

ADVANCING INNOVATION FOR AGING



Welcome to PennAITech

We are welcoming you to our second newsletter of the Penn Artificial Intelligence and Technology Collaboratory for Healthy Aging (PennAITech). PennAITech, funded by the National Institute on Aging, is committed to developing, evaluating, commercializing, and disseminating innovative technology and artificial intelligence systems to support older adults and those with Alzheimer’s Disease and Related Dementias. Technological advances have introduced many opportunities for innovation to support aging. More recently, the use of AI-powered chatbots, such as ChatGPT have highlighted the potential of AI in many aspects of our lives including health care. ChatGPT is a language model developed by OpenAI that uses natural language processing to understand and respond to user queries in a conversational manner. Many argue that this may ultimately increase patient engagement, improve access to information and enhance the efficiency of health care delivery systems. Personalized information and advice can facilitate tailored recommendations for patients assuming the information provided by ChatGPT is accurate and reliable. The proliferation of these tools expands the dialogue about the opportunities and challenges associated with the use of AI in health care.

Our team at PennAITech collaborates with innovators in academia, industry, and health systems nationally as we explore how technology and AI can generate impactful solutions for aging. In this issue we feature the Clinical Translation and Validation Core Co-Lead, Dr. Brown and our Technology Identification and Training Core Lead, Dr. Shen. We also learn more about Dr. Mohan of Koda Health and David Stout of Iris Technology Inc, both part of our Year 1 cohort of awardees. We provide updates from the field and our ongoing webinar series. We invite you to follow our social media platforms, including our YouTube channel.



George Demiris

Table of Contents

- Welcome
- Meet our Team
- Team Member Spotlights
- Yr1 Pilots
- Pilot Spotlights
- News from the Field
- Publications
- Highlight Seminars
- Checkout the full Webinar Series
- Connect with Us

Meet the Team

Principal Investigators



**George Demiris,
PhD, FACMI**



Jason Karlawish, MD



**Jason H. Moore,
PhD, FACMI**

Aging Focus Pilot Core

AD/ADRD Focus Pilot Core



**Kathryn H. Bowles
PhD, FACMI, FAAN**



**Pamela Z. Cacchione,
PhD, CRNP, FAAN**



**Lauren Massimo
PhD, CRNP**



**Dawn Mechanic-
Hamilton, PhD**

The overarching goal of the Aging Focus Pilot Core is to promote the advancement of science using technology and artificial intelligence to optimize quality of life and healthcare management for older adults living in their homes independently, as well as those receiving skilled home and community-based services. This Core solicits, selects, and manages pilot studies that develop or test AI and technology applications to detect risks, predict needs, address disparities, improve access to care, and support decision making for chronic illness management and safe aging in place.

The overarching goal of the Alzheimer's Disease and Alzheimer's Disease Related Dementias (AD/ADRD) Focus Pilot Core is to promote the advancement of science and engineering for predictive analytics, clinical decision support, or the care of adults with AD/ADRD. This Core solicits, reviews, and supports pilot studies that develop or advance the use of AI and technology for AD/ADRD predictive analytics, clinical decision support, or the care of adults with AD/ADRD.

Networking and Mentoring Core

The overarching goal of the Networking and Mentoring Core (Core E) is to support activities intended to facilitate networking and mentoring for the awardees of the Aging and AD pilot projects, all of whom are invested in Artificial Intelligence (AI) approaches and technology for aging adults, including those with Alzheimer's disease or related dementias (AD/ADRD). This Core organizes and supports consortium networking activities and communicates with the broader scientific community.



Marylyn D. Ritchie, PhD

Clinical Translation and Validation Core

The goal of the Clinical Translation and Validation Core is to use the science and practice of geriatrics and gerontology to assess the feasibility and clinical utility of artificial intelligence (AI) methods for clinical decision support and of new technology for monitoring aging adults in their home. This Core provides an expert panel to assess the feasibility and clinical value of new artificial intelligence models for predictive analytics and clinical decision support and of new technologies designed to monitor aging adults and those with AD/ADRD. It provides a testbed for new technologies designed to monitor aging adults and those with AD/ADRD with an emphasis on underserved and rural populations.



Jason Karlawish, MD



Rebecca T. Brown, MD, MPH

Technology Identification and Training Core

The overarching goal of the Technology Identification and Training Core is to use evidence from the literature, stakeholder and expert inputs to identify the technology needs of older Americans, as well as develop training activities for artificial intelligence (AI) and technology for scientists, engineers, clinicians, medical professionals, patients, policy makers, and investors.



