for older adults, while increasing safety and mitigating for distracted driving. The quality and performance of these automated functionalities is improving exponentially, because auto makers are collecting information from the car's sensors, the decisions the on-board computers are making, and in many cases the outcome, for example, collision reports and emergency calls, from our connected cars!

Many auto makers' technology companies are working on truly autonomous self-driving cars and vans. While some developers are trying to solve the more difficult problem of self-driving in all environments (highway, inner cities, planned communities) and driving conditions (pedestrians, at different speeds, weather conditions), others are honing in on solving a more constrained and better defined problem, like driving within planned communities - such as retirement communities, which is easier and quicker to lead to a commercial product.

The latter breed of cars and vans could soon be used to transport residents and staff efficiently and cost-effectively within retirement communities, to nearby venues for shopping trips, for example, or public transport stations, especially in suburban/rural areas, while the former may even help with transferring of staff to and from communities in rural areas!

Conclusion

While humanoid robots equipped with general artificial intelligence are still decades away, there are many promising AI applications that could benefit older adults and aging service providers today.
I would encourage providers to consider some of these applications and to partner with forward thinking technology developers to ensure the needs, pain points, requirements, concerns and preferences they have are taken into consideration from the get go when these developers are conceptualizing, designing, building, testing and refining AI-augmented applications for this sector and the older adult population we serve.



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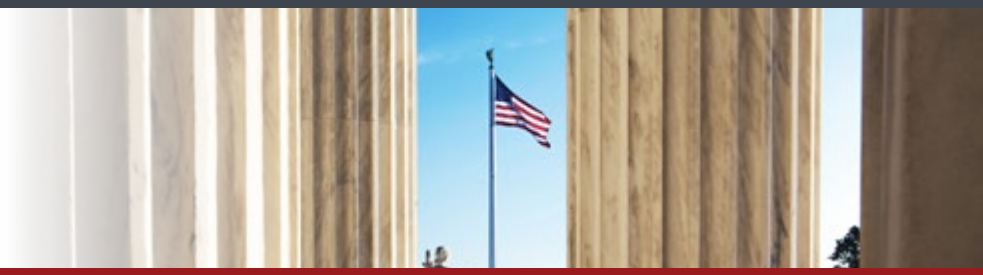

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MEMBER SPOTLIGHT

The Senior Population Reaps Benefits from Artificial Intelligence Advances

Photo: Sue, who is recovering from a stroke, uses ElliQ in her Northern California home.

When we think of technology, we usually do not associate it with caring for our elderly. Historically, caregiving has been entirely hands-on and labor intensive. A combination of workforce shortages, technological advances, forward-thinking investment, and consumer demand is leading to some innovative solutions in artificial intelligence (AI).

Most technologies that various senior living communities have implemented focus on fall prevention with smart cameras and sensors. While safety is always a top priority, the possibilities of AI have even further reaching benefits, touching multiple dimensions that affect quality of life.

As evidenced by the winner of Fast Company's 2019 Annual World Changing Ideas Awards – a set of glasses that allows people with limited or no vision get help with certain tasks – the new generation of older adults prioritize independence and are turning to innovation to provide more choices. Inventions such as Elli-Q (pictured above), remind users to drink water and tell jokes. With Sodexo's AI "smart living" program, in partnership with Connected Living and Amazon, residents can ask Amazon's Alexa for community information like, "What's for lunch on today in the café?" According to Joe Cuticelli, CEO of Seniors, Sodexo North America, "Everyone should know that this kind of tech is the new norm. It's fairly seamless because of the infrastructure. It's applicable at every level."

These innovations are not intended to nor capable of replacing caregivers. According to AARP's 2017 report, the ratio in the United States of caregivers to recipients ages 80+ was 7-to-1. In 2030, that ratio is expected to drop to only 4-to-1, necessitating new solutions for caregiving that maximize efficiency. McKinsey Global Institute's 2017 publication of its research on the potential effects of automation technologies determined that 50 percent of the individual tasks currently assigned to a nursing assistant could be automated. For example, a leading healthcare establishment automated back-of-house medicine dispensing to allow workers to focus on front-of-house delivery to patients, increasing the employee satisfaction, decreasing medication errors, and allowing more personal interaction with the residents and patients.

In addition to automation and smart speakers, intelligent robots are also in early generations. We

have interactive robots with the ability to greet people when entering a senior living building, check in visitors via a QR code and share useful information via quiz surveys and games, better engaging residents' social interactions. Robots are being developed with aspects of social intelligence, to perceive and simulate emotions, sympathy and empathy accurately and appropriately. Advances in machine learning are set to allow these robots to develop without being explicitly programmed. We can expect to see more human-like robots; androids with synthetic parts designed to appear slightly human-like, without a strong enough resemblance to cause discomfort.

Smart Space Management AI may be used to advise seniors when other residents who have similar game interests are in the community game room, allowing them to join in on the fun, increasing social interaction. Smart Virtual Gardener can engage residents in therapeutic gardening activities with innovative sensors which monitor the plants' health and alert senior community residents when the plants need care. Gardening can expand personal growth as a new skill and improve the physical environment. Communities can recognize residents' gardening achievements in a "county fair competition" activity. Gardens with smart sensors can also be used in intergenerational settings with seniors and students partnering on projects.

