

**PERSPECTIVES ON ARTIFICIAL INTELLIGENCE (AI) INTEGRAL
TO
THE GLOBAL DEMENTIA SPECTRUM PROJECT**

Preface

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Throughout his career, the author has spearheaded several notable national and international projects within the health professions, including field studies on the epidemiology of AIDS, health care utilization among immigrant populations, and cross-cultural comparisons of medical care. As a researcher, observer, and even as a patient, he has borne witness to groundbreaking advancements in medical research and the applications of artificial intelligence (AI). This includes contributions to public health initiatives addressing the spread of infectious diseases and the evolving landscape of epidemiological studies. Additionally, the author was part of a pioneering team that established a clinic dedicated to serving medically underserved populations, ensuring equitable access to care for marginalized communities.

Moreover, the author created a foreign physicians program in an attempt to recruit medical doctors from countries outside the U.S. to become board certified. Alongside two colleagues, the author co-founded a nursing school and developed Continuing Medical Education (CME) courses to advance the training of health care professionals. These experiences in public health, medical education, and clinical outreach have profoundly influenced the author's understanding of the medical field, revealing critical intersections between medical research, digital AI advancements in health care delivery, and societal needs.

Now, as his focus shifts to The Global Dementia Spectrum Project, the author identifies clear parallels between the research demands of dementia and those emerging in the broader neurosciences. Advances in computational sciences and artificial intelligence (AI) have opened new

avenues for understanding neurodegenerative diseases, enabling more precise research diagnostic tools, and personalized treatment approaches.

Drawing from personal experiences caring for loved ones affected by Alzheimer's, dementia, Parkinson's disease, ALS, and other neurodegenerative conditions, the author brings a unique dual perspective to his work. His understanding of both the scientific advancements in neuroscience and the deeply human aspects of cognitive decline has shaped his commitment to dementia research. By leveraging AI-driven models and interdisciplinary approaches, he aims to contribute to the development of innovative solutions in the treatment and management of these complex conditions. This convergence of medical research, neuroscience, and computational innovation holds the potential to transform how researchers understand and combat brain-related impairments.

Medical research today is driven by vast amounts of data—imaging scans, tumor mutations, blood tests, treatment regimens—all recorded in digital/electronic systems. While these records are used to determine the best course of action for individual patients, they also create a legacy of data from which patterns can be discerned (through massive data analysis) benefiting future generations of patients. Artificial Intelligence (AI), particularly through machine learning and deep learning Active Knowledge Models (AKM), play a crucial role in analyzing these massive complex datasets. AI systems coupled with AKMs can identify patterns that may not be immediately apparent to human researchers, making it possible to predict outcomes, personalize treatments, and improve diagnostic accuracy.

A prime example of this is IBM's Watson for Oncology, a cognitive computing system designed to analyze medical records, research papers, and clinical data to recommend personalized cancer treatments based on the latest evidence. Leveraging AI techniques such as natural language processing and machine learning, this powerful system sifts through complex layers of information on a global basis—patient demographics, pathology reports, lab results, and treatment outcomes—to provide clinicians with evidence-based options. AI algorithms in Watson are continuously learning from new data, improving their recommendations over time, and helping to bridge the gap between large-scale data research and analysis and individualized patient care. This is the immediate goal of

The Global Dementia Spectrum Project or to provide a transformative interdisciplinary platform in medical AI, where the integration of data-driven insights with clinical expertise is interdigitated through the use and application of Active Knowledge Models. Thus, this approach promises to revolutionize the future of both medical research as well as healthcare, especially for patients with dementia.

The dementia field (much like that of oncology) is a rich ecosystem of collaboration between "wet labs," where scientists conduct experiments, and "dry labs," where computational models and statistics are employed to decipher the vast amounts of data generated. In this way, the medical sciences are evolving into an information science, where computational methods, including machine learning (ML) and artificial intelligence (AI), are now indispensable for pattern recognition, predictive modeling, and diagnostics. These tools, however, cannot be used indiscriminately; they require nuanced integration, where data must be interpreted through a multi-disciplinary lens. To achieve this, we must inter-digitate and develop a cross-disciplinary paradigm for looking. AI-driven approaches, such as active knowledge models, offer dynamic frameworks that not only analyze data but continuously learn from new insights. These systems can adaptively integrate inputs from both experimental (wet lab) findings and computational (dry lab) processes, enabling real-time refinement of hypotheses. By applying a variety of knowledges with the right assumptions, and being guided by lessons learned in computational expertise, active knowledge models can effectively support data-driven discoveries. This underscores the importance of interdisciplinary partnerships, where AI can act as a bridge, enhancing collaboration across diverse fields. We must interweave computational techniques and experimental research, developing a cross-disciplinary paradigm that draws insights from various domains. It's crucial to apply a diversity of knowledge frameworks with the right assumptions, guided by the growing expertise in AI and machine learning.

