Penn
University of Pennsylvania
Artificial Intelligence and Technology Collaboratory for Healthy Aging

Newsletter - June 2024 - Issue 8

ADVANCING INNOVATION FOR AGING

Welcome to PennAITech

We are welcoming you to our eighth 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. Our Year 4 pilot award competition is under way; we have completed Round 1 and are now working with Round 2 applicants.

In this newsletter we introduce a lot of new features and updates from a very productive academic year. We start introducing our cohort of PennAITech Innovation Fellows beginning with Hannah Cho and Jiyoun Song. Our Innovation Fellows are junior/ early career scientists. PennAITech is committed to mentoring and facilitating research and educational opportunities for our Innovation Fellows. The essential commitments of PennAITech Fellows are active participation in the intellectual life of PennAITech, participation in the review process of pilot grant applications as part of our annual national pilot competition program and active engagement in research in technology and aging.

We provide a summary of our **Summer Innovation Institute** that we successfully held this June 2024. The Summer Innovation Institute is a multi-day, in-person intensive workshop held annually, and allows participants to explore design thinking and equity-centered design by collaboratively putting them into practice.

Another exciting deliverable is the creation of the **PennAITech Video Library** consisting of educational modules focusing on ADRD, aging, AI tools and techniques, ethical implications of research and system design for aging and persons with dementia, and many other domains covered by our PennAITech experts.

Finally, our **webinar series for 2023-2024** was successfully completed for this academic year; all recorded sessions are available on our YouTube channel and we are looking forward to launching the **2024-2025 webinar series** in September 2024. In this issue we feature Dr. Urbanowicz. We also learn more about GWU and UPenn-Weissman Teams. We provide updates from the field and latest news. 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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funded by the National Institute on Aging Grant Nr. P30AG073105

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

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.

AD/ADRD Focus Pilot Core

Lauren Massimo PhD, CRNP

Dawn Mechanic-Hamilton, PhD

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.

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

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 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.

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

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

Internal Advisory Board (IAB)

John Holmes, PhD, FACE, FACMI

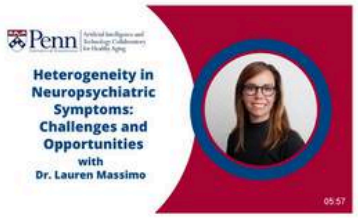
The Internal Advisory Board (IAB) plays an important role in providing perspective and detailed advice and recommendations to the leadership team and the core directors. The IAB is chaired by Dr. John Holmes who is a Professor of Informatics and Epidemiology with significant experience in artificial 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).

We are excited to feature our PennAITech Video Library consisting of educational videos covering a broad range of topics from an introduction to Alzheimer's Disease and Related Dementias to Basics of Artificial Intelligence, Machine Learning and Natural Language Processing. The library addresses clinical, technical and ethical implications of designing and deploying AI and other technologies for aging and persons with dementia and their families. The topics include:

NEW PennAITech Video Library

Introduction to PennAITech

AD/ ADRD: Definitions



Heterogeneity in Neuropsychiatric Symptoms: Challenges and Opportunities

Understanding Functional Status Among Older Adults

Generative AI and Aging

AI and Machine Learning for ADRD

Automated Machine Learning and Best Practices in Data Science

Interprofessional Robotics Research

Ethical Considerations in Human Subjects Research

Ethical Considerations for Wearable Devices and AI applications

Engaging older adults and geriatric specialists in the design of new technologies

Translating AI to the bedside

Big Data and ADRD

Digital Technology Use in Cognitive Assessment: Is it feasible and does it add value?