With intergenerational housing's successful model, we can expect to see more developments that integrate senior housing and college living. Various universities are partnering with Sodexo's dining services to provide autonomous food delivery for a nominal fee and can be integrated into the student meal plan, much as such a service could be integrated into a senior living meal plan. Autonomous robots have already driven tens of thousands of miles, delivering to millions of customers in over 100 cities. SALLY the Salad Robot is another innovation: a robot that holds up to 22 fresh ingredients in its temperature-controlled unit, produces salads, quinoa bowls and snacks. SALLY has been rolled out in locations that do not have convenient access to full service cafes, and can deliver a customized meal within a 3'x3' footprint, comprised of fresh ingredients stocked daily. SALLY notifies Sodexo attendants with temperature control reports and product levels on their smartphone, and sends an alert when an item needs replenishment.

As concluded by Sarosh Mistry, Chair of Sodexo North American, "The opportunities to better serve today's seniors are endless. The benefits business-wise are huge, as are the opportunities to come up with solutions that can make a positive impact on an older person's quality of life. That's enough incentive, I think, to work harder for the Silver Economy."

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Source Material:

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- *https://seniorhousingnews.com/2019/04/16/asbury-doubles-technology-expenditures-could-soon-pilot-a-robot*
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- *https://us.sodexonet.com/home/news/segment-news/newsListArea/daily/sally-the-salad-robot-launched-a.html*

For further information about Sodexo's AI solutions, please contact Susan Ihrig at Susan.Ihrig@sodexo.com

Dear Brenda

Brenda Klütz has 30 years of experience in California state service; with over eight years of working in the Legislature as a consultant on Aging and Long-Term Care issues and 15 years with the Department of Health Services serving as the Assistant Deputy Director and Deputy Director. Currently, she provides LeadingAge California members technical support on issues related to reimbursement, licensing, and regulation interpretation.

Medicare Part B Requirements for Remote Patient Monitoring

Technology has become embedded in so many aspects of our communities. This has manifested itself by improving access to purchasing goods and services, allowing us to have groceries delivered, skyping with our friends and relatives, streaming movies and arranging for transportation. Technologies are providing a platform to better support individuals to remain in their homes if possible, reducing isolation, and linking them to social and health-related services.

A recent development related to the use of technology involves the Centers for Medicare and Medicaid Services [CMS] requirements for Chronic Care Remote Physiologic Monitoring, paid for under Medicare Part B. The more common name for these services are also known as Remote Patient Monitoring (RPM).

Effective January 1, 2019, CMS released three new CPT codes related to RPM. The changes in these codes are designed to incentivize practitioners to use RPM technology to monitor and manage patient care needs.

RPM services are currently defined by CMS as the "collection and interpretation of physiologic data (for example, ECG, blood pressure, glucose monitoring) digitally stored and/or transmitted by the patient and/or caregiver to the physician or other qualified health care professional, qualified by education, training, licensure/regulation (when applicable)…" RPM is not considered a telehealth service under Medicare. Rather, RPM services deal with the interpretation of data transmitted between a practitioner and patients, rather than face-to-face interaction. Patients can receive this service in their home and not be restricted to rural areas or originating sites, as is telehealth. Medicare will pay a monthly fee to qualified practitioners who provide RPM services.

The three (3) new CPT codes related to RPM are:

- CPT code 99453: "Remote monitoring of physiologic parameter(s) (eg, weight, blood pressure, pulse oximetry, respiratory flow rate), initial; set-up and patient education on use of equipment."
- CPT code 99454: "Remote monitoring of physiologic parameter(s) (eg, weight, blood pressure, pulse oximetry, respiratory flow rate), initial; device(s) supply with daily recording(s) or programmed alert(s) transmission, each 30 days."
- CPT code 99457: "Remote physiologic monitoring treatment management services, 20 minutes or more of clinical staff/physician/other qualified healthcare professional time in a calendar month requiring interactive communication with the patient/caregiver during the month."

Prior to adoption of the three new CPT codes, CPT 99091 was limited to services provided by physicians and qualified healthcare professionals. CPT 99457 represents a change in that clinical staff can provide RPM services (RNs, Medical Assistants, etc.) in accordance with state scope of practice requirements. Unlike chronic care management (CCM)

service which can be provided under general supervision of the billing practitioner, RPM service must be provided under direction of the billing practitioner (not in the treatment area, but in the building).

If LeadingAge California communities have outpatient services or medical offices that are separately billable under Medicare Part B, providing RPM services to community residents would be an option for further enhancing continuity of care.

For further information:

CMS, "Final Policy, Payment, and Quality Provisions Changes to the Medicare Physician Fee Schedule for Calendar Year 2019," News release November 8, 2018.

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Healthcare Finance, "Getting paid for Remote and Virtual Care Services: CPT Codes to Know and Understand," March 19, 2019.

https://www.healthcarefinancenews.com/news/getting-paid-remote-and-virtual-care-services-cpt-codes-know-and-understand

Propeller Health, "Your Guide to the New CPT Codes for Remote Patient Monitoring [RPM]," April 9, 2019.

