

Artificial Intelligence and Technology Collaboratory for Healthy Aging

Newsletter - July 2023 - Issue 4







Welcome to PennAlTech

We are welcoming you to our fourth newsletter of the Penn Artificial Intelligence and Technology Collaboratory for Healthy Aging (PennAlTech). PennAlTech, 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. Our Year 3 pilot award competition has been launched and we will be conducting virtual "office hours" with people interested to apply. We already had our informational webinar for prospective applicants, it can be viewed here. Details for the application timeline are included in the newsletter. We are excited about innovative projects that will advance the use of new information technology and Al tools to support aging and the care of persons with Alzheimer's Disease and Related Dementias.

We have also completed our first webinar series for 2022-2023; all recorded sessions are available on our YouTube channel. We had the opportunity to hear from experts in gerontology, informatics, AI, ethics, and dementia and explore challenges and opportunities for the future. We will be continuing our seminar series for 2023-2024 starting in September 2023. In this issue we feature the Aging Core Co-Lead, Dr. Kathryn Bowles and the Networking Core Lead, Dr. Marylyn Ritchie. We also learn more about Robin Austin at the University of Minnesota and Veerawat Phongtankuel at Weill Cornell Medicine, both part of our Year 1 cohort of awardees. We provide updates from the field including a recent publication by Drs. Largent and Wexler who lead our Ethics Core, on ethical considerations for researchers developing and testing minimal-risk devices. As always, we invite you to follow our social media platforms, including our YouTube channel and reach out with any questions or suggestions.



George Demiris

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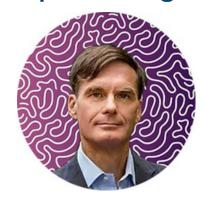
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Meet the Team

Principal Investigators



George Demiris, PhD, FACMI



Jason Karlawish, MD



Jason H. Moore, PhD, FACMI

Aging Focus Pilot Core



Kathryn H. Bowles PhD, FACMI, FAAN



Pamela Z. Cacchione, PhD, CRNP, FAAN

AD/ADRD Focus Pilot Core



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 Al and technology for AD/ADRD predictive analytics, clinical decision support, or the care of adults with AD/ADRD.

Meet the Supporting Core Team

Networking and Mentoring Core

The overarching goal of the Networking and Mentoring Core 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



Roy Rosin



Mary Regina Boland, MA, MPhil, PhD, FAMIA

Technology Identification and Training Core



Li Shen, PhD, FAIMBE



Ryan Urbanowicz, PhD

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.

Ethics and Policy Core



Emily Largent, JD, PhD, RN



Anna Wexler, PhD

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 Al methods and technologies for healthy aging. The Core will work in close collaboration with the other PennAlTech 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.

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.

Clinical Translation and Validation Core





Jason Karlawish, MD

Rebecca T. Brown, MD, MPH

The overarching goal of the Stakeholder Engagement Core (SEC) is to ensure that technology solutions and AI approaches proposed and developed by the PennAlTech 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.

Stakeholder Engagement Core





George Demiris, PhD, FACMI

Lisa M. Walke, MD, MSHA



John Holmes, PhD, FACE, FACMI

The Internal Advisory Board (IAB) plays an important role in providing Internal Advisory Board (IAB) perspective and detailed advice and recommendations to the leadership team and the core directors. The IAB is chaired by Dr. John Holmes who is a Professor of Informatics and Epidemiology with significant experience in artificial intelligence and clinical decision support. We have assembled a team of local Penn experts representing three key areas of expertise. The first area, Biomedical Informatics and Artificial Intelligence, includes Drs. John Holmes (Professor of Informatics, AI expert), Ross Koppel (Professor of Sociology, EHR expert), Konrad Kording (Professor of Computer Science and Neuroscience, AI expert), Insup Lee (Professor of Computer Science and Engineering) and Danielle Mowery (Chief Research Information Officer). The second area, Geriatrics and Medicine, includes Drs. Mark Neuman (Anesthesiologist specializing in older adults), Matt Press (Medical Director of Primary Care), and Ramy Sedhom (Palliative Care, Geriatric Oncology, Penn Medicine Princeton Health). The third area, Home Care, includes Danielle Flynn (Director, Penn Medicine Home Health), Nancy Hodgson (Professor of Nursing), Bruce Kinosian (Division of Geriatrics), and Brian Litt (Director, Penn Center for Health, Devices, and Technology).