Passive Sensing and Smart Homes for Aging

Treating Sepsis

Click Here for Full Playlist

TEAM MEMBER SPOTLIGHT:

Ryan Urbanowicz, PhD, MEng

Assistant Professor of Computational Biomedicine,
Cedars Sinai Medical Center
Adjunct Assistant Professor of Informatics,
University of Pennsylvania

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

My research interest involves the development, evaluation, and application of machine learning (ML) and artificial intelligence (AI) methods/tools targeting various biomedical data types and problems focusing on (1) automation and adopting best practices in machine learning analysis, (2) detecting complex patterns of association, (3) interpretability/explainability, (4) scaling to large-scale data analyses; and (5) flexibly adapting to common data challenges, e.g. missing values, mixed data types, and consideration of covariates. Most recently we developed a rigorous, end-to-end automated machine learning analysis pipeline called STREAMLINE that can be utilized even by those with no programming experience. In collaboration with investigators from various departments and institutions, STREAMLINE has been applied to model a number of biomedical outcomes including acute respiratory failure, obstructive sleep apnea, oncology patient readmission, and Alzheimer's disease. Another recent research project focusing on kidney transplantation led to the development of an evolutionary feature learning/modeling algorithm called FIBERS that has been successfully applied to automatically identify combinations of HLA amino acid mismatches that increase risk of kidney graft failure in donor/recipient pairs.

What is your role within PennAITech?

I am the Co-Lead of the Technology Identification and Training Core with Dr. Li Shen. We develop, identify, and curate relevant research and educational resources; many organized on the PennAITech website, for awardees and beyond. Along with leads from other cores we engage in reading and evaluating applications as well as meet with potential and current awardees to discuss and provide guidance on questions related to technologies.

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

I'm very optimistic about the role of AI and technology in biomedical research and healthcare. The most immediate and practical targets I envision involve accelerating basic research, patient education and engagement, reducing caregiver burden, and improving healthcare logistical efficiency. These are areas of research and application that could be improved even as we struggle to understand and appreciate the current limitations of AI and technology without inadvertently adding new problems or biases. This is not to say that AI and technology is not capable of transforming research and healthcare in ways we cannot yet imagine, but we should be cautious not to run before we can walk.

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

I believe that it's important to first identify/understand the limitations and risks of a given AI or technology, avoiding the inclination to over-hype or over-estimate their capabilities. Furthermore, while focused on the specifics of development, keep essential big picture elements in mind: e.g. ensuring data quality, utilizing appropriate evaluation metrics, and targeting patient, caregiver, and other stakeholder needs/perspectives. Shoot for the stars, but getting there takes a solid foundation.

INNOVATION FELLOW SPOTLIGHT:

Hannah Cho, MSN, RN

University of Pennsylvania, School of Nursing

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

My research focuses on examining the roles of digital literacy and the access to social support for caregivers of persons with dementia (PWD) in hospice services. This study aims to provide a comprehensive understanding of how caregivers utilize digital tools and platforms to enhance their caregiving experience and access necessary resources. By exploring the intersection of digital literacy and social support, the research seeks to identify the barriers and facilitators that influence caregivers' ability to effectively use technology-mediated interventions. These insights will contribute to the development of tailored strategies and interventions that leverage technology to support caregivers, ultimately improving their well-being and the quality of care provided to PWD in hospice settings. This work not only addresses the pressing need for innovative solutions in caregiver support but also aims to inform future research and policy-making in the field of caregiving and hospice care.

How do you envision the role of AI and technologies in supporting aging?

My vision for the role of AI and technologies in supporting aging centers on inclusiveness, particularly for older adults who are cognitively impaired and have low digital literacy. In a society increasingly driven by technological advancement, it is imperative to tailor AI solutions to meet the unique needs of these individuals. This involves developing intuitive, user-friendly interfaces and adaptive technologies that can seamlessly integrate into the daily lives of older adults, providing them with the necessary support while minimizing the learning curve. By leveraging AI to personalize interventions and resources, we can enhance the quality of life for older adults, ensuring they receive appropriate care and support regardless of their digital literacy levels. This approach not only empowers older adults but also promotes equity in access to technological benefits, fostering an inclusive environment where all individuals can thrive and maintain their independence as they age.

What do you see as some of the greater opportunities and challenges for the future?