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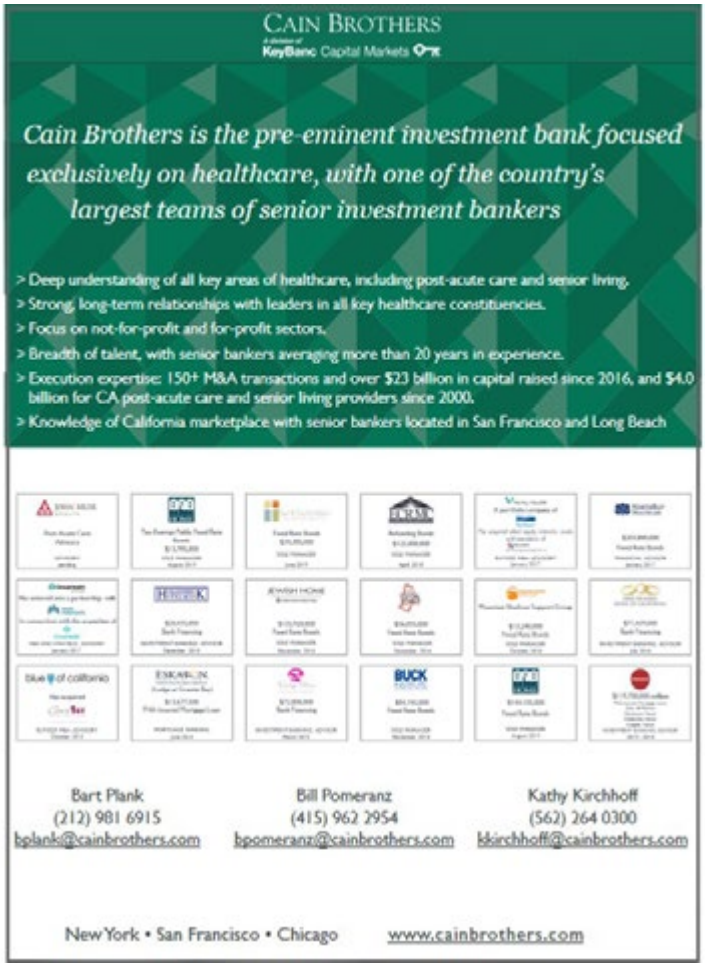
C & M Health Law, "Digital Health Updates in the 2019 Physician Fee Schedule [PFS] Rule," by Jodi G. Daniel, Stephanie Willis & Maya Uppaluru, November 6, 2018.

https://www.cmhealthlaw.com/2018/11/digital-health-updates-in-the-2019-physician-fee-schedule-pfs-rule

Please contact Brenda Klutz if you have any questions or seek additional information: BKlutz@leadingageca.org or (916) 469-3377.



TECHNOLOGY PARTNERSHIP USES VOICE FIRST TO REDEFINE "AGING IN PLACE" FOR RESIDENTS IN THE NEW MILLENNIUM

Watch the video at youtube.com/leadingagecalifornia

The numbers on the clock are harder to see these days.

"It gets blurry," says Joyce Lynch, 93. "So I can ask her what time it is. And she doesn't care if I call her and it's two in the morning. She's always cheerful."

Joyce Lynch is a resident at Eskaton Village Roseville, a Northern California retirement community who in 2019 was able to offer all their residents Alexa devices through a partnership between Eskaton and technology company K4Connect. The "she" in question is an Alexa Dot, a voice-activated AI assistant that helps Joyce control her lights, the volume on her music, gets her daily menus, wakes her up for church on Sundays, and keeps her up to date on the events of the day at her community.

"A couple of years ago Eskaton was exploring the opportunity to bring more social connection into our communities and also explore smart home automation for the environment," explains Sheri Peifer, Chief Strategy Officer for Eskaton. "We did a lot of research around great technology partners that were mission-

based and came across K4 Connect Communities."