Li Shen, PhD, FAIMBE



Ryan Urbanowicz, PhD

Stakeholder Engagement Core

The overarching goal of the Stakeholder Engagement Core (SEC) is to ensure that technology solutions and AI approaches proposed and developed by the PennAITech Collaboratory are maximally adoptable by and accessible to their end users by soliciting ongoing stakeholder input and involving all key parties throughout all phases of the development and testing processes. The Core maintains a technology consortium (consisting of technology companies, startups, venture capital firms, and angel investors) that provide guidance and collaboration opportunities for pilot projects and a platform for potential dissemination and commercialization of innovative tools.



George Demiris, PhD, FACMI



Lisa M. Walke, MD, MSHA

Ethics and Policy Core

The overarching goal of the Ethics and Policy Core is to shift the current ethics and policy paradigm by focusing on issues that arise at the intersection of aging and of AI methods and technologies for healthy aging. The Core will work in close collaboration with the other PennAITech Collaboratory Cores to address four key issues: (1) promoting the autonomy of older adults by balancing considerations of usefulness and intrusiveness; (2) protecting older adults in light of vulnerability due to cognitive and functional decline; (3) mitigating bias and addressing health disparities, such as racial disparities and urban-rural disparities; and (4) safeguarding the data privacy of older adults.



Emily Largent, JD, PhD, RN

TEAM MEMBER SPOTLIGHT:

Rebecca T. Brown, MD, MPH

Assistant Professor of Medicine, Division of Geriatric Medicine, Perelman School of Medicine of the University of Pennsylvania

Attending Physician, Geriatrics and Extended Care, Corporal Michael J. Crescenz VA Medical Center

Core Investigator, Center for Health Equity Research and Promotion, Corporal Michael J. Crescenz VA Medical Center



Tell us about your research interests.

Describe some of your research projects.

My research focuses on improving functional status (the ability to perform daily activities such as bathing and dressing) among socioeconomically disadvantaged older adults. Part of my research program examines the epidemiology of functional impairment, looking at risk factors for and outcomes of developing functional impairment among disadvantaged groups, such as older adults experiencing homelessness. My more recent work focuses on developing and testing both home- and clinic-based interventions to improve functional status for older adults. For example, in a recent project, my team developed and pilot-tested a physical activity and environmental intervention to improve the ability to perform daily activities among older adults living in federally subsidized housing. In primary care clinic settings, I'm also testing the effectiveness of an intervention to improve the identification and management of functional impairment and frailty among older patients.

What is your role within PennAITech?

I co-lead the Clinical Translation and Validation Core with Dr. Jason Karlawish. This Core has several goals. First, we help assess whether new AI methods and technologies are feasible and have clinical utility. To do so, the Core provides an expert panel of clinicians to review and give feedback on pilot projects. Second, we help pilot applicants and awardees to identify and connect with appropriate clinical settings to test AI methods and technologies. Settings span the range of clinical and home-based settings where older adults receive care, including those that serve underserved and rurally-dwelling older adults. Third, we collaborate with other Cores to provide clinical expertise to inform projects such as the AITech database, which provides a compendium of AI and technology-related resources.

What do you see as the role of artificial intelligence and technology in biomedicine and health care in the next few years?

As a geriatrician who sees patients in primary care, I am especially interested in how artificial intelligence and technology can help older adults to live more independently and comfortably at home. Many of the patients whom I see in clinic have difficulty performing daily tasks needed to live safely in their homes and communities, including basic activities like transferring in and out of a bed or chair and more cognitively complex activities like taking medications as directed and scheduling doctor's appointments. These difficulties are often worse among older adults who are socioeconomically disadvantaged and have fewer financial resources, resulting in a higher risk of acute care utilization and nursing home admission for these groups. I hope that in the coming years we will see an increasing number of technologies developed that address unmet needs and promote independence for older adults living at home, while being easy to use and affordable.

What advice do you have for innovators and entrepreneurs who are embarking on works harnessing the potential of AI or other technologies for aging?

With my geriatrician's hat on, I know that many of my patients find it challenging to adopt and use new technologies. For example, patients may have difficulty using a tablet that lets them connect with a clinician for a virtual video visit, or struggle to use hearing aids that need frequent battery changes. For this reason, it's important to design new AI and technologies with older adults in mind, and to test prototypes among real-world users who have impairments in hearing, dexterity, cognition, and other chronic conditions that impact their function. Because such conditions are common as we age, technologies that are usable for people with these impairments will have the greatest potential for adoption, spread, and sustained use and will make the greatest impact on the wellbeing of older adults.