The greatest opportunities for the future lie in older adults increasingly learning and adapting to fast-changing technology to enhance their daily lives. This trend highlights the urgent need for our aging society to leverage technology to improve healthcare accessibility and provide high-quality, human-centered care. By focusing on individual needs, technology-mediated interventions can significantly enhance the well-being of older adults. However, potential challenges such as the digital divide and inequity remain pressing issues. To address these, we must incorporate human-centered design and design thinking into our technological advancements. This approach ensures that solutions are tailored to the unique needs of older adults, promoting inclusivity and usability. By prioritizing human-centered care in the development and implementation of technology, we can bridge the digital divide, ensuring that all older adults benefit from technological advancements and receive the best possible care.

INNOVATION FELLOW SPOTLIGHT:

Jiyoun Song, PhD, AGACNP-BC, APRN

Lecturer, Department of Biobehavioral Health

SciencesUniversity of Pennsylvania, School of Nursing

Tell us about your research interests.

Describe some of your research projects.

My research is focused on utilizing artificial intelligence to enhance clinical decision-making. My primary areas of interest include developing 1) tailored clinical decision support systems for individual patients to improve outcomes and reduce negative events, including re-hospitalization, and 2) predictive modeling to identify at-risk patients using multidimensional approaches such as quantitative statistics and machine learning. I possess extensive experience in managing and processing large datasets. My current work revolves around extracting valuable information from narrative clinical notes or verbal communication using natural language processing and speech recognition-a subset of artificial intelligence. By exploring these information-rich data streams, I aim to address the gaps left by standardized assessment tools in current medical practice, which may lead to the loss of critical information when converted into structured data for electronic health records. I have been granted a five-year, $1 million, K99/R00 Pathway to Independence Award from the National Heart, Lung, and Blood Institute of the National Institutes of Health to develop and test risk prediction models using audio processing and speech recognition technology to detect early signs of deterioration in heart failure patients in long-term care, ultimately improving their outcomes.

How do you envision the role of AI and technologies in supporting aging?

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What do you see as some of the greater opportunities and challenges for the future?

On the opportunity side, AI can greatly enhance the personalization of care by analyzing vast amounts of data to tailor care plans specific to each individual's needs, considering factors such as medical history, lifestyle, and social determinants of health. This personalization can lead to more effective healthcare for older adults. Additionally, predictive analytics enable the early detection and prevention of health issues, allowing for timely interventions that can prevent serious health complications and reduce hospitalizations. Remote monitoring technologies and wearable devices can be key in supporting aging. These technologies allow continuous tracking of vital signs and other health indicators, providing real-time data to healthcare providers and caregivers. However, privacy and security concerns arise with collecting and processing sensitive personal data, necessitating robust measures to protect against cyberattacks. Ethical and bias issues in AI algorithms can perpetuate existing healthcare disparities, making it essential to develop ethical guidelines and ensure fairness. Additionally, the complexity of AI systems can also lead to a lack of transparency and understanding among healthcare providers and patients, emphasizing the need for explainable AI that can clarify its decision-making processes in an understandable manner.

PILOT IN THE SPOTLIGHT:

AI-Enabled Conversations to Manage Psychotropic Medication

Lorens A. Helmchen, PhD
Associate Professor
The George Washington University

Armin St. George
VP, Business Development
HIA Technologies, Inc.

TELL US ABOUT YOUR PROJECT AND WHAT YOU HAVE DONE THIS YEAR.

This year, the team has been focused on developing a digital "conversation companion", software that patients can use on their own or with the assistance of a caregiver to ask and answer questions relating to their life experiences and to areas of interest to them. To this end, the team developed a conversation script and conducted a set of meetings to record conversations with elderly patients who vary in their level of cognitive function.

The team recruited research assistants, met with caregiving staff and senior administrators, and enrolled residents at a senior-living community in Buffalo, NY. In conversations with the research assistants and study participants, the team learned which features help or hinder engagement with the software. This feedback was relayed to the engineers to improve the ease-of-use and appeal of the product. The recordings are being used to establish individual baselines of speech patterns, which will then be used to identify idiosyncratic and systematic departures from the baseline.