TEAM MEMBER SPOTLIGHT:

Kathryn H. Bowles, PhD, FACMI, FAAN

Professor and van Ameringen Chair in Nursing Excellence, University of Pennsylvania, School of Nursing

Tell us about your research interests.

Describe some of your research projects.



My research focuses on using data science/AI and information technology to improve care for older adults. My team has developed expert clinical decision support algorithms to guide decision making for post-acute care referrals such as deciding which patients need post-acute care and then recommending the level of care (facility or home health care) based on patient characteristics documented in the electronic health record during the hospital stay.

Currently I am leading an implementation science study to improve the transition of sepsis survivors from hospitals to home health care. In this large multi-site study, we work with the sites to improve their workflows, information technology, and communication to improve the transfer of information about sepsis survivors during transitions in care and to prompt timely start of home health care and outpatient follow-up. I am also on a team that is using natural language processing of home care clinician notes to build prediction models from nursing documentation that identifies patients at risk of readmission during home health care.

What is your role within PennAlTech?

I co-lead the Healthy Aging Pilot Core along with Dr. Pam Cacchione.

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

I am so excited about AI because I believe it is the tool that will help us become a learning health system. Through AI we can make use of the mountains of health information about individuals and populations to improve risk prediction, prompt prevention, optimize existing treatments, develop new treatments, make health care more equitable and evidence based, and increase efficiency and safety. Efficiency gains will give us more time to spend listening to and counseling our patients, returning to the reason we became health care providers in the first place. I dream of the day when our documentation is automated through AI that listens to the conversation at an encounter; synthesizes labs, medications, and other health information; and sends real time decision support, links to resources, and education to the clinician, patients, and their caregivers.

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

Please include clinicians, patients, and their caregivers in the development, application, and testing of these technologies. Trust is, and will continue to be, a big issue with AI so involving the users from the beginning will create transparency, understanding, products people will accept and want to use.

TEAM MEMBER SPOTLIGHT:

Marylyn D Ritchie, PhD, FACMI

Edward Rose, MD and Elizabeth Kirk Rose, MD Professor of Genetics and Informatics Director, Institute for Biomedical Informatics Director, Division of Informatics, DBEI Co-Director, Penn Medicine BioBank Vice President for Research Informatics, UPHS

Tell us about your research interests. Describe some of your research projects.



The focus of our research is to improve our understanding of the underlying architecture of common, complex diseases. We develop and apply a breadth of translational bioinformatics approaches exploring the genome, the phenome, and the exposome. The approaches we take involve the development and application of new statistical, computational, machine learning, and AI methods with a focus on embracing complexity to uncover relationships between multi-omics data, clinical data (mostly from electronic health records), environmental exposures, and social determinants of health. These meta-dimensional approaches hold the promise of providing a more comprehensive view of genetic, genomic, and phenotypic information. All of these tools and methodologies that our lab develops focus on Big Data applications and emphasize improvements in visual analytics as we embrace the new horizons of genomic and phenomic information.

What is your role within PennAITech?

For PennAlTech, I lead the Networking and Mentoring Core.

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

Al is likely going to transform a number of different areas in biomedical research and health care. In the research domain, I think that we will see an exponential growth in the number of areas where Al is being applied as part of the research. This includes the use of Al for identifying features in images and spatial data, identifying complex patterns in high dimensional datasets, and through the use of large language models. I expect we will also see these research applications evolve into healthcare applications over time. There are a small number of examples where Al is truly ready for prime time in health care, but I expect this will expand in the next few years.

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

My advice is to identify a domain expert for the specific clinical or biological area where you want to implement Al. One of the strengths of Al is the ability to learn patterns in data. We need to rely on experts to protect our Al from learning nonsensical patterns. I would also advise people to identify a statistician who can help with study design, implementation, and evaluation of the research. Sir Ronald Fisher said "To call in the statistician after the experiment is done may be no more than asking him to perform a post-mortem examination: he may be able to say what the experiment died of."

CLICK HERE TO LEARN MORE ABOUT OUR 2022-2023 PILOT AWARDEES



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



Robin Austin
Designing Usable
Technologies via DataDriven 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
Al-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:

Designing Usable Technologies via Data-Driven Whole-Person User Personas

My Strengths My Health







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

Our research, Designing Usable Technologies for Older Adults via Data-Driven Whole-Person User Personas, is using whole-person health data from the mobile application, MyStrengths+MyHealth (MSMH). MSMH was created for individuals to self-report their strengths, health challenges, and needs and assesses 42 strengths/problems across four domains (e.g., My Living, My Mind and Networks, My Body, My Self-Care). We use MSMH data and machine learning approaches to develop whole-person data-driven user personas. Three main goals over the next year include: 1) Complete the data-driven user personas to help inform person-centered technology design and develop a better understanding of the types of older adults who may use Al-based technologies; 2) Validated user-personas by community members and provide feedback to explore if these personas align with current strengths, health challenges, and needs; 3) Use developed personas as case studies for educational purposes for health professionals and educators.





