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Artificial Intelligence in Diagnostics: Advancements, Challenges, and Future Prospects

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Abstract

AI is changing (and will change) healthcare as we know it, and diagnostics might be the specialty that feels the most discomfort. Artificial intelligence-based analytical systems are facilitating the detection, diagnosis, and treatment of a variety of diseases, with better accuracy, speed, and results. Now, this abstract investigates the role of AI in diagnostics, scouring its elements, landmark techniques, transformative impact and future overview. This article explains AI and discusses its application in different aspects of healthcare with a specific focus on diagnostics. From medical images and laboratory results to genomic data and electronic health records, these algorithms can sort through an unprecedented amount of data to assist healthcare professionals in making more accurate and timely diagnostic decisions. By enabling rapid, high-precision analysis and response – whether it`s identifying small differences visible in medical images lumbering to assess the likelihood of pathology and prognosis from genetic maps – AI is expanding human vision & striking even higher diagnostic accuracy. Various AI applications are used in diagnostics across a spectrum of medical specialties. AI-powered algorithms analyze medical images to identify and characterize abnormalities in radiology. In pathology, AI algorithms automate the analysis of tissue samples, aiding pathologists to identify malignant cells. AI simplifies complex genetic data interpretation in genomics, paving the way for personalized medicine. AI also aids point-of-care diagnostics for fast and accurate testing. AI assistance in diagnostic workflows helps improve accuracy, decrease the error rates and promote the patient safety. It facilitates the same-day diagnosis, decreases turnaround times, and enhances access to care. AI also frees up healthcare professionals by automating repetitive tasks, leaving them to tend to complex cases and interaction with patients. What is more, thanks to AI, diseases can be detected earlier on and treated more effectively. The potential is there, but obstacles still exist. The need for generalizability of AI models to other patient populations is paramount. The biggest challenge lies in addressing ethical concerns like data privacy and algorithmic bias. It is essential to build trust between healthcare professionals as well as patients. With the AI landscape in healthcare constantly evolving, clear guidelines are required. Ground-breaking technologies, like federated learning and explainable AI, are set to provide even greater improvements to AI-powered diagnostic systems. Further studies are necessary to surmount these challenges and realize the full promise of AI in diagnostics. With effective collaboration and evaluation, AI can leverage quality healthcare through smart decision-making and the security of medical investments that leads to better health and well-being.

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INTRODUCTION

Many people believe that artificial intelligence is the key to nearly every aspect of the healthcare industry, but its application in diagnostic medicine is undoubtedly the most exciting. Data until October 2023 (Kulkarni et al., 2019) [1]. AI-powered technologies are poised to radically present a more personalized, predictive, preventative, and participatory form of healthcare (B. Khan et al., 2023) [2].

AI has made a huge leap in certain fields in the medical field such as Radiology. AI algorithms can also directly and indirectly help in the detection of disease in these images, in segmentation of those images, in prediction modeling, etc. (Bhandari A., 2024) [3]. AI systems use machine learning algorithms to examine, analyze, and learn from enormous amounts of medical imaging data, with the high potential to identify patterns and provide timely and sophisticated diagnosis to the clinicians. Well-integrated AI into clinical workflows in addition could facilitate efficiency gains, and workload and misdiagnosis reduction (L. Létourneau-Guillon et al., 2020) [4].

Beyond radiology, the past few years have also seen impressive progress for AI in other diagnostic areas, including pathology and genomics. AI-enabled digital pathology systems can help pathologists examine tissue samples, identify abnormalities, and classify disease subtypes. Like this, genomic data (like big data) can use AI algorithms to create personalized treatments as well as predict disease risk based on individual genetics.

In the diagnostic process, AI early detection of diseases is one of the key factors. AI algorithms may examine large amounts of data – rapidly and accurately – to find patterns or inconsistencies in medical information which are not evident to a physician. This raises the possibility of earlier diagnoses and better outcomes for patients. Furthermore, intelligent algorithms may be integrated into point-of-care devices as well as smart wearable video surveillance systems. Continuous monitoring and real-time disease diagnostics are both made possible by this technology, enabling patients to take greater responsibility in managing their own health.