Active Knowledge Models (AKMs) play a pivotal role in this process. These models integrate data-driven approaches with real-time learning, adapting dynamically as new information is processed. By doing so, they not only assist in analyzing complex datasets but also in making predictions and personalizing treatment plans for patients with dementia. For instance, AI-powered AKMs can help identify early-stage dementia by cross-referencing

genetic data with patient histories and lifestyle factors, much like how AI is used to predict cancer progression.

In a broader sense, AKMs support collaboration between disciplines by creating shared knowledge spaces. Imagine a neurologist working alongside a data scientist, with the AKM acting as a living repository that evolves as more data is gathered, enabling both professionals to refine their understanding in tandem. This integration is key to fostering interdisciplinary partnerships that can lead to breakthroughs in dementia research, much like similar partnerships are driving innovations in fields such as oncology, genomics, and epidemiology in the United States.

AI's growing role in medical research and healthcare extends far beyond data analysis. It has the potential to revolutionize diagnostic imaging by assisting experts in analyzing scans and pathology slides, enhancing human accuracy and efficiency. However, AI is only as effective as the data it is trained on. When it encounters unfamiliar patterns, its ability to identify them is limited—something that will need to be fine-tuned as the technology advances.

This careful balance of computational power and human expertise, honed in the dementia field, offers valuable lessons for The Global Dementia Spectrum Project. The platform requires systems that can synthesize massive amounts of data to not only provide deeper medical research but also insights to better personalize care while at the same time generate insights that will advance future research, research applications and treatments. As the marriage of AI and AKMs continues to evolve, the author sees its role as equally crucial in understanding and addressing the complex needs of dementia patients. Moreover, the same meticulous approach used in oncology—building models on solid foundations of data, testing assumptions, and ensuring human oversight—will be key in developing AI-based solutions for neurodegenerative diseases like dementia.

Concomitantly, integrating AI and AKMs into both cancer and dementia research and care presents a transformative opportunity to enhance patient diagnosis, treatment, and outcomes. While these fields have distinct challenges, there are critical parallels in how AI and AKM is applied to unlock new levels of insight and precision in medical research and healthcare. The author, drawing on their deep personal and professional

engagement with dementia, believes that the potential value of AI extends to dementia research in profound ways. In this book, the author examines the similarities between these domains, we can begin to understand how the marriage of AI and AKMs will reshape the future of both cancer and dementia research and care.

Data Analysis and Pattern Recognition

In both oncology and dementia research, the sheer volume and complexity of data—ranging from genetic profiles and neuroimaging scans to patient histories and clinical notes—pose significant challenges for conventional analysis methods. Artificial intelligence (AI) offers the ability to synthesize and process these vast datasets with remarkable efficiency, uncovering subtle patterns that may elude human researchers and clinicians.

In oncology, AI-driven models have already revolutionized the field by facilitating early detection of malignancies, optimizing personalized treatment strategies based on genetic and molecular markers, and accurately predicting disease progression. These breakthroughs underscore the transformative potential of AI in precision medicine. Similarly, in the realm of dementia research, AI holds immense promise. By analyzing neuroimaging data, such as MRI or PET scans, alongside genetic and clinical information, AI can detect early signs of neurodegeneration, often before clinical symptoms become apparent. Furthermore, AI can enable the creation of individualized care plans, tailoring interventions based on a patient's specific disease trajectory, and track the progression of cognitive decline over time. As dementia encompasses a spectrum of disorders with varying presentations and rates of progression, AI's ability to integrate and interpret multidimensional data can be pivotal in both clinical decision-making and the development of targeted therapeutics.

In essence, AI is poised to become an indispensable tool in both cancer and dementia research, advancing our understanding of disease mechanisms and improving patient outcomes.