TEAM MEMBER SPOTLIGHT:

Li Shen, Ph.D., FAIMBE

Professor and Interim Director, Division of Informatics
Department of Biostatistics, Epidemiology and Informatics
Senior Fellow, Penn Institute for Biomedical Informatics
Senior Fellow, Penn Leonard Davis Institute of Health Economics
Perelman School of Medicine, University of Pennsylvania



Tell us about your research interests.

Describe some of your research projects.

My research interests include medical image computing, biomedical informatics, machine learning, network science, imaging genomics, multi-omics and systems biology, Alzheimer's disease, and big data science in biomedicine. My current research program is focused on developing and applying informatics, computing and data science methods for discovering actionable knowledge from complex biomedical and health data (e.g., genetics, omics, imaging, biomarker, outcome, EHR, health care), with applications to complex disorders. I am co-leading the Artificial Intelligence for Alzheimer's Disease (AI4AD) consortium (an NIA multisite U01) to empower discovery in Alzheimer's disease biobanks through ultrascale machine learning. I am an MPI of an NIA U01 to develop knowledge graph guided AutoML approaches for extracting patterns from clinical, genetic, genomic, and imaging data. I am also leading an R01 project on developing innovative translational big data analytic methods to systematically integrate AD biomarker research and systems medicine study, and facilitate the identification of novel promising targets and drugs for repositioning against AD or AD-related dementia.

What is your role within PennAITech?

I co-lead the PennAITech Technology Identification and Training Core. The overarching goal of the Core is to use evidence from the literature, stakeholder and expert inputs to identify the technology needs of older Americans, as well as develop training activities for AI and technology for scientists, engineers, clinicians, medical professionals, patients, policy makers, and investors. We work closely with the other PennAITech Cores to identify AI methods and technology, create a central resource and knowledge base of these methods and technology, and provide training activities to the community, with the goal of addressing aging, cognitive decline, dementia and health disparities, and improving the care and health outcomes of old Americans.

What do you see as the role of artificial intelligence in biomedicine and health care in the next few years?

As an informatician, I think that AI will play an increasingly important role in multiple informatics fields in biomedicine and health care in the years ahead. For example, in translation bioinformatics, AI can help discover new drugs by analyzing big biobank data, integrating large knowledge base, and identifying new therapeutic targets. In clinical research informatics, AI can help healthcare professionals make more informed decisions by analyzing patient data and suggesting diagnoses and treatments. In clinical informatics, AI can help improve healthcare operations by optimizing resource allocation, reducing administrative burdens, and improving patient outcomes. In public health informatics, AI can help identify disease outbreaks, predict the spread of diseases, and develop effective interventions by analyzing large amounts of data.

What advice do you have for innovators and entrepreneurs who are embarking on works harnessing the potential of AI or other technologies for aging?

First, it is important to understand the needs and challenges of the aging population to live a safe, social, and engaged life, and the current AI and technology available in the market. This can help you identify opportunities for innovation and evaluate the demand for your solution. Second, it is important to collaborate with healthcare stakeholders and AI/technology experts to ensure that your work is grounded in the latest research and best practices, e.g., through exploring and making use of the resources available at the AITCs. Third, the field of AI and technology is rapidly evolving, so it is important to stay informed of the latest advancements, e.g., through attending events organized by AITCs such as webinars and symposiums. Fourth, it is important to consider ethical and privacy concerns, and ensure that your AI and technology solution protects the privacy of older adults and addresses health disparities.



Penn
UNIVERSITY of PENNSYLVANIA

Artificial Intelligence and
Technology Collaboratory
for Healthy Aging

2022-2023
PILOT
AWARDEES



Desh Mohan
Patient-Surrogate
Alignment in Digital
Advance Care Planning
Koda Health



Robin Austin
Designing Usable
Technologies via Data-
Driven Whole-Person
User Personas
University of Minnesota



Richard Everts
RGBd + Thermal
Computer Vision Platform
for Home Monitoring and
Telehealth
Bestie Bot



Robin Brewer
Conversational Care
Technologies
University of Michigan



David Yonce
Physiological Detection
and Monitoring of
Alzheimer's Disease
Cogwear



David Stout
AI-Assisted Fall Detection
and Remote Monitoring
for Seniors with ADRD
Iris Technology Inc



Lorens Helmchen
AI-Enabled Conversations
to Manage Psychotropic
Medication
The George Washington
University



**Veerawat
Phongtankuel**
Detecting respiratory
distress in patients with
advanced ADRD
Weill Cornell Medicine



Emma Rhodes
Feasibility of Digital
Monitoring to Detect
Autonomic Markers of
Empathy Loss in bv FTD
University of Pennsylvania



Maja Mataric
An Accessible Machine
Learning-based ADRD
Screening Tool for
Caregivers
University of South California



Kendra Ray
A Music-Based Mobile App
to Combat
Neuropsychiatric
Symptoms in People
Living With ADRD
AutoTune Me



Jennifer Portz
Leveraging Patient
Portals to Support
Caregivers
University of Colorado/
Kaiser Permanente

PILOT IN THE SPOTLIGHT:

Patient-Surrogate Alignment in Digital Advance Care Planning

Desh Mohan, MD

Co-founder and Chief Medical Officer, Koda Health



TELL US ABOUT YOUR PROJECT AND WHAT YOU PLAN TO DO THIS NEXT YEAR.