The partner organization has been collating data from socio-demographic and clinical records, including residents' PHQ-9, BIMS, and MMSE scores. These data will be merged with the recording data to build prediction models for use in adjusting psychotropic medication.

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

By continuously monitoring cognitive and physical function, AI has the potential to detect small and subtle aging-related changes that caregivers, friends, and family members may miss. Such monitoring can be designed to be less intrusive, more frequent, more consistent, and more precise than current practice, which often relies on sporadic assessments and subjective impressions. AI can use such sensor data to predict care needs and suggest interventions when they are most effective.

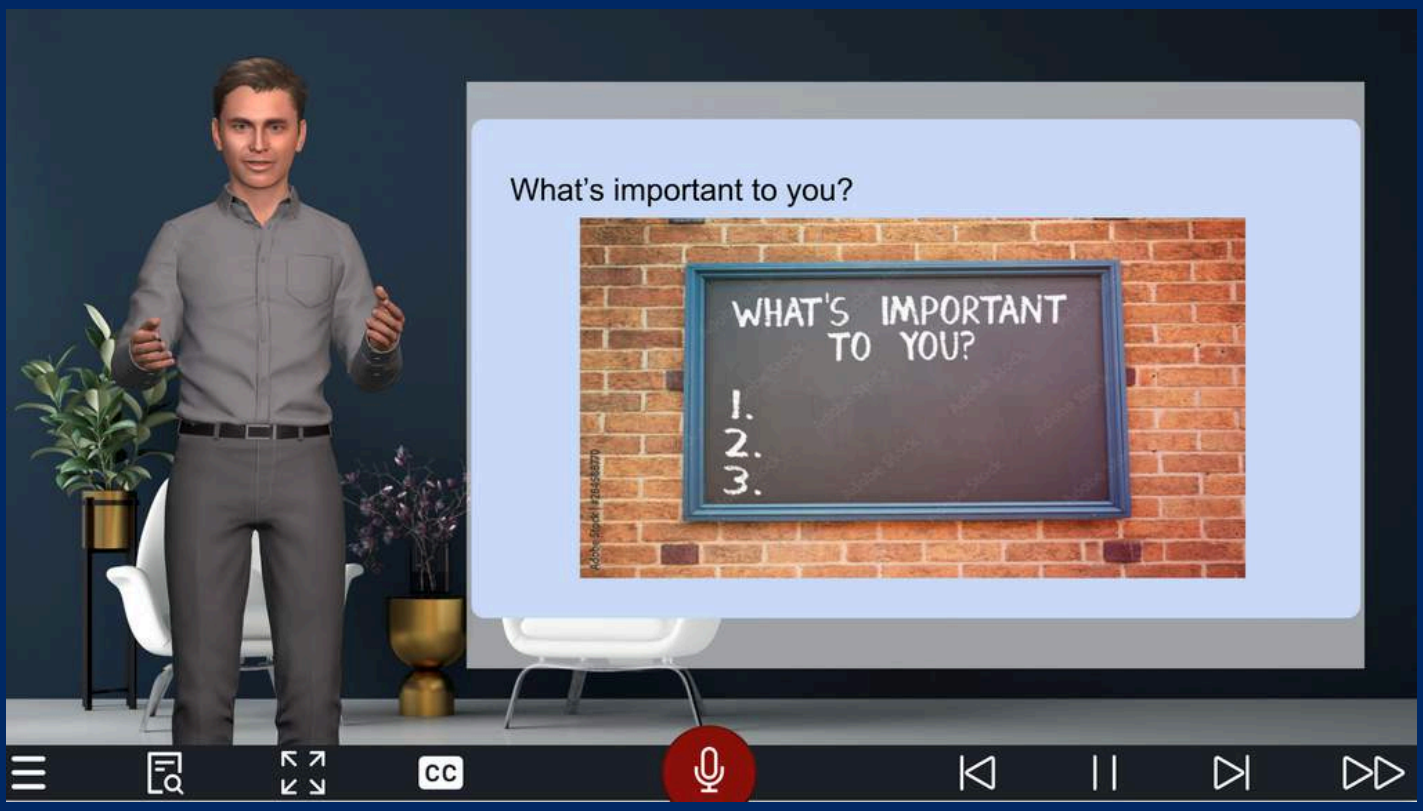
WHAT ARE THE LONG TERM GOALS FOR YOUR RESEARCH?