Precision Medicine

AI is central to precision medicine, allowing for treatments tailored to the unique genetic and physiological profiles of individual patients. In cancer care, AI analyzes specific genetic mutations or biomarkers, guiding oncologists toward targeted therapies that are more likely to succeed. This same approach can be adapted to dementia care, where AI could analyze the interplay of genetic, environmental, and lifestyle factors to devise

individualized treatment plans that slow disease progression or improve quality of life.

Medical researchers, recognize that AI is becoming indispensable in the advancement of precision medicine, offering a powerful tool for developing treatments tailored to the unique genetic and physiological characteristics of each patient. In oncology, AI is already being utilized to analyze specific genetic mutations and biomarkers, guiding oncologists toward targeted therapies with higher probabilities of success. By integrating vast genomic datasets with clinical outcomes, AI refines therapeutic decisions, resulting in more effective, personalized cancer research and care.

This approach holds similar promise in dementia research and care. AI coupled with AKMs has the potential to analyze complex interactions between genetic predispositions, environmental exposures, and lifestyle factors to generate individualized treatment strategies. By leveraging AI to identify patient-specific patterns in neurodegenerative progression, we can devise interventions aimed at slowing cognitive decline or improving quality of life. As dementia encompasses a heterogeneous set of disorders, from Alzheimer's disease to frontotemporal dementia, AI-driven models could provide the precision needed to tailor care plans to each patient's unique disease profile. This would mark a significant shift from the current generalized approaches to dementia treatment, paving the way for more targeted, effective interventions.

Radiology and Imaging

AI's role in image analysis is one of the most transformative advancements in both cancer and dementia research. Neuroscientists and medical researchers, see immense potential in the application of AI-powered tools to detect minute and early-stage abnormalities with a level of precision that often surpasses human interpretation. In oncology, AI algorithms are routinely used to analyze mammograms, CT, and MRI scans, efficiently identifying cancerous lesions, thereby enabling earlier diagnosis and more targeted interventions.

In the context of dementia, AI has the potential to revolutionize early detection by identifying subtle signs of neurodegenerative changes in brain imaging long before clinical symptoms emerge. In particular, AI could be trained to detect early amyloid plaque deposition or hippocampal atrophy in Alzheimer's, or the early-stage neural degeneration seen in Parkinson's disease. This capability is essential for initiating early interventions, where treatments may be more effective at slowing disease progression.

Drug Discovery and Development

The traditional process of drug discovery is both costly and time-consuming, often taking years to identify viable treatments. AI has the power to drastically shorten this timeline. In cancer research, AI has already demonstrated its ability to predict molecular interactions and identify novel drug targets by analyzing vast biochemical and genomic datasets. This accelerates the development of new, more effective therapies. In the field of neurodegenerative diseases, where drug discovery has historically lagged, AI is equally promising. The complexity of neurodegenerative pathways in conditions such as Alzheimer's, ALS, or Parkinson's makes it difficult to identify therapeutic targets. However, AI can simulate drug interactions within these complex biochemical pathways, predict drug efficacy, and even uncover potential new drug candidates, which may finally lead to effective treatments for these currently incurable conditions.

Decision Support Systems

AI-powered decision support systems are invaluable tools for clinicians, particularly when navigating the complexities of diseases like cancer and dementia. By synthesizing vast amounts of patient data—ranging from genetic information to clinical notes—AI can provide evidence-based recommendations for diagnosis, treatment plans, and potential adverse events. In oncology, AI has shown efficacy in guiding treatment protocols based on individual tumor profiles and predicting patient responses to therapies. In dementia care, AI decision support could assist clinicians by analyzing patient data to predict disease progression, assess cognitive decline, and recommend personalized care strategies. Given the variability in how neurodegenerative diseases present and progress, AI-driven insights could significantly improve patient management by tailoring interventions to each individual's unique disease course, ultimately improving long-term outcomes.

Remote Monitoring and Telemedicine

AI's integration into remote monitoring and telemedicine offers a transformative approach to managing chronic diseases like cancer and dementia. Wearable devices equipped with AI algorithms can continuously collect real-time health data, such as blood pressure, heart rate, or movement patterns, and analyze this data to detect early signs of disease progression or complications. For dementia patients, AI can monitor cognitive function, mobility, and even daily routines, providing early

warnings of decline that could trigger timely medical interventions. In both fields, this technology reduces the need for frequent in-person hospital visits, allowing for more consistent patient care while alleviating the burden on healthcare systems. Moreover, AI-powered remote monitoring can provide valuable insights into disease progression, helping clinicians adjust treatments as needed and improving the quality of life for patients.