PI: Robin Austin, PhD, DNP, DC, RN-BC, FAMIA, FNAP Assistant Professor University of Minnesota, School of Nursing



Co-I: Jenna Marquard, PhD
Professor
University of Minnesota,
School of Nursing



Co-I: Martin Mickalowski,
PhD, FAMIA
Associate Professor
University of Minnesota,
School of Nursing

WHAT ARE THE LONG TERM GOALS FOR YOUR RESEARCH?

The long-term goal of this whole-person health research is to improve health outcomes by combining whole-person patient-generated health data (PGHD) with EHR data, to inform clinical conversations, predict patient trajectories, identify appropriate interventions, and enhance population health management. By combining PGHD and EHR data, clinicians can have a more holistic understanding of a patient's health status, including their symptoms, lifestyle choices, social determinants of health, and medical history. Using this data, we can begin to develop predictive models to anticipate a patient's health trajectory and can identify patterns, trends, and risk factors that may contribute to specific health outcomes or conditions. By aggregating and analyzing large-scale data from diverse patient populations, whole-person health research can contribute to population health management strategies. These insights can inform public health initiatives, policy decisions, and resource allocation, leading to improved health outcomes at the population level. It's important to note that achieving these goals requires addressing challenges such as data interoperability, privacy and security concerns, data quality, and ensuring patient engagement and consent.

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

There are tremendous opportunities for AI and technologies in supporting aging. First, the emergence of smart home systems equipped with AI can automate routine tasks, such as turning on lights, adjusting thermostats, or locking doors, to support independent living. Another example includes AI algorithms combined with sensor technologies to detect falls in real-time and alert caregivers or emergency services. Another exciting opportunity includes the power of personalized healthcare. AI can analyze vast amounts of medical and social data to develop personalized treatment plans and recommend preventive measures based on an individual's health history, genetics, and lifestyle. This could lead to more effective healthcare interventions and better outcomes for older adults. While there are many exciting opportunities, it is critical to consider ethical, privacy, and social implications with all AI and technology assisted interventions as we move forward with implementation strategies.

PILOT IN THE SPOTLIGHT:

Detecting respiratory distress in patients with advanced ADRD



Veerawat Phongtankuel, MD
Assistant Professor of Medicine,
Weill Cornell Medicine



Edwin Kan, PhD
Professor of Electrical and
Computer Engineering,
Cornell University

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

The feeling of shortness of breath (dyspnea) is a common symptom experienced by many older adults living with chronic illness and can lead to distress and poor quality of life. Depending on the patient's medical conditions, it can be an early sign of something serious such as a pneumonia, asthma attack, or heart failure exacerbation. However, in patients with advanced stage Alzheimer's disease and related dementias (ADRD), dyspnea cannot be accurately assessed due to the patient's cognitive decline, leading to under detection, unnecessary suffering, and poor patient outcomes.

Our pilot project focuses on assessing the feasibility of implementing radio sensors based on near-field coherent sensing technology to continuously capture cardiopulmonary waveforms in patients with advanced ADRD and develop an Albased machine learning algorithm that will be able to detect signs of respiratory distress autonomously using collected cardiopulmonary recordings.

WHAT ARE THE LONG TERM GOALS FOR YOUR RESEARCH?

Our long-term goal is to develop tools and interventions that will improve care for patients with ADRD and their families through earlier detection of signs and symptoms that can be acted upon by healthcare professionals.

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

The role of AI and tech can support aging, ranging from empowering older adults and caregivers to take part in healthy aging to analyzing data that can be used to better support to clinical teams in caring for patients. We are excited to be part of this emerging field and hope our work will lead to improvements in care for older adults and their families.

THIRD ANNUAL









for transformative pilot projects in

AI/TECH+AGING

including Alzheimer's disease and related dementias

The a2 Pilot Awards are funded by the National Institute on Aging, part of the National Institutes of Health.