Using digital conversation companions, the long-term goal is to establish how changes in speech relate to mood, mental acuity, including the onset and progression of dementia and depression, as well as fall risk.
As such, the conversation companions will serve as remote patient-monitoring technology that can alert clinicians and family members to emerging care needs and even offer personalized treatment recommendations.

In addition to their diagnostic function, digital conversation companions can be used for therapeutic use by keeping patients engaged, entertained, and appropriately challenged. Finally, digital conversation companions can serve to evaluate interventions aimed at slowing the onset and progression of cognitive decline.

As the technology can be used by patients on their own and as the voice and the visuals of the digital conversation companions can be adapted to a patient's linguistic, cultural, and socio-demographic background, this technology can be tailored to the specific needs of diverse patient populations.

Screenshot of the software program in use:



CLICK HERE FOR A RECAP ON ALL OF OUR 2022-2023 PILOT AWARDEES

Penn
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Artificial Intelligence and Technology Collaboratory for Healthy Aging

CLICK HERE TO VIEW OUR 2023-2024 PILOT AWARDEES LOOK BOOK

Gary Weissman

Advancing Diagnostic Excellence for Older Adults through Collective Intelligence and Imitation Learning

University of Pennsylvania

Maria Valero

GlucoCheck: A Non-invasive & AI-assisted Blood Glucose Monitoring Device for Older Adults

Kennesaw State University

Tony C Carnes

Real-time remote monitoring of confirmed medication adherence

etectRx

Maryam Zolnoori

A speech-processing algorithm for automatic screening of African American patients with mild cognitive impairment and early dementia in home health settings

Columbia University Medical Center and VNS Health

Jane Chung

A Device Free WiFi Sensing System to Assess Daily Activities and Mobility in Low-Income Older Adults with and without Cognitive Impairment

Virginia Commonwealth University

Xinyu Zhang

Non-Intrusive, Fine-Grained In-Home Daily Activity Transcription for Alzheimer's Monitoring

University of California San Diego

Aidong Zhang

Fairness and Robust Interpretability of Prediction Approaches for Aging and Alzheimer's Disease

University of Virginia

Clara Berridge

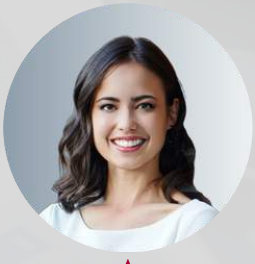
Talking tech with dementia care dyads: Improving a self-administered tool to support informed decision

University of Washington

Sandeep Patil

Prevention of Patch Poisoning in Elderly Alzheimer's Patients

Vaaji LLC



Julie Faieta

Health App Review Tool: Connecting those Affected by Alzheimer's to Needed Technology Support

University of Pittsburgh

funded by the National Institute on Aging Grant Nr. P30AG073105

PILOT IN THE SPOTLIGHT:

Advancing Diagnostic Excellence for Older Adults through Collective Intelligence and Imitation Learning

Gary Weissman, MD, MSHP

Assistant Professor of Medicine and Informatics,
University of Pennsylvania
Perelman School of Medicine

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

Our project is focused on promoting diagnostic excellence among older adults in the primary care setting. Older adults experience high rates of diagnostic errors, are generally under-represented in training data sets, and have a different distribution of common diagnoses than other cohorts, to they warrant special attention. There are several reasons why creating AI-based diagnostic clinical decision support systems are challenging and we've developed some technical and conceptual innovations to try and overcome them. This year we plan to develop some AI models along these lines then pilot them in primary care encounters to better understand how they work and how they align, or not, with that clinicians, patients, and their caregivers really need.

WHAT ARE THE LONG TERM GOALS FOR YOUR RESEARCH?