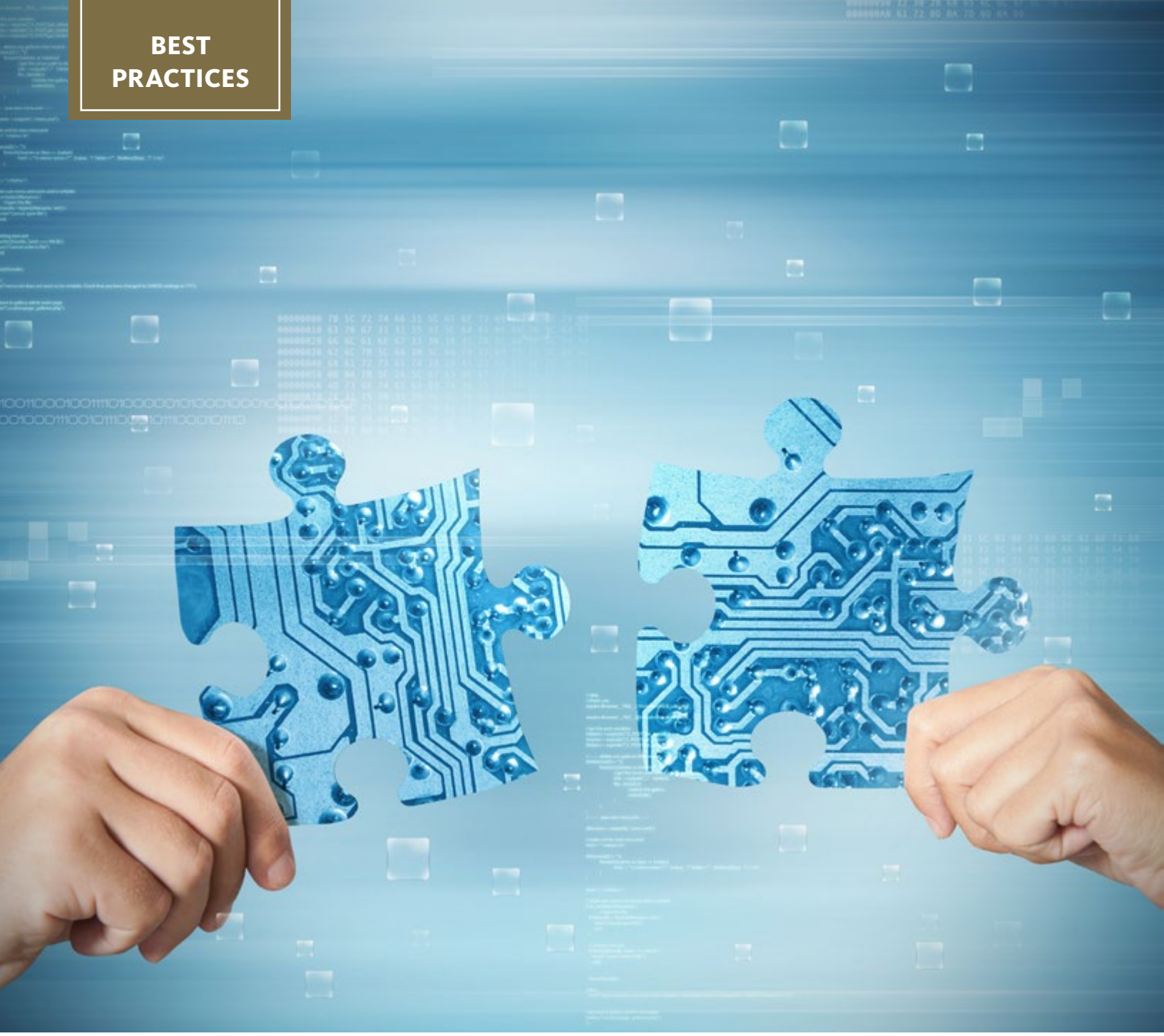
K4Connect Communities brings smart home automation to older adults and people with disabilities within one single system. "A smart home is the ability to connect and control multiple devices in your environment," says Chris Brimble, Director of Western Growth for K4Connect. "At a larger scale, that's going to be things like lighting, thermostats, entertainment, even the blinds going up and down. All of those connected devices are a smart home."

For Joyce, who suffers from partial blindness and macular degeneration, the Alexa has been a big help. "As you age, you're limited with what you can do, so it's nice to have her here." Alexa can also connect her to the front desk to call 911 in case of a fall.

"Voice is the ultimate freedom to be able to communicate in a meaningful way," says K4Connect COO Derek Holt. "Being able to control your home, being able to engage with your wellness, being able to ask for knowledge – it is going to ultimately democratize all of the great innovations that are happening and remove the barrier, that in some regards, has held older adults back from using technology."

At Eskaton Village Roseville, peer-to-peer classes and "champions" like Joyce help get the ball rolling with resident adoption. "Television wasn't even around when I was young. When you get older, sometimes these changes in technology are hard to accept," she says. "But you're learning - learning and adjusting at the same time." Joyce laughs, "My children told me it was time to join the 21st century, so I had to learn!"

In the months since integrating Alexa, Peifer and her team have learned quite a bit as well. "That daily programming is so important," she says. "Whether they're in a community of 100 apartments or a campus that's 37 acres wide," says Peifer, "older adults have the ability to connect with the events, activities and the life of the community."



Impact of Choosing the Right Technology Partner

By Teri Tift, Executive Director of Quality & Compliance, Eskaton & Shirley Nickels, Chief Operating Officer, SafelyYou

Eskaton, a nonprofit senior living organization based in Sacramento, is committed to its mission to enhance the quality of life of older adults through innovative health, housing and social services. A key aspect of this mission is innovation, which is woven throughout Eskaton's daily operations and incorporated in its vision to Transform the Aging Experience. Use of technology and choosing the right technology partners is critical in this endeavor.

Before Eskaton selects a technology partner, it must validate a need to justify new technology that either solves an issue or improves current practice. Implementing new technology can disrupt the organization on many levels, and thoroughly thinking through the benefits is necessary. Some basic questions to answer would be: Who will benefit? Who are the users? Is it difficult to implement, train, or use? What research has validated its success and how does it impact resident care? What data can we analyze? What's the ROI? What security measures are in place? And finally, is the product available on a trial basis? Eskaton has specific clinical outcome goals, and falls is always on the list in some form. Finding innovative technologies with good outcomes, outside of industry standards, that would push the needle has always been attractive. When Eskaton heard about SafelyYou and their research-backed AI technology on reducing the recurrence of falls in memory care we had to pilot this program!