Data Sharing and Collaboration

AI's effectiveness is magnified through the pooling of large and diverse datasets across institutions and geographic boundaries. In both cancer and dementia research, access to diverse patient data enables the development of more robust and generalizable AI models. By analyzing large-scale, multi-institutional data, AI can uncover trends and make predictions that would be impossible with smaller, isolated datasets. For example, in dementia research, shared neuroimaging, genetic, and clinical data can enhance AI's ability to detect early disease markers, tailor treatments to specific populations, and improve diagnostic accuracy. This collaborative, data-driven approach has the potential to accelerate breakthroughs in both fields, pushing the boundaries of our understanding and treatment of these complex diseases.

Ethical Considerations

The integration of AI into research and healthcare also brings important ethical challenges that must be addressed, particularly in the context of patient privacy, data security, and algorithmic bias. In both cancer and dementia care, it is crucial that AI systems are designed and implemented in ways that are transparent, fair, and equitable. AI-driven tools must be free from biases that could exacerbate existing healthcare disparities, particularly among underrepresented populations.

As researchers and clinicians, we must work together to establish ethical frameworks that guide the development and use of AI in healthcare. These frameworks should emphasize informed consent, ensure patient data confidentiality, and promote transparency in how AI-driven decisions are made. In both oncology and dementia research, responsible AI deployment will be key to building trust and ensuring that these powerful technologies benefit all patients, not just a select few.

Values and Principles for AI in Cancer and Dementia Research & Care

For AI to achieve its full potential in cancer and dementia care, its

development and deployment must be grounded in core values that reflect inclusivity, ethical rigor, and a commitment to global collaboration.

- **Ethical Frameworks:** We must develop robust ethical frameworks that address patient privacy, data security, and the responsible use of AI in clinical settings. These frameworks should ensure that AI enhances, rather than replaces, human decision-making and patient care.
- **Diverse and Representative Data:** AI models must be trained on diverse, globally representative datasets to avoid bias and ensure equitable care across different populations. This is particularly important in diseases like cancer and dementia, where genetic and environmental factors vary significantly across regions and demographics.
- **Inclusivity and Accessibility:** AI systems should be designed with inclusivity in mind, ensuring that they are accessible to patients from all socioeconomic backgrounds, including those with limited access to technology or healthcare resources.
- **Explainability and Interpretability:** Clinicians and researchers must be able to understand the rationale behind AI-generated decisions. AI systems should be transparent, with decisions easily interpretable by healthcare providers to foster trust and encourage widespread adoption in clinical practice.
- **Continuous Learning and Improvement:** AI models should be continuously refined and updated to reflect new medical knowledge and evolving treatment protocols. By incorporating the latest research and clinical insights, AI can remain a cutting-edge tool for personalized patient care.
- **Global Collaboration:** Collaboration between cancer and dementia research institutions worldwide is essential for developing AI models that can be applied across diverse populations. Open data sharing will accelerate progress in both fields, creating AI tools that are robust, scalable, and applicable on a global scale.

The Parallel Integration of AI in Cancer and Dementia Care The integration of AI in both cancer and dementia research and care presents an unprecedented opportunity to transform patient diagnosis, treatment, and outcomes. Both fields face unique challenges, but share common opportunities for AI to drive innovation. Whether it is through the early detection of disease, the development of precision medicine approaches,

or the acceleration of drug discovery, AI is poised to become an invaluable tool in advancing care for patients with cancer and dementia. By leveraging shared lessons from both fields, we can create a more holistic and inclusive approach to healthcare that prioritizes patient outcomes, ethical collaboration, and continuous innovation.

Radiology and Imaging

AI-driven image analysis is revolutionizing radiology, especially in detecting early neurodegenerative changes. Advanced algorithms can assess brain scans with extraordinary precision, identifying structural and functional abnormalities linked to diseases like Alzheimer's and Parkinson's at earlier stages. Similar to its impact on cancer diagnostics, AI's role in analyzing MRI and CT scans for dementia could transform how and when interventions begin. This capability is pivotal for early-stage diagnosis, where the window for slowing disease progression is narrow. Through early detection, AI offers the potential to significantly improve patient outcomes.