The long-term goals for my research are to find way to bring AI clinical decision support to the bedside in ways that are safe, effective, equitable, and humanizing for the clinical encounter. This requires transparent methods, diverse stakeholder input, rigorous oversight, and systems of accountability. In the coming years I hope to conduct more clinical trials of AI systems to build the evidence base that we need to safely deploy these systems but are currently lacking in most domains.

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

I think the most important thing is to realize that AI does not solve all of the important problems for aging. Where there is a human, community, policy, or other problem best solved without an app or AI system, then developers and researchers should stay away. This is hard because there are so many financial incentives and so much hype around AI right now. I think a deep, contextual, and compassionate understanding of the aging process and of the people going through it is really the first step. Then, when a problem is identified that is best solved with an AI system, then that is a good place to begin developing AI tools. But if that first step is skipped, we're going to be in trouble. AI systems that help to facilitate, remind, support, or otherwise promote important human processes are going to be most successful in the long term. The diagnostic process, for example, is a complex and iterative process shared by a patient, caregiver, and clinician, and involves communication, reflection, sharing, physical examination, information gathering, and many other steps. So an AI system can definitely help with that process but needs to be plugged in the right way to be humanizing and effective.

Penn Nursing
University of Pennsylvania

Collaborative Design + Co-creation for Health Equity

Summer **Innovation** Institute

June 3–7, 2024

Presented in partnership with: Penn Artificial Intelligence and Technology Collaboratory for Healthy Aging (PennAITech), Eidos LGBTQ+ Health Initiative, and Johnson & Johnson Nurse Innovation Fellowship Program

Penn | Artificial Intelligence and Technology Collaboratory for Healthy Aging

funded by the National Institute on Aging Grant Nr. P30AG073105

Penn Nursing held its second Summer Innovation Institute, focusing on collaborative design and co-creation for health equity. The weeklong event (June 3-7, 2024) was organized jointly by the Johnson & Johnson Nurse Innovation Fellowship Program, Penn Artificial Intelligence and Technology Collaborative for Healthy Aging (PennAITech), and the Eidos LGBTQ+ Health Initiative.

The program brought together experts from the School of Nursing, the Weitzman School of Design, the Perelman School of Medicine, the Wharton School, Penn Carey Law, the Penn School of Engineering and Applied Sciences and Penn Libraries, along with external experts, to help translate their knowledge into action and solutions for attendees leading on health care challenges.

During the morning programming, we had several didactic sessions and presentations focusing on concepts of design thinking and social justice as well as inclusive and participatory design. In the afternoon, our PennAITech awardees, as well as awardees from other AITCs, participated in sessions focused specifically on entrepreneurship for aging and technology, the translation and commercialization of innovation in aging and ways to engage stakeholders in all phases of design, implementation and evaluation.

We invited family caregivers of older adults with dementia and/or other serious illness who highlighted ways to capture the family needs and preferences in the design of new technologies for aging. Our stakeholders met separately with our awardees and provided feedback about ways to engage end users in the design and evaluation of systems.

More information about the event can be found here:
https://penntoday.upenn.edu/news/penn-nursing-leading-health-equity-through-innovative-design

Link to full program for the event found HERE!

NEWS FROM THE FIELD

WHAT'S HAPPENING IN AI?

Generative AI in Medical Training and Patient Care

Generative AI is increasingly being utilized to create engaging and effective training content for medical professionals. This technology also helps in solving complex healthcare R&D problems and addressing issues like loneliness among geriatric patients by providing personalized companionship. These AI advancements are expected to transform clinical decision support and operational applications such as nurse scheduling and revenue cycle management in 2024. Read more about it here:

https://insights.sca.health/insight/article/ai-in-healthcare-in-2024

AI-Driven Healthcare Automation and Efficiency

The use of AI in automating routine healthcare tasks is on the rise. AI technologies are being integrated into various aspects of healthcare, from improving the accuracy of medical claim reviews to enhancing patient documentation in emergency departments. Mount Sinai Health System plans to incorporate AI across all its IT systems within five years to optimize healthcare delivery. Read more about it here:

https://www.healthcareitnews.com/news/within-5-years-all-mount-sinai-it-systems-will-contain-some-ai