5.1.2023-7.31.2023

*5PM ET

APPLY: a2pilotawards.ai

The national a2 Pilot Awards competition is hosted annually by the <u>a2 Collective</u> and funded by the <u>National Institute on Aging</u> (NIA), part of the National Institutes of Health, through the Artificial Intelligence and Technology Collaboratories (AITC) for Aging Research program. NIA has earmarked \$40 million to fund technology demonstration projects that utilize artificial intelligence (AI) approaches and technology to improve care and health outcomes for older Americans, including persons with Alzheimer's disease and related dementias (AD/ADRD), and their caregivers.

The application information <u>found here</u> is relevant to the third annual a2 Pilot Awards competition, which is accepting applications from May 1 to July 31, 2023 (5 p.m. ET). To view projects selected for award in past competitions, visit our <u>Awardees</u> page. If you have any questions about the application process, please email us <u>here</u>. For any specific questions about your pilot project scope or collaborating with an AITC, we suggest that you email the AITC directly to establish a dialogue.



Office Hours:

Office Hours:

Available July 5-19;

request a meeting slot via email:

🧱 Key Dates

	Round 1 Applications Open	May 1, 2023
Round 1	Q&A Webinar with AITC Leadership	Jun 5, 2023 @ 12 p.m. ET (View Recording)
	Round 1 Applications Deadline	Jul 31, 2023 @ 5 p.m. ET
	Round 1 Applications Decisions	~ Sep 11, 2023
	Round 2 Webinar	Sep 29, 2023 @ 12 p.m. ET
	Round 2 Webinar Round 2 Applications Deadline	Sep 29, 2023 @ 12 p.m. ET Oct 30, 2023 @ 5 p.m. ET
ound 2		
cound 2	Round 2 Applications Deadline	Oct 30, 2023 @ 5 p.m. ET

NEWS FROM THE FIELD

WHAT'S HAPPENING IN AI?

The National Academy of Medicine (NAM) in collaboration with various partners is working towards establishing the Artificial Intelligence Code of Conduct (AICC) with the goal to promote the effective and responsible use of AI within the health care field. This initiative will establish a national strategy for broad adoption of the harmonized Code of Conduct and introduce a national architecture with associated priority actions to facilitate responsible AI in health care and biomedical research.

https://nam.edu/nam-leadershipconsortium-collaborates-withleading-health-tech-researchand-bioethics-organizations-todevelop-health-care-ai-code-ofconduct/ The American Medical Informatics Association (AMIA) has introduced principles for the commission, creation, implementation, maintenance, and retirement of AI systems throughout the lifecycle of such systems. Principles include both established ones that have formed the foundation for biomedical research, such as beneficence, nonmaleficence, autonomy, and justice, as well as AI specific principles including explainability, interpretability, fairness and absence of bias. The principles emphasize the importance of user education and engagement.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8922174/

Don't have ChatGPT review your NIH assigned grants! In an NIH blog post, NIH staff outline why using AI in peer review is a breach of confidentiality.

https://www.csr.nih.gov/reviewmatters/2023/06/23/using-ai-in-peer-review-is-a-breach-of-confidentiality/

Our Ethics Core leads Drs. Largent and Wexler published ethical considerations for researchers developing and testing minimal-risk devices that interact or interface with people, such as electronic wearables and biomedical sensors. In this paper they outlined the process of independent review, recognizing different levels of review depending on system design and risk level. Drs. Largent and Wexler presented scenarios drawn from their own experience to outline ethical considerations for research with such devices.

You can read the paper here: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10122640/

SELECTED PUBLICATIONS

WORK BY OUR TEAM

01.

Comparing Amyloid Imaging Normalization Strategies for Alzheimer's Disease Classification using an Automated Machine Learning Pipeline. Tong B, Risacher SL, Bao J, Feng Y, Wang X, **Ritchie MD**, **Moore JH**, **Urbanowicz R**, Saykin AJ, **Shen L**. AMIA Jt Summits Transl Sci Proc. 2023 Jun 16;2023:525–533. eCollection 2023. PMID: 37350880

03.

iCare4Me for FTD: A pilot randomized study to improve self-care in caregivers of persons with frontotemporal degeneration.

Massimo L, Hirschman KB, Aryal S, Quinn R, Fisher L, Sharkey M, Thomas G, Bowles KH, Riegel B. Alzheimers Dement (N Y). 2023 May 1;9(2):e12381. doi: 10.1002/trc2.12381. eCollection 2023 Apr-Jun. PMID: 37143583

05.