Drug Discovery and Development

In dementia research, the application of AI to drug discovery holds significant promise. AI accelerates the traditionally slow and costly process of drug development by analyzing large datasets, predicting molecular interactions, and identifying potential therapeutic targets. Particularly for diseases like Alzheimer's, where drug discovery has been fraught with failures, AI's ability to model complex biochemical pathways provides new hope. AI is helping researchers explore novel compounds that target the neurodegenerative processes underlying dementia, shortening the path from discovery to clinical trials and offering real potential for breakthrough treatments.

Reducing Healthcare Disparities

AI holds the potential to reduce healthcare disparities in dementia care by extending access to high-quality diagnostics and treatments. For patients in remote or underserved regions, AI-driven telemedicine and remote monitoring can bridge the gap, offering consistent care and enabling early interventions. By democratizing access to advanced diagnostic tools and expertise, AI can help ensure that all patients—regardless of location—receive timely and effective care, reducing the burden on healthcare systems and improving outcomes for diverse populations affected by dementia.

Early Intervention and Prevention

Early diagnosis is key to improving outcomes in dementia, and AI is at the forefront of efforts to detect preclinical markers of neurodegeneration. By analyzing complex patterns in medical imaging and cognitive assessments, AI can identify early signs of cognitive decline long before they manifest as symptoms. This capability is critical for initiating preventive strategies or slowing disease progression. With AI's help, clinicians can intervene earlier, improving long-term outcomes for individuals at risk of dementia and offering hope for delaying or mitigating the effects of neurodegenerative diseases.

Patient Empowerment

AI empowers dementia patients by providing tools for self-monitoring and disease management. AI-driven platforms offer real-time feedback on cognitive function, medication adherence, and lifestyle choices, encouraging patients to take an active role in their care. This engagement enhances patient outcomes and helps to alleviate the emotional burden on caregivers. By enabling continuous monitoring and feedback, AI allows patients to make informed decisions about their health, leading to more personalized and responsive care plans tailored to each individual's needs.

Lifespan Extension and Quality of Life

Through the precision it offers in treatment and disease management, AI has the potential to extend both lifespan and quality of life for dementia patients. AI-driven cognitive enhancement programs and personalized interventions can slow cognitive decline, while AI's ability to optimize treatment regimens ensures that patients receive the best care available. Additionally, AI can help identify key lifestyle factors that contribute to brain health, empowering patients to adopt preventive measures that enhance their overall well-being.

Longitudinal Data and Disease Progression

The ability of AI to analyze longitudinal data allows for the continuous tracking of a patient's condition over time, offering valuable insights into disease progression in dementia. By integrating long-term health data, AI models can predict subtle changes in cognitive function and adjust treatment strategies accordingly. This ensures that care evolves in response to a patient's shifting needs, facilitating more timely interventions and improving the overall quality of dementia care.

AI as a Learning System

AI's capacity for continuous learning sets it apart from traditional diagnostic tools. Every new dataset contributes to the refinement of AI models, making them more effective over time. This ability to evolve is particularly valuable in fields like neurodegeneration, where scientific discoveries are frequent and the pace of innovation is rapid. As AI systems learn from new data, they offer increasingly precise and personalized care for dementia patients, keeping pace with advances in medical research and treatment protocols.

Public Trust and Education

Gaining public trust in AI's role in dementia care is essential for its broader adoption. Transparent communication about the benefits and limitations of AI, as well as its ethical implications, is critical in building confidence among patients, caregivers, and clinicians. Educational initiatives that explain how AI works and its impact on healthcare outcomes will be key to fostering responsible and widespread use of AI technologies in dementia care, ensuring that AI fulfills its promise of transforming the management of neurodegenerative diseases.

Ethical Framework

In the integration of AI into dementia research and care, a robust ethical framework is paramount. AI-driven projects must prioritize patient privacy, informed consent, and transparency, especially when handling sensitive health data such as neuroimaging, genetic information, and cognitive assessments. Ethical AI use in dementia care not only preserves patient trust but also ensures equitable healthcare outcomes by preventing biases and ensuring that the technology benefits all individuals, regardless of their background or condition.

Diverse and Representative Data

For AI models to be effective in dementia research and treatment, they must be trained on diverse and representative datasets. The progression of neurodegenerative diseases can vary widely based on factors such as ethnicity, gender, age, and environmental influences. AI systems that rely on homogeneous data risk creating biased models that fail to generalize across different patient populations. Therefore, building datasets that encompass a broad range of demographic and geographic diversity is essential for improving diagnostic accuracy and developing personalized treatments for all dementia patients.