Value-Based Care and Advanced Payment Models

The shift towards value-based care is accelerating, with healthcare organizations investing in advanced technologies to support this transition. AI is playing a critical role in enabling tech-enabled, advanced payment models, which aim to control healthcare costs and improve patient outcomes. This trend is expected to continue growing as healthcare providers and plans adapt to rising costs and the need for efficient care delivery. More information can be found here:

https://www.healthcareitnews.com/news/ai-2024-welcome-new-normal-healthcare

Technology Mediated Care Transition, Patient Monitoring and Care Coordination

Various technology tools and algorithms are being deployed to enhance patient monitoring and care coordination. For instance, OSF Healthcare is using various technologies to improve care coordination, from hospital to skilled nursing facilities to home care. A technology mediated comprehensive patient monitoring, patient tracking and reporting system has been put in place with the goal to improve patient outcomes and streamline care processes. The program has led to a reduction of re-admissions from 29% to 9%.

https://www.healthcareitnews.com/news/osf-deploys-care-transition-program-reduces-readmission-rate-29-9

SELECTED PUBLICATIONS

WORK BY OUR TEAM

01.

Artificial intelligence and technology collaboratories: Empowering innovation in AI + AgeTech.
Li RM, Abadir PM, Battle A, Chellappa R, Choudhry NK, **Demiris G**, Ganesan D, **Karlawish J**, **Moore JH**, Walston JD. J Am Geriatr Soc. 2024 May;72(5):1602-1604. doi: 10.1111/jgs.18804. Epub 2024 Feb 26. PMID: 38407353

02.

Determining the Innovativeness of Nurses Who Engage in Activities That Encourage Innovative Behaviors.
Leary M, **Demiris G**, Brooks Carthon JM, **Cacchione PZ**, Aryal S, Bauermeister JA. Nurs Rep. 2024 Apr 3;14(2):849-870. doi: 10.3390/nursrep14020066. PMID: 38651478

03.

Feasibility, usability, and acceptability of psychoeducational videoconferencing interventions for informal caregivers: A systematic review of randomized controlled trials.
Sang E, Hirschman KB, **Bowles KH**. Res Nurs Health. 2024 Feb;47(1):60-81. doi: 10.1002/nur.22358. Epub 2023 Dec 9. PMID: 38069607

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. 2024 May;34(4):469-484. doi: 10.1080/09602011.2023.2203403. Epub 2023 Apr 26. PMID: 37128648

05.

Improving measurement of functional status among older adults in primary care: A pilot study.
Brown RT, Zamora K, Rizzo A, Spar MJ, Fung KZ, Santiago L, Campbell A, Nicosia FM. PLoS One. 2024 May 13;19(5):e0303402. doi: 10.1371/journal.pone.0303402. eCollection 2024. PMID: 38739582

06.

The Alzheimer's Knowledge Base: A Knowledge Graph for Alzheimer Disease Research.
Romano JD, Truong V, Kumar R, Venkatesan M, Graham BE, Hao Y, Matsumoto N, Li X, Wang Z, **Ritchie MD**, **Shen L**, **Moore JH**. J Med Internet Res. 2024 Apr 18;26:e46777. doi: 10.2196/46777. PMID: 38635981

PUBLICATIONS

07.

At the Crossroads of Neuroethics and Policy: Navigating Neurorights and Neurotechnology Governance.
Wexler A. AJOB Neurosci. 2024 Apr-Jun;15(2):77-79. doi: 10.1080/21507740.2024.2330570. Epub 2024 Apr 3. PMID: 38568700

08.

The association between religious beliefs and values with inflammation among Middle-age and older adults.
Britt KC, Boateng ACO, Sebu J, Oh H, Lekwauwa R, **Massimo L**, Doolittle B. Aging Ment Health. 2024 Mar 29:1-8. doi: 10.1080/13607863.2024.2335390. Online ahead of print. PMID: 38553253

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