Koda is a streamlined advance care planning (ACP) platform that offers patients dynamic educational content, explorations of their values, and guidance on potential future care decisions. Each patient response is captured to create legal documents that patients can share, sign, and notarize on our platform from anywhere.

In previous studies we've shown that the Koda platform scores high on usability and improves individuals' readiness and knowledge of ACP. Our goals this year include a focus on enhancing the implementation of patient wishes. In this pilot project we're spotlighting surrogate decision makers that patients identify when making their care plan. These surrogates are loved ones chosen to speak for patients if and when they are not able to speak for themselves, and they are therefore key to implementing goal-concordant care.

Currently, less than 25% of surrogate decision makers are engaged in the ACP process or even aware of patient preferences. Our project seeks to help surrogate decision makers feel more prepared. By better understanding the dynamics between patients and their loved ones, and developing a machine learning algorithm for persona identification, we aim to augment the information that surrogate decision makers receive, with the ultimate goal of improving care in emergencies or during serious illness.

WHAT ARE THE LONG TERM GOALS FOR YOUR RESEARCH?

We want to see broad improvements in access to advance care planning for everyone, regardless of an individual's age, race, gender, or socioeconomic barriers, and we want to make it easier for people to have conversations about the care they want.

We can't know when emergency situations or serious illness will occur, but we can be empowered to face them by being prepared and by sharing our wishes with loved ones. This is especially important in aging populations. Discussing these topics with family and medical providers can help alleviate stress, decrease costs, and most importantly ensure that, when needed, care provided is consistent with the person's values.

And the best part is, it doesn't have to be difficult or time-consuming to have these conversations. That's the message we're trying to share.

HOW DO YOU ENVISION THE ROLE OF AI AND TECHNOLOGIES IN SUPPORTING AGING?

In our over-worked and often inefficient healthcare systems, there is ample opportunity for innovative tools that can be seamlessly integrated to lessen the workload. The conversations that Koda helps guide are ones that most health professionals feel uncomfortable or ill-equipped to guide on their own. Our goal at Koda is to improve access to important shared-decision making conversations, simplify the entire process for everyone involved, and drive better quality of life for our patients at all stages of health, while simultaneously easing the burden on healthcare professionals.

The opportunities for AI and other emerging modalities only expand as digital health technology becomes more accessible and equitable. I'm encouraged by the many diverse types of projects in this cohort of awardees. The positive change we are affecting, and each single individual that we help through our work, is a step toward improving the quality of life of all patients.

PILOT IN THE SPOTLIGHT:

AI-Assisted Fall Detection and Remote Monitoring for Seniors with ADRD

David Stout, Co-CEO

Iris Technology Inc.



TELL US ABOUT YOUR PROJECT AND WHAT YOU PLAN TO DO THIS NEXT YEAR.

Falls are a significant contributor to health decline in older adults, and our proprietary AI architecture, Deep Detection™, can revolutionize how we detect and even prevent falls. On webAI we can create highly accurate models with minimal training data. Our unique architecture can also generalize and incorporate context to provide deeper insights. And, our solutions operate entirely on the edge, ensuring patient privacy in the health-care setting and giving users total control over their data. At the onset, our focus will be on creating a model to detect fall events and learn when the risk of a fall is high.

WHAT ARE THE LONG TERM GOALS FOR YOUR RESEARCH?

Our long-term vision is to provide better, more personalized care for seniors that both enables greater independence and fully protects their privacy without the need for expensive or unscalable monitoring. A single person can only monitor a few patients at a time to ensure their safety. Computer vision can simultaneously protect every patient in a single facility, and with webAI it can do so without compromising patient privacy. To meet that goal, we first plan to expand our suite of models and create a more integrated approach. Our focus is to create a foundation of core models built on cutting edge research and practice, and then make those models available to practitioners and enterprises that can further refine and deploy them at scale. Over the long-term, our strategy is to build a suite of modular, interchangeable elements that can come together to solve core issues in the care space.

HOW DO YOU ENVISION THE ROLE OF AI AND TECHNOLOGIES IN SUPPORTING AGING?