Inclusivity and Accessibility

AI systems in dementia care must be designed with inclusivity and accessibility at their core. Many patients with neurodegenerative diseases experience physical and cognitive limitations, which can affect their ability to engage with digital tools. Ensuring that AI-driven technologies are accessible to individuals with disabilities and those with limited access to healthcare infrastructure is critical to providing equitable care. Moreover, AI must bridge the gap in dementia care by making advanced diagnostic and treatment options available to underserved communities.

Explainability and Interpretability

For AI to gain widespread acceptance in dementia care, it must be transparent and interpretable. Clinicians and researchers need to understand the reasoning behind AI-generated decisions—whether they relate to diagnostic findings or treatment recommendations. Without this explainability, trust in AI will erode, and its potential benefits may be overlooked. Clear, interpretable AI systems will empower healthcare professionals to make informed decisions, which is crucial when managing complex diseases like dementia that often require nuanced, patient-specific interventions.

Continuous Learning and Improvement

AI systems in dementia research must be dynamic, continuously learning from new data to remain relevant and effective. Neurodegenerative diseases like Alzheimer's are areas of active research, with new discoveries constantly reshaping our understanding of their progression and treatment. AI models should evolve in tandem, incorporating the latest findings to improve patient outcomes. This constant refinement ensures that AI remains at the cutting edge of dementia care, enabling personalized and up-to-date treatment plans as the field advances.

Global Collaboration

AI's potential to revolutionize dementia care is amplified by global collaboration and data sharing. Cross-border cooperation among research institutions allows for the pooling of diverse datasets, which is crucial for developing robust AI models that reflect the complexity of neurodegenerative diseases. Open research and the transparent publication of findings facilitate collective learning, driving faster breakthroughs and enabling the development of AI tools that are applicable

to diverse populations worldwide. This collaborative approach is essential to advancing dementia care globally.

Empathy in AI Design

AI systems used in dementia care must be designed with empathy in mind. Patients with neurodegenerative diseases often face significant emotional and psychological challenges, as do their families and caregivers. AI tools that account for the emotional impact of disease progression can improve the overall patient experience by providing compassionate and supportive care. Empathetic design in AI-driven applications fosters a more human-centered approach, leading to more effective communication and a better quality of life for patients.

Responsible AI Governance

The governance of AI in dementia research and care requires rigorous oversight to ensure ethical standards are upheld. Establishing governance structures that oversee the development, implementation, and monitoring of AI systems is critical. These structures must ensure compliance with relevant healthcare regulations, protect patient data, and guarantee that AI technologies are used responsibly. Responsible governance will help balance the rapid advancements in AI with the need for patient safety and ethical considerations in the healthcare environment.

Human-Centered AI

AI should function as a tool to augment human expertise in dementia care, not replace it. The complexity of neurodegenerative diseases requires a combination of AI's data processing power and the nuanced judgment of experienced healthcare professionals. Human-centered AI respects the expertise of clinicians by providing them with enhanced insights and evidence-based recommendations, ultimately allowing them to make more informed decisions. This partnership between AI and human expertise is crucial to ensuring that AI enhances, rather than diminishes, the quality of care in dementia treatment.

Cross-Disciplinary Collaboration

The development of AI solutions for dementia care necessitates collaboration across multiple disciplines. Neuroscientists, AI specialists, dementia researchers, and healthcare professionals must work together to design AI tools that address the full spectrum of patient needs. Such cross-disciplinary collaboration ensures that AI systems are grounded in scientific

rigor, clinical relevance, and practical utility, making them more effective in diagnosing, treating, and managing dementia across various stages of the disease.

Conclusion: AI's Transformative Power in Dementia Care

The integration of AI into dementia research and care is more than just a technological advancement—it represents a paradigm shift in how we approach healthcare. AI's ability to foster early intervention, deliver personalized treatments, and empower patients and caregivers opens new avenues for improving outcomes in dementia care. However, to fully realize AI's transformative potential, it is essential to ground its development in ethical principles, inclusivity, and global collaboration and AKMs provide the research platform to do so. Only by adhering to these values can we ensure that AI transforms dementia care for all patients, irrespective of their background or location.

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