Awareness of diagnosis predicts changes in quality of life in individuals with mild cognitive impairment and mild stage dementia. Stites SD, Rubright JD, Harkins K, **Karlawish J**. Int J Geriatr Psychiatry. 2023 Jun;38(6):e5939. doi: 10.1002/gps.5939. PMID: 37300313

02.

Hospitalizations, Emergency Department Visits, and Home Health Use Among Older Adults With Sensory Loss.

Wallace LG, Hirschman KB, Huang L, **Cacchione PZ**, Naylor MD. J Aging Health. 2023 May 19:8982643231176669. doi: 10.1177/08982643231176669. Online ahead of print. PMID: 37207352

04.

Turning apathy into action in neurodegenerative disease: Development and pilot testing of a goal-directed behaviour app.

Mechanic-Hamilton D, Lydon S, Xie SX, Zhang P, Miller A, Rascovsky K, Rhodes E, **Massimo L**. Neuropsychol Rehabil. 2023 Apr 26:1-16. doi: 10.1080/09602011.2023.2203403. Online ahead of print. PMID: 37128648

06.

Considering tomorrow's patients in today's drug approvals.

Lynch HF, **Largent EA**. BMJ. 2023 Jun 8;381:e075000. doi: 10.1136/bmj-2023-075000.PMID: 37290781 No abstract available.

PUBLICATIONS

07.

Study protocol: Type III hybrid effectiveness-implementation study implementing Age-Friendly evidence-based practices in the VA to improve outcomes in older adults.

Piazza KM, Ashcraft LE, Rose L, Hall DE, **Brown RT**, Bowen MEL, Mavandadi S, Brecher AC, Keddem S, Kiosian B, Long JA, Werner RM, Burke RE.

Implement Sci Commun. 2023 May 25;4(1):57.

doi: 10.1186/s43058-023-00431-5. PMID: 37231459

08.

Home Healthcare Patients With Distinct Psychological, Cognitive, and Behavioral Symptom Profiles and At-Risk Subgroup for Hospitalization and Emergency Department Visits Using Latent Class Analysis.

Min SH, Song J, Evans L, **Bowles KH**, McDonald MV, Chae S, Topaz M. Clin Nurs Res. 2023 Jun 22:10547738231183026. doi: 10.1177/10547738231183026. Online ahead of print. PMID: 37345951

09.

Resilience-enhancing interventions for family caregivers: A systematic review.
Chi NC, Han S, Lin SY, Fu YK, Zhu Z, Nakad L, **Demiris G**. Chronic Illn. 2023 May
31:17423953231174928. doi:
10.1177/17423953231174928. Online ahead of print. PMID: 37259541

11.

How intention to join an Alzheimer's participant recruitment registry differs by race, ethnicity, sex, and family history: Results from a national survey of US adults.

Langbaum JB, Maloney E, Hennessy M, Harkins K, **Karlawish J**, Nosheny RL, Bleakley A. Alzheimers Dement. 2023 May 19. doi: 10.1002/alz.13126. Online ahead of print. PMID: 37204220

13.

DETECT: Feature extraction method for disease trajectory modeling in electronic health records. Singhal P, Guare L, Morse C, Lucas A, Byrska-Bishop M, Guerraty MA, Kim D, **Ritchie MD**, Verma A. AMIA Jt Summits Transl Sci Proc. 2023 Jun 16;2023:487-496. eCollection 2023. PMID: 37350926

10.

Heterogeneity of treatment effects by risk in pulmonary arterial hypertension.
Pan HM, McClelland RL, Moutchia J, Appleby DH, Fritz JS, **Holmes JH**, Minhas J, Palevsky HI, **Urbanowicz RJ**, Kawut SM, Al-Naamani N. Eur Respir J. 2023 May 11:2300190. doi: 10.1183/13993003.00190-2023. Online ahead of print. PMID: 37169384

12.

Evaluation of an educational conference for persons affected by hereditary frontotemporal degeneration and amyotrophic lateral sclerosis.

Dratch L, Mu W, Wood EM, Morgan B, **Massimo L**,
Clyburn C, Bardakjian T, Grossman M, Irwin DJ, Cousins KAQ. PEC Innov. 2022 Nov 24;2:100108. doi: 10.1016/j.pecinn.2022.100108. eCollection 2023 Dec. PMID: 37214502

14.

A flexible symbolic regression method for constructing interpretable clinical prediction models.