Iris's mission is to empower people to solve humanity's "unsolvable" problems. Today, we are heading into an age of daunting demographic shifts, where the number of older adults needing specialized care will increase dramatically but without a corresponding increase in the number of available caregivers. As a result, technology will have to fill this gap in care delivery. We see an enormous opportunity for AI to enable healthy, independent lifestyles for seniors while reducing the burden for caregivers. By leveraging AI to automate monitoring and the more mundane tasks of providing care, we can empower seniors to live safely and independently while providing caregivers with more flexibility and opportunities to bring care to people.

NEWS FROM THE FIELD

WHAT'S HAPPENING IN AI?

Companies like TikTok, Adobe, the BBC and OpenAI agree to guidelines conceptualized to promote transparency around generative AI. The recommendations call for builders of technology and creators and distributors of digitally created synthetic media to be transparent about the technology attributes and limitations and for full disclosure when users interact with this type of content.

To read more about this initiative, visit: <https://www.technologyreview.com/2023/02/27/1069166/how-to-create-release-and-share-generative-ai-responsibly/>

You can review the guidelines here: <https://syntheticmedia.partnershiponai.org/>

A new Pew Research Center survey found that 60% of Americans would be uncomfortable with their health care provider relying on AI in their own health care. The survey was conducted in December 2022 and included 11,004 U.S. adults. Only 38% of participants stated that AI being used to do things like diagnose disease and recommend treatments would lead to better health outcomes for patients generally, while 33% say it would lead to worse outcomes and 27% say it wouldn't make much difference. The survey findings indicate that younger adults, men, those with higher levels of education are more open to the use of AI in their own health care.

To read more about this Pew Research Center survey, visit: <https://www.pewresearch.org/science/2023/02/22/60-of-americans-would-be-uncomfortable-with-provider-relying-on-ai-in-their-own-health-care/>

Researchers from the University of Florida developed AI tools to predict Alzheimer's disease development up to five years before a diagnosis is made, using EHR data. The study demonstrates the potential of machine learning methods to facilitate early prediction of Alzheimer's disease using real world electronic health record data.

You can read the study here: <https://alz-journals.onlinelibrary.wiley.com/doi/10.1002/alz.12967>

The US General Services Administration (GSA) launched the Applied AI Healthcare Challenge, a prize competition with the goal to improve mental health, addiction care, health equity, healthcare supply chain and safety, and cancer outcomes. The GSA announced in February 2023 that the Centers for Excellence (CoE) is working with Challenge.gov to recruit organizations with AI technologies to engage in a competition as part of the Year of Open Science.

To read more about this competition, visit: <https://www.gsa.gov/about-us/newsroom/news-releases/gsa-launches-ai-challenge-to-drive-better-healthcare-outcomes-02092023>

SELECTED PUBLICATIONS

WORK BY OUR TEAM

01.

Achieving and sustaining behavior change for older adults: A Research Centers Collaborative Network workshop report. Hughes JM, **Brown RT**, Fanning J, Raj M, Bisson A, Ghneim M, Kritchevsky SB. *Gerontologist*. 2022 Dec 6:gnac173. doi: 10.1093/geront/gnac173. Epub ahead of print. PMID: 36473052.

02.

What is the relationship between falls, functional limitations, and depressive symptoms among Chinese older adults? The role of living alone. Yang R, Wang H, Tracy EL, Jo YJ, Sward KA, Edelman LS, **Demiris G**. *Maturitas*. 2023 Feb;168:78-83. doi: 10.1016/j.maturitas.2022.10.007. Epub 2022 Nov 4. PMID: 36521395.

03.

LoFTK: a framework for fully automated calculation of predicted Loss-of-Function variants and genes. Alasiri A, Karczewski KJ, Cole B, Loza BL, **Moore JH**, van der Laan SW, Asselbergs FW, Keating BJ, van Setten J. *BioData Min*. 2023 Feb 2;16(1):3. doi: 10.1186/s13040-023-00321-5. PMID: 36732776; PMCID: PMC9893534.

04.

Gender of study partners and research participants associated with differences in study partner ratings of cognition and activity level. Stites SD, Gurian A, Coykendall C, **Largent EA**, Harkins K, **Karlawish J**, Coe NB. *J Gerontol B Psychol Sci Soc Sci*. 2023 Feb 15:gbad026. doi: 10.1093/geronb/gbad026. Epub ahead of print. PMID: 36790294.

05.

Leveraging Multi-Ancestry Polygenic Risk Scores for Body Mass Index to Predict Antiretroviral Therapy-Induced Weight Gain. Keat K, Hui D, Xiao B, Bradford Y, Cindi Z, Daar ES, Gulick R, Riddler SA, Sinxadi P, Haas DW, **Ritchie MD**. *Pac Symp Biocomput*. 2023;28:233-244. PMID: 36540980.