SafelyYou is a memory-care (dementia) focused fall prevention program which evolved from a project started in 2014 by members of UC Berkeley's Artificial Intelligence Research Lab – one of the top five AI research groups in the world. Using cameras paired with cutting-edge AI technology, SafelyYou empowers care staff to implement fall prevention, specifically for people living with Alzheimer's and dementia, through fall detection and subsequent fall video review and prevention recommendations.

Eskaton chose three of its assisted living communities to participate in the SafelyYou pilot lasting three months. These communities were chosen because they each have a designated Memory Care program that is similar in number of apartments and capacity of residents, location of the communities, and stable care staff and managers that exhibited a readiness for a culture of innovation.

Reduction of resident falls in Memory Care was the primary reason to conduct a trial of the SafelyYou system; however, Eskaton also experienced a more than 50 reduction in response times and a reduction in the number of times residents were transferred to the emergency room. In fact, armed with knowledge provided by actual footage of resident falls, among the three communities, only one resident was transported to the ER during the 90-day pilot period. For residents with dementia and their families, reducing the trauma of an emergency room visit was significant!

An unexpected and positive outcome from the SafelyYou pilot was the shift in staff culture around fall prevention. Care staff reported feeling empowered to implement person-centered fall prevention measures, and enjoyed being a part of the solution in developing better ways to care for the residents. Care staff were encouraged to be true fall scene investigators, working together as a team with families to better understand how the resident fell and determine effective changes to reduce the likelihood of falling again.

Memory care managers reported that they found the fall videos to be particularly useful for staff education and communication with residents' families. Videos recorded of falls also include footage of the staff response, so viewing the videos as a team provided an opportunity for real-time training focused around transfers and resident engagement. The videos were also effective tools for management to communicate to families about resident needs like furniture changes, new care plans, hospice, and different mobility aids. Based on these results, Eskaton committed to provide SafelyYou to all residents in memory care, but stories like this can make it seem like innovation is easy. We tried something, it worked, and our residents and staff lives are improved by it. The truth is innovation isn't easy. Trying something new requires time, money, and a willingness to fail, but when it works, it's incredibly meaningful. In fact, in one instance, if we had waited one more month for SafelyYou, we may have not known we had a resident falling in his room and getting back in bed without telling anyone.

To innovate, you have to try things that might not work while doing everything in your power to provide the best chance of success. The best way we've found to do so is choosing the right partner. If you find a partner who shares your culture, values, and priorities, they will go the extra mile everywhere they can – just like we ask of ourselves and our staff.

AGING 2.0 the collective

Powered by: shapeable

Innovating Collective Intelligence

By Rebecca Hughes, Executive Director, Aging2.0

Over the past seven years, the team at Aging2.0 has worked to address the biggest challenges and opportunities of aging. We've built a rapidly growing community of nearly 100 Chapters and thousands of participating organizations, with events tackling our eight Grand Challenges taking place weekly around the globe. Until recently, there hasn't been a place to access the collective intelligence of our global community. That is changing with the launch of The Aging2.0 Collective.

Summer 2019 marked the soft launch of this new platform for collective intelligence and collaborative action. The effort launched in partnership with digital innovation company Shapeable. It offers a data-driven insights and matchmaking platform that connects innovators and providers looking for next generation and cost-effective solutions.

The Collective is building a knowledge repository that captures issues and solutions faced by the Aging2.0 community and makes it easy to find and compare best practices and lessons learned. We are accomplishing this by providing Visibility, Insights, Matchmaking and Shaping opportunities for members of The Collective.

Here's an overview:

Visibility

Members receive enhanced brand exposure across the Aging2.0 global network and Collective platform.

Insights

View the latest articles, resources and knowledge exchanges from the Aging2.0 global network and select Collective Members. Receive updates around market forces and current trends.

Matchmaking

Connect with other organizations with aligned priorities, and over time receive personalized matchmaking recommendations via an AI platform.

Shaping

Our Charter Members are helping shape The Collective so it evolves to meet their specific business needs. They participate in calls and workshops to share their strategic priorities and collaborate to frame the challenges and opportunities of The Collective.

We'd be delighted to have LeadingAge members get involved and join us as we collectively seek out and scale-up solutions to change the face of aging in our society. For more information about The Aging2.0 Collective please visit: aging2.com/thecollective.