La Cava WG, Lee PC, Ajmal I, Ding X, Solanki P, Cohen JB, **Moore JH**, Herman DS. NPJ Digit Med. 2023 Jun 5;6(1):107. doi: 10.1038/s41746-023-00833-8. PMID: 37277550

PUBLICATIONS

15.

The Genetic Heterogeneity of Multimodal Human Brain Age.

Wen J, Zhao B, Yang Z, Erus G, Skampardoni I, Mamourian E, Cui Y, Hwang G, Bao J, Boquet-Pujadas A, Zhou Z, Veturi Y, **Ritchie MD**, Shou H, Thompson PM, Shen L, Toga AW, Davatzikos C. bioRxiv. 2023 Jun 11:2023.04.13.536818. doi: 10.1101/2023.04.13.536818. Preprint. PMID: 37333190

17.

Assessing racial residential segregation as a risk factor for severe maternal morbidity.

Mari KE, Yang N, **Boland MR**, Meeker JR,
Ledyard R, Howell EA, Burris HH. Ann Epidemiol.
2023 Jul;83:23-29. doi:
10.1016/j.annepidem.2023.04.018. Epub 2023
May 3. PMID: 37146923

19.

The IHI Rochester Report 2022 on Healthcare Informatics Research: Resuming After the CoViD-19.

Combi C, Facelli JC, Haddawy P, **Holmes JH**, Koch S, Liu H, Meyer J, Peleg M, Pozzi G, Stiglic G, Veltri P, Yang CC. J Healthc Inform Res. 2023 May 1:1-34. doi: 10.1007/s41666-023-00126-5. Online ahead of print. PMID: 37359193

21.

Identifying Barriers to Post-Acute Care Referral and Characterizing Negative Patient
Preferences Among Hospitalized Older Adults
Using Natural Language Processing.
Kennedy EE, Davoudi A, Hwang S, Freda PJ,
Urbanowicz R, Bowles KH, Mowery DL. AMIA
Annu Symp Proc. 2023 Apr 29;2022:606-615.
eCollection 2022. PMID: 37128417

16.

The promise of AI and technology to improve quality of life and care for older adults.

Abadir PM, Chellappa R, Choudhry N, **Demiris G**, Ganesan D, **Karlawish J**, Li RM, **Moore JH**, Walston JD; Directors & Advisors of the AITCs. Nat Aging. 2023 Jun;3(6):629-631. doi: 10.1038/s43587-023-00430-0. PMID: 37231197 No abstract available.

18.

Digital markers of motor speech impairments in natural speech of patients with ALS-FTD spectrum disorders. Shellikeri S, Cho S, Ash S, Gonzalez-Recober C, McMillan CT, Elman L, Quinn C, Amado DA, Baer M, Irwin DJ, **Massimo L**, Olm C, Liberman M, Grossman M, Nevler N. medRxiv. 2023 May 1:2023.04.29.23289308. doi: 10.1101/2023.04.29.23289308. Preprint. PMID: 37205390

20.

Comparison of Group-Level and Individualized Brain Regions for Measuring Change in Longitudinal Tau Positron Emission Tomography in Alzheimer Disease. Leuzy A, Binette AP, Vogel JW, Klein G, Borroni E, Tonietto M, Strandberg O, Mattsson-Carlgren N, Palmqvist S, Pontecorvo MJ, Iaccarino L, Stomrud E, Ossenkoppele R, Smith R, Hansson O; **Alzheimer's Disease**Neuroimaging Initiative. JAMA Neurol. 2023 Jun 1;80(6):614-623. doi: 10.1001/jamaneurol.2023.1067.

22.

PMID: 37155176

Association Between False Memories and Delusions in Alzheimer Disease.

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The a2 Collective National Symposium is primarily funded by the National Institute on Aging, part of the National Institutes of Health.

We look forward to welcoming you to Philadelphia in March 2024!



Registration details to follow soon.

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Technology solutions may prove to be useful in helping people age independently and stay safe at the residence of their choice, manage their health care needs and communicate with family members and health care providers. The *Penn Artificial Intelligence and Technology Collaboratory for Healthy Aging* (PennAlTech) is a program that fosters innovation to support aging. We are looking for <u>family caregivers</u>, namely, adults who are taking care of a loved one, relative or friend who is over the age of 65 years, to participate in our stakeholder engagement group and give us feedback about many different ideas and projects. No previous experience with technology is necessary. We will provide remuneration at \$50 per hour, and anticipate participation for up to 10 hours per year based on interest and availability.

For more information, please contact:

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