06.

TREM2 risk variants are associated with atypical Alzheimer's disease. Kim B, Suh E, Nguyen AT, Prokop S, Mikytuck B, Olatunji OA, Robinson JL, Grossman M, Phillips JS, Irwin DJ, **Mechanic-Hamilton D**, Wolk DA, Trojanowski JQ, McMillan CT, Van Deerlin VM, Lee EB. *Acta Neuropathol*. 2022 Dec;144(6):1085-1102. doi: 10.1007/s00401-022-02495-4. Epub 2022 Sep 16. PMID: 36112222; PMCID: PMC9643636.

PUBLICATIONS

07.

Physical Activity and Rising Neurofilament Light Chain in Genetic Frontotemporal Degeneration—Diagnosis Is Not Destiny. **Massimo L**, Cousins KAQ. JAMA Neurol. 2023 Jan 1;80(1):14–16. doi: 10.1001/jamaneurol.2022.4190. PMID: 36374511.

08.

Deciding with Others: Interdependent Decision-Making. **Largent EA**, Clapp J, Blumenthal-Barby JS, Grady C, McGuire AL, Karlawish J, Grill JD, Stites SD, Peterson A. Hastings Cent Rep. 2022 Nov;52(6):23–32. doi: 10.1002/hast.1444. PMID: 36537275; PMCID: PMC9773484.

09.

Advance Care Planning Among Older Adults with Cognitive Impairment. Rahemi Z, Malatyali A, Adams SA, Jarrín OF, **Demiris G**, Parker V, Ghaiumy Anaraky R, Dye CJ. Am J Hosp Palliat Care. 2022 Dec 21;10499091221146255. doi: 10.1177/10499091221146255. Epub ahead of print. PMID: 36541134.

10.

"Second set of eyes:" Family caregivers and post-acute home health care during the COVID-19 pandemic. Russell D, Burgdorf JG, Washington KT, Schmitz J, **Bowles KH**. Patient Educ Couns. 2023 Apr;109:107627. doi: 10.1016/j.pec.2023.107627. Epub 2023 Jan 10. PMID: 36638714; PMCID: PMC9830895.

11.

How to Run the Pharmacogenomics Clinical Annotation Tool (PharmCAT). Li B, Sangkuhl K, Keat K, Whaley RM, Woon M, Verma S, Dudek S, Tuteja S, Verma A, Whirl-Carrillo M, **Ritchie MD**, Klein TE. Clin Pharmacol Ther. 2022 Nov 9. doi: 10.1002/cpt.2790. Epub ahead of print. PMID: 36350094.

12.

Minimal Clinically Important Difference in the Six-Minute Walk Distance for Patients with Pulmonary Arterial Hypertension. Moutchia J, McClelland RL, Al-Naamani N, Appleby DH, Blank K, Grinnan D, **Holmes JH**, Mathai SC, Minhas J, Ventetuolo CE, Zamanian RT, Kawut SM. Am J Respir Crit Care Med. 2023 Jan 11. doi: 10.1164/rccm.202208-1547OC. Epub ahead of print. PMID: 36629737.

13.

The identification of clusters of risk factors and their association with hospitalizations or emergency department visits in home health care. Song J, Chae S, **Bowles KH**, McDonald MV, Barrón Y, Cato K, Rossetti SC, Hobensack M, Sridharan S, Evans L, Davoudi A, Topaz M. J Adv Nurs. 2023 Feb;79(2):593–604. doi: 10.1111/jan.15498. Epub 2022 Nov 22. PMID: 36414419.

14.

Testing for Alzheimer Disease Biomarkers and Disclosing Results Across the Disease Continuum. **Largent EA**, Grill J, O'Brien K, Wolk D, Harkins K, **Karlawish J**. Neurology. 2023 Jan 31;102(2):e206891. doi: 10.1212/WNL.0000000000206891. Epub ahead of print. PMID: 36720642.

PUBLICATIONS

15.

Machine learning applied to electronic health record data in home healthcare: A scoping review. Hobensack M, Song J, Scharp D, **Bowles KH**, Topaz M. *Int J Med Inform.* 2023 Feb;170:104978. doi: 10.1016/j.ijmedinf.2022.104978. Epub 2022 Dec 30. PMID: 36592572; PMCID: PMC9869861.

17.