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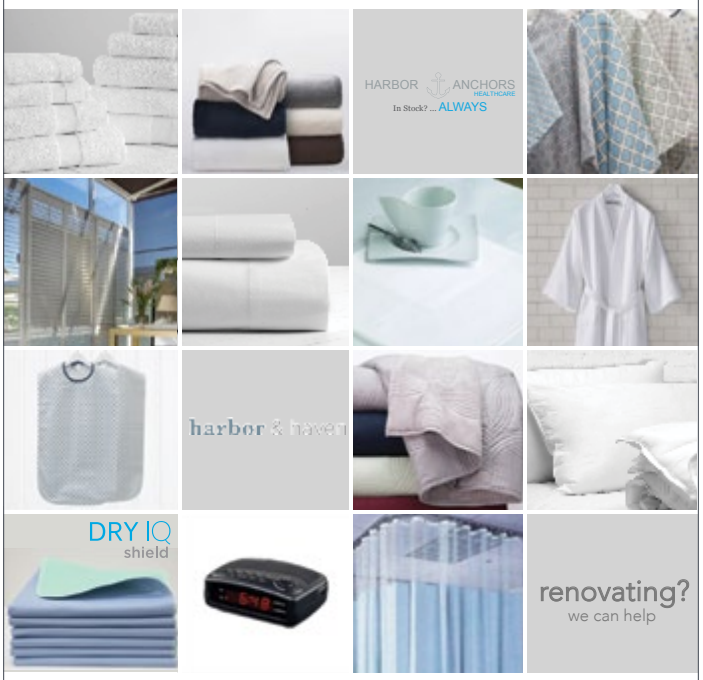

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1 The 2020 EMERGE Class held their first session during the Annual Conference.

2 Dr. Laverne Joseph, Retirement Housing Foundation, at the Lei'd Back Luau party

3 Panel speakers at the CEO/Trustee Roundtable, "Innovation is Humanly Possible" - Jeannee Parker Martin, LeadingAge California; Robert Kramer, National Investment Center for Seniors Housing & Care (NIC); Ted Fischer, Ageless Innovation, LLC; Kari Olson, Front Porch

4 Robyn Stone, Senior Vice President of Research, LeadingAge

5 Advocacy Day participants pausing for a group photo before going to meet with legislators

6 Donna Murphy, Allen Temple Arms with Priscilla Haynes, Santa Clara Methodist Retirement Foundation

7 Residents in the halls of the Capitol waiting for their legislative visit to begin

8 Meghan Rose, LeadingAge California (L) with Eskaton Village Roseville resident Pam Austin (R)

9 Age On. Rage On.™ supporters showing off their buttons before heading to the Capitol

A VIEW FROM THE CAPITOL

Summer in Sacramento

This has been a tremendous year for aging issues in the Capitol. With Governor Gavin Newsom's focus on older and disabled adults, homelessness and affordable housing, we have seen very positive initiatives develop in both the executive and legislative branches. Most notably, the Master Plan on Aging, which will bring together leaders in the Governor's cabinet to form the Workgroup on Aging, and a second Stakeholder Advisory Committee will provide valuable input from the various constituencies impacted by the aging of our state. This new attention has been long overdue and we have high hopes for an actionable, measurable plan to move the state forward.

Through our work with the California Aging & Disability Alliance (CADA), we were successful in getting $1 million to conduct an actuary study for a Long-Term Services and Support (LTSS) benefit in California, similar to that of the recently enacted Washington state program. We are also pushing legislation to set up the framework for such a benefit with Senator Richard Pan's SB 512.

We have been doing our part at LeadingAge California by sponsoring an impressive number of bills this year to advance housing, healthcare and services for older adults. With a large focus on housing right now in the Capitol, the association is pushing for more senior housing providers to get their fair share of housing dollars and ensuring that housing is addressed in the Master Plan on Aging. We are also working to update the Administrator in Training/Preceptor model in the state, allowing for more flexibility to train the next generation of nursing home administrators.

Looking forward, we are engaging new leaders in our issues through our Public Relations Campaign, Age On. Rage On.™ by highlighting personal experiences directly from older Californians. We are also engaging candidates through the Political Action Committee, making sure our issues are on the agenda as we run into election season.

We couldn't do this work without you. Thank you for being a loyal reader and LeadingAge California member. If you'd like to be involved in our work, please contact me at (916) 469-3376 or edowdy@leadinageca.org.

Have a safe and happy summer!

Questions?

Contact Eric Dowdy, Chief Operating Officer, LeadingAge California at edowdy@leadingageca.org

THE FUTURE OF ARTIFICIAL INTELLIGENCE: SYMBIOSIS WITH YOUR BRAIN

By Jesus Mata, Policy and Grassroots Coordinator, LeadingAge California

The emerging field of artificial intelligence (AI) has captured the attention and imaginations of companies, academics, investors and regulators, all trying to better understand the possibilities and risks associated with powerful data and analytics systems with the potential to influence all facets of our society. For many, one concern is that we will come to depend on this complex networked technology, but eventually lose our own grasp and understanding of how it operates. However, with a careful approach that prioritizes ethical use and implementation, proponents argue that the enhancements to our own human intelligence and potential for good are astronomical. Entire industries would benefit from data insights, benefiting our personal lives, the economy and our productivity.

A start-up company called Neuralink, based in Fremont, Calif., wants to achieve a symbiosis between artificial intelligence and humans. One of its goals is to "produce devices that serve critical unmet medical needs of patients," with neurological diseases, paralysis and other disabilities. How do they seek to do this? By getting inside the brain. The company is currently developing brain implants much thinner than a human hair that could one day soon read the synapses of the brain, interpret that information and then wirelessly transmit it to other humans and computers.

The implant threads have only been tested on animals thus far, and the technology has not yet been tested on humans, but that may soon change. Neuralink worked with the University of California, Davis to implant the technology into a monkey, allowing it to control a computer with its brain. The company hopes to hold the first in-human clinical studies as soon as 2020, pending FDA approval.