The Penn Medicine BioBank: Towards a Genomics-Enabled Learning Healthcare System to Accelerate Precision Medicine in a Diverse Population. Verma A, Damrauer SM, Naseer N, Weaver J, Kripke CM, Guare L, Sirugo G, Kember RL, Drivas TG, Dudek SM, Bradford Y, Lucas A, Judy R, Verma SS, Meagher E, Nathanson KL, Feldman M, **Ritchie MD**, Rader DJ, For The Penn Medicine BioBank. *J Pers Med.* 2022 Nov 29;12(12):1974. doi: 10.3390/jpm12121974. PMID: 36556195; PMCID: PMC9785650.

20.

Recommendations of the International Medical Informatics Association (IMIA) on Education in Biomedical and Health Informatics: Second Revision. Bichel-Findlay J, Koch S, Mantas J, Abdul SS, Al-Shorbaji N, Ammenwerth E, Baum A, Borycki EM, **Demiris G**, Hasman A, Hersh W, Hovenga E, Huebner UH, Huesing ES, Kushniruk A, Hwa Lee K, Lehmann CU, Lillehaug SI, Marin HF, Marschollek M, Martin-Sanchez F, Merolli M, Nishimwe A, Saranto K, Sent D, Shachak A, Udayasankaran JG, Were MC, Wright G. *Int J Med Inform.* 2023 Feb;170:104908. doi: 10.1016/j.ijmedinf.2022.104908. Epub 2022 Oct 29. PMID: 36502741.

16.

Health Technology for All: An Equity-Based Paradigm Shift Opportunity. MacDonald J, **Demiris G**, Shevin M, Thadaney-Israni S, Jay Carney T, Cupito A. *NAM Perspect.* 2022 Dec 14;2022:10.31478/202212a. doi: 10.31478/202212a. PMID: 36713773; PMCID: PMC9875852.

18.

Generative and reproducible benchmarks for comprehensive evaluation of machine learning classifiers. Orzechowski P, **Moore JH**. *Sci Adv.* 2022 Nov 25;8(47):eabl4747. doi: 10.1126/sciadv.abl4747. Epub 2022 Nov 23. PMID: 36417520; PMCID: PMC9683726.

19.

Clinical Practice in the Alzheimer Biomarker Era—Drugs for the Brain and Care for the Mind. **Karlawish J**. *JAMA Netw Open.* 2023 Jan 3;6(1):e2250938. doi: 10.1001/jamanetworkopen.2022.50938. PMID: 36637828.

21.

Ethical analysis of vulnerabilities in cluster randomized trials involving people living with dementia in long-term care homes. Nix HP, **Largent EA**, Taljaard M, Mitchell SL, Weijer C. *J Am Geriatr Soc.* 2023 Feb;71(2):588–598. doi: 10.1111/jgs.18128. Epub 2022 Nov 26. PMID: 36435175; PMCID: PMC9957897.

a2 National Symposium: Empowering Innovation in AI/Tech + Aging

March 8, 2023 | Baltimore, MD

The a2 Collective is pleased to invite researchers, innovators, investors, and other stakeholders working at the intersection of aging, artificial intelligence (AI), and technology to join us at the inaugural a2 National Symposium, to be held on the Johns Hopkins Medical campus in Baltimore, MD, on March 8. The symposium will feature a full day of sessions on leveraging AI and technology to improve care and health outcomes for older adults, including persons with Alzheimer's disease and related dementias (AD/ADRD), and their caregivers.

a2 National Symposium attendees will have the opportunity to hear from leading experts on aging and AD/ADRD, AI ethics, and commercialization; meet in person with leadership from the a2 Collective Coordinating Center, JH AITC, MassAITC, and PennAITech as well as National Institute on Aging representatives and industry partners; and learn about the first cohort of projects selected for a2 Pilot Awards. Visit the symposium website to view a full list of confirmed speakers, learn about registration and travel support opportunities, and register to reserve your spot now.



WHY YOU SHOULD ATTEND

LEARN
about the latest tech innovations in aging and AD/ADRD

MEET
with a2 Pilot Awards decision makers, VCs and capital allocators

CONNECT
with AgeTech innovators and startups

UNDERSTAND
the latest aging research perspectives and AI ethics issues

STARTUP PITCH COMPETITION
An exclusive showcase of the latest a2 Pilot Award innovators from Cohort 1

JUDGES:



Tracy Chadwell, JD
1843 Capital



Mark Komisky, JD
Johns Hopkins Technology Ventures



Supriya Munshaw, PhD
TCP Propel 3 Fund

FEATURED SPEAKERS:



Sarah Lenz Lock, JD
AARP



Partha Bhattacharyya, PhD
National Institute on Aging



Elizabeth Mynatt, PhD
Northeastern University



Jeremy Greene, MD, PhD
Johns Hopkins University



Richard J. Hodes, MD
National Institute on Aging



Nadia Hansel, MD, MPH
Johns Hopkins University



Rose Li, MBA, PhD
Rose Li & Associates



Carmel Roques, MA (invited)
Maryland Department of Aging



Phillip Phan, PhD
Johns Hopkins University



George Demiris, PhD
University of Pennsylvania



Jason Karlawish, MD
University of Pennsylvania



Emily Largent, JD, PhD, RN
University of Pennsylvania



Irene Chen, PhD
UC Berkeley | UCSF



Debra Mathews, PhD, MA
Johns Hopkins University

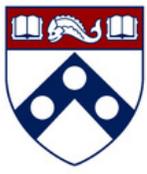


Deepak Ganesan, PhD
University of Massachusetts Amherst



Rama Chellappa, PhD
Johns Hopkins University

REGISTER AT: a2collective.ai/symposium



Penn
UNIVERSITY of PENNSYLVANIA

Artificial Intelligence and
Technology Collaboratory
for Healthy Aging

WEBINAR SERIES 2022-2023

The purpose of this webinar is to foster a dialogue exploring clinical, ethical and technological opportunities and challenges associated with the use of technology to promote aging, and to introduce different perspectives at the intersection of informatics and gerontology.

Patient Portal Messages as a Mechanism to Identify and Support Care Partners of Persons with Dementia



Kelly Gleason

Assistant Professor
Johns Hopkins
School of Nursing

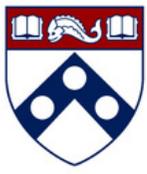
THURSDAY, MARCH 2, 2023, 12-1PM EST



ZOOM WEBINAR
MONTHLY
THURSDAY 12-1PM EST



Webinar Series Information
can be found HERE



Penn
UNIVERSITY of PENNSYLVANIA

Artificial Intelligence and
Technology Collaboratory
for Healthy Aging

WEBINAR SERIES 2022-2023

The purpose of this webinar is to foster a dialogue exploring clinical, ethical and technological opportunities and challenges associated with the use of technology to promote aging, and to introduce different perspectives at the intersection of informatics and gerontology.

Designing AI Systems for Caregiving and its Role of Emotional Work



Jina Huh-Yoo

Assistant Professor
College of Computing and
Informatics
Drexel University

THURSDAY, APRIL 6, 2023, 12-1PM EST



ZOOM WEBINAR
MONTHLY
THURSDAY 12-1PM EST



Webinar Series Information
can be found HERE



Penn
UNIVERSITY of PENNSYLVANIA

Artificial Intelligence and
Technology Collaboratory
for Healthy Aging

WEBINAR SERIES 2022-2023

The purpose of this webinar is to foster a dialogue exploring clinical, ethical and technological opportunities and challenges associated with the use of technology to promote aging, and to introduce different perspectives at the intersection of informatics and gerontology.



October 6, 2022

Amanda Lazar

University of Maryland



November 3, 2022

Maxim Topaz

Columbia University



December 1, 2022

Clara Berridge

University of Washington



January 5, 2023

Daniel Capurro

University of Melbourne



February 2, 2023

Deborah Estrin

Cornell Tech



March 2, 2023

Kelly Gleason

Johns Hopkins University



April 6, 2023

Jina Huh - Yoo

Drexel University



May 4, 2023

Desmond U. Patton

University of Pennsylvania



June 1, 2023

Kevin Johnson

University of Pennsylvania



ZOOM WEBINAR
MONTHLY
THURSDAY 12-1PM EST

Register for Webinar
Series HERE



[Webinar Series YouTube Playlist can be found HERE](#)

ARTIFICIAL INTELLIGENCE AND OVERDIAGNOSIS

Daniel Capurro MD, PhD



EXPLORING DIGITAL BIOMARKERS AND IMMERSIVE TECHNOLOGIES TO ENHANCE VIRTUAL CARE FOR HEALTHY AGING

Deborah Estrin, PhD





SAVE-THE-DATE

EMPOWERING INNOVATION IN AI / TECH + AGING

SECOND NATIONAL SYMPOSIUM

MARCH 19 - 20, 2024
SMILOW CENTER FOR
TRANSLATIONAL RESEARCH
UNIVERSITY OF PENNSYLVANIA
PHILADELPHIA, PA



Registration details and other
information coming soon.

www.pennaitech.org



Funded by the National Institute on Aging, part of the National Institutes of Health

Connect with PennAITech on social media:



<https://twitter.com/pennaitech>



<https://www.facebook.com/pennaitech>



<https://www.linkedin.com/company/pennaitech/>



<https://www.youtube.com/@pennaitech>