Their vision is to make this implant as safe and painless as getting Lasik surgery, and once implanted, use it for medical purposes. One potential use would be treating symptoms like tremors, for older adults with neurodegenerative diseases such as Parkinson's or Alzheimer's. People who have quadriplegia may also benefit from the technology. The information received from patients' brains would help medical professionals better understand and treat the illnesses, and patients would potentially be able to use the implant to control their phones, send messages, and navigate interfaces, using only the circuitry of their brain.

As part of Neuralink's aspirations to "achieve symbiosis with artificial intelligence," the company is working towards a distant future where two individuals could telepathically communicate, or where someone could download new knowledge such as a language directly onto their brains. The technical challenges, innovation in neurotechnology and brain science research will ultimately dictate if and when Neuralink's vision can become a reality.

THIS HOME-HEALTH ROBOT REMINDS YOU TO TAKE YOUR PRESCRIPTIONS AND KEEPS YOUR HEALTH ON TRACK

Taking medication first thing in the morning and before bed at night is part of everyday life for millions of Americans. Unfortunately, many of us just can't get it right all of the time, every time.

Maybe the dosing schedule is confusing. Or you don't feel comfortable talking to your doctor. Or, you're starting to feel better and don't think you need it anymore. Regardless, with six in 10 Americans today suffering from at least one chronic condition and taking multiple medications to treat those conditions, non-adherence can have dire consequences.

Enter Pillo – a device that uses voice and facial recognition to help adults living with chronic conditions better manage their medications and overall care plan. Pillo is like an AI swiss army knife – it is similar to Alexa in that the device can answer personal health questions and set daily schedule reminders. Pillo can also alert caregivers in case of an emergency and hold video calls with care providers. The device stores up to four weeks of medication and reorders before you run out.

Billed as an "in-home health companion," the ability to program in details such as a daily schedule means engagement with Pillo becomes personalized, even human-like – so how will devices like Pillo change the landscape for in-home caregivers? The goal isn't to replace anyone, but extend what they can do, assures James Wyman, co-founder and COO of Pillo Health. "This technology serves as a sort of triage so that you can be more efficient with who you're reaching out to." Wyman stresses the importance of regular communication and helping people form habits around correctly taking their meds – and educating people on what they're taking and why they're taking it.

Integrating this type of technology into the home is a natural evolution, Wyman contends. "As more day-to-day devices are incorporating voice-based technology, more consumers of all ages are becoming familiar with it. We've also seen a massive rise in digital health applications - whether telemedicine or other mobile digital health solutions. All of that is pushing healthcare further and further into patients' homes."

If providers are interested in adopting new technology into their communities, Wyman suggests taking it slow. "Think of it in a step-by-step basis," he advises. "It may not be the perfect solution right out of the box." Wyman recommends starting with a small test group and creating the opportunity for hands-on experience. "Then, once you're comfortable that this is the right solution for you, do a larger rollout."

Learn more about Pillo Health: pillohealth.com

EMBODYING THE OLDER ADULT PERSPECTIVE THROUGH VIRTUAL REALITY

You just got the bad news. You're in the doctor's office sitting between your wife and daughter, and suddenly everyone is talking treatment options. You're Clay, 66, and you've just been diagnosed with terminal cancer.

Through Embodied Labs' virtual reality (VR) training platform, users can "embody" characters experiencing different levels of Macular Degeneration and hearing loss, Parkinson's Disease, Lewy Body Dementia, and, as in Clay's case, end of life decisions. "The learner is able to see through their eyes, listen to their inner dialog, and hear family reactions to different health scenarios," says founder Carrie Shaw. Users encounter ageism and culturally insensitive behavior in some scenarios and work through emotional situations dealing with loved ones and family.

Through these "embodied" experiences, Shaw explains, healthcare professionals are able to build improved care practices, confidence and knowledge, which allows them to develop greater empathy.

In the near future, Shaw predicts immersive learning for cultural competency can help decrease ageism and negative stereotyping in younger generations – not to mention, train employees faster. "In senior care today, time is short, turnover is high and staff shortages are widespread, says Shaw. "Based on three decades of data, we know that immersive virtual environments can train employees faster and with significantly higher retention of that knowledge when compared to traditional methods of learning."

AI will also have a tremendous impact on workforce and staff retention within aging services. "AI will be integrated into staff training to better understand the training needs of each individual, ultimately resulting in personalized training programs per individual staff member." Shaw contends AI will be integrated into staffing platforms to optimize the way that organizations implement human resources, eventually even predicting things like how quickly a worker will turn over.

As more technology-based care solutions are implemented along older adults and retirement communities, Shaw believes AI will become an important tool to providing better person-centered care. Once you've (metaphorically) walked a mile in your resident's shoes, it can change your whole perspective.

Learn more about Embodied Labs: embodiedlabs.com

A Conversation on the Future of Technology and Aging

David Lindeman, Ph.D, is the Director of Health for the Center for Information Technology Research in the Interest of Society (CITRIS) at the University of California, Berkeley, and Director of the Center for Technology and Aging (CTA).

WHAT DOES "AI" REALLY ENCOMPASS?

We tend to use the broader term, "machine intelligence." While there is a wide range of technology out there currently, fundamentally underneath it all is applying data in new ways that we haven't had access to before.

WHAT ARE SOME OF THE CHALLENGES AROUND AGING THAT YOUR WORK SPECIFICALLY FOCUSES ON?

We do a lot with issues, first and foremost, that empower older adults to maintain their independence and improve quality of life. Within that, that's everything from direct applications for older adults on chronic disease management, wellness and prevention, on monitoring, but then also through creating new tools to help family caregivers and professionals – in every setting, from community-based to senior living, to end-of-life care.

WHAT ARE SOME OF THE CONCERNS OR UNINTENDED CONSEQUENCES TO BE AWARE OF AS AI CONTINUES TO ADVANCE?

As you move into the ways we apply data, and the way we collect and manage data, ensuring the privacy and security of older adults and workers is first and foremost. As you get into sensors, monitoring, and sharing information, you have concerns from both older adults and professionals who work with them about how that information will be used. Another major area of concern and consideration are regulatory issues, reimbursement, and policies related to best practices of care. First, how to set parameters, second, how to interpret that information, and third, how do we use it either to support human decisions – or in some cases, can it replace human decisions?

WHAT ARE YOU EXCITED ABOUT SEEING HAPPEN WITHIN SENIOR CARE AND TECHNOLOGY IN THE NEXT FIVE TO 10 YEARS?

I'd like to see technology become ubiquitous. Also, that it become ever-more accessible, so that, in a sense, the technology fades into the background. So instead of people having to push something, or activate it, we use more predictive information, which is what we can get out of artificial intelligence, and the technology solutions we are now seeing are done more automatically and don't require staff or residents to initiate them.

The best example are new advances in voice. We're seeing a strong indication that half of technology within the next five years will be activated through voice command. That will be tremendous, because

that reduces problems people have with mobility and dexterity issues. Also, embedded sensors - but just sensors in general. Whether you're wearing something or you have it embedded in the room so when you walk into that room, it'll not only be adjusting the space for you, it'll be monitoring your physiological issues and be able to do assessments in a very natural environment.

We'll also see more and more non-invasive technologies, where you'll be able to collect information as opposed to having to get it with direct contact. Not to replace people, but to make things more efficient, more productive, and actually expand what we can do.

In our field, where we still have low-tech and high touch, AI machine learning will really help us do that even more effectively with greater improvement on quality of life and quality of outcomes.

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The Benefits of Finalizing your wishes
Director of Community Outreach, Nicole Zamora
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New Solutions to Keep Seniors Moving

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LeadingAge California serves as a hub for aging services in California, providing a place where members can network together, share best practices, collaborate for group savings, and serve to educate one another while elevating the career development and knowledge of the combined staff who serve our over 125,000 senior residents throughout California.

We are deeply grateful for the elevated support of our Premier Level Business Partner Members:

- *Arthur J. Gallagher & Co. Insurance Brokers of California, Inc. License 0726293*
- *Cain Brothers*
- *Hanson Bridgett LLP*
- *Harbor Linen*
- *Lyft*
- *Morrison Community Living*
- *Moss Adams LLP*
- *Nonstop Wellness*
- *Quality Apex*
- *Relation Insurance Services*
- *Value First*
- *Ziegler*

Find out how you can increase your member support by contacting:

Melanie Ripley - Director of Membership
916-469-3392 or mripley@leadingageca.org

Benefits of Belonging

PROVIDERS
- Online Career Center
- Committee Activities
- Communities Networking
- Provider Compensation Report
- ENGAGE Magazine
- Late Breaking Regulatory & Legislative News
- Membership Directory
- Regional Networking and Education Research
- Value First Group Purchasing Program
- White Papers

RESIDENTS
- Advocacy Opportunities
- Crimestoppers Program

EVENTS
- LeadingAge California Annual Conference and Exposition
- RISE Summit
- Affordable Senior Housing Resident Advocacy Day
- Career Fair

NEWS
- Leading News for Seniors
- Press Releases and Press Kit

EDUCATION
Leading Education
- Education and Events
- Conferences, Webinars On Demand and Regional Meetings
- Workforce Reference Materials

POLICY AND LEGISLATION
Leading Policy
- Abuse/Neglect Reporting Guide
- Clinical Excellence
- Crisis Communications
- Federal Requirements of Participation Reference Guide
- Five-Star Reports
- Healthcare Reform
- Legislative Advocacy
- Licensing
- New Models
- Policies and Procedures
- Products and Services
- Regulations
- SNF Compliance Guide
- Survey Assistance
- Technical Support Briefs

LEADERSHIP
Cultivating Leadership
- Committees
- EMERGE
- Regional Meetings
- Scholarships
- Executive Leadership Webinars

COMMUNITY SUPPORT
- Advocacy Opportunities
- Age On. Rage On™ Campaign
- Online Career Center
- Community Locator Tool online
- Choosing a Non-Profit Consumer Guide
- Resource Listing

Participate in our Group Savings Programs through:

VALUE st Choices Solutions Savings | Relation | Gallagher Lewis ARTHUR J. GALLAGHER & CO. | nrc HEALTH

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