While there are promising advancements, there are also considerable challenges to overcome before the full potential of AI in diagnostics is achieved. Generalizability is one of the most pressing concerns as data used to train AIs may be narrowly derived so that the resulting model may not work well across populations [microbe groups?] or clinical contexts [something, like an emergency room, may look quite different from a clinic] on the one hand, and the clinical circumstances vs the expected population on the other. AI must be tailored to unpack and understand clinical data to deterministically assist in clinical practice; however, this integration also must be approached with caution, ethical considerations, and regulatory implications regarding patient privacy, data security, and transparency of decision-making. And to ensure these tools are safe and effective, collaboration is needed between healthcare providers, researchers, policymakers, and technology developers. Meanwhile, by cultivating collaborative efforts that harness diverse expertise and by educating stakeholders on the technical strengths and weaknesses of AI, the healthcare industry may work through the challenges of embedding machine learning based diagnostics into regular clinical pathways (M. van Hartskamp et al., 2019; H. Alami et al., 2020; C. Kelly et al., 2019; R. C. Mayo et al., 2020) [5–8].

The future of AI in diagnostics is bright and cannot be more exciting as the field continues to evolve. With the continued evolution of machine learning, deep learning, and natural language processing, we expect diagnostic tools to become increasingly accurate, efficient, and personalized. To with point (R. S. Vilhekar., 2024; Bhandari A., 2024; M. A. Al-antari, 2023; M. N. Aftab et al., 2025) [3, 9–11], the combination of these tools with the evolving need for wearable technology point-of-care testing will also provide healthcare to patients faster and give patients more control of their own health (C. Kelly et al., 2019) [7].

KEY THEMES IN LITERATURE

The key insights from this literature review regarding the deployment of AI in diagnostics are several recurring themes (C. Kelly et al., 2019) [7]:

- Algorithmic bias and its generalizability and interpretability.

- Find out how Al can take away repetitive processes, improve clinical accuracy and lift the load of industry experts.
- Conducting nonexperimental evaluations of AI-based diagnostics in clinical practice.
- The issues surrounding data access, quality, privacy and security, and the clinical translation of AI.

These themes highlight the complex interactions that accompany the introduction of AI into a diagnostic workflow and, therefore, the necessity for a business case that is multidimensional and holistic to address the technical, regulatory and ethical challenges it presents (Bhandari A., 2024; C. Kelly et al., 2019; H. Alami et al., 2020) [3, 6, 7].

MACHINE LEARNING AND DEEP LEARNING IN DIAGNOSTICS

Deep learning models have the capacity to process large amounts of medical data, such as images, pathological results, and genetic data, as well as discover patterns and provide exact risk evaluations. (Bhandari A., 2024) [3]. Therefore, such machine learning algorithms have shown their potentials in the detection of fleets of diseases, including cancers, pneumonia, and cardiovascular diseases in radiology domain, to name a few, (Bhandari A., 2024) [3]. Such AI-based systems could additionally assist with in-image detection, allowing for the accurate delineation of anatomical structures as well as lesions in this article [12].

All along these lines, regarding pathology, deep learning architectures have achieved impressive results for the detection and classification of the various subtypes of disease, cancers, for instance.

AI in Imaging and Radiology

AI-enabled technologies are now being adopted in multiple aspects of health care, among which the introduction of AI into radiology is one of the top applications within the line of diagnostic AI. Radiology may be particularly well suited for many implementations of artificial intelligence, given that such imaging data is generated in high volumes and needs to be interpreted quickly and accurately.

The analysis of medical images to identify such abnormalities is the primary aim of many AI algorithms, which have demonstrated the capacity to identify all kinds of abnormalities via images, often with higher accuracy than human specialists (T. Leiner et al., 2021; A. Rahman et al., 2022) [13–14]. AI-based applications are also able to facilitate image segmentation and quantitative analysis that can ultimately enhance radiological workflow efficiency and standardize imaging protocols.

The role of artificial intelligence (AI) is becoming indispensable in radiology and imaging in the diagnosis of breast cancer. At the same time, AI algorithms – more specifically deep-learning based algorithms – are being developed and used to read mammograms, breast ultrasounds and MRIs. Now, these AI systems can help radiologists in myriad ways:

- *Improved Accuracy and Consistency:* AI algorithms are trained on large datasets of images, allowing them to learn from the factors that help identify microettes and breast cancer resources which are not (even) visible to the human vision. These techniques can improve diagnostic accuracy and consistency with fewer false positives and false negatives (N. Eisemann et al., 2025; D. Killock, 2020) [15–16].
- *Decreased Strain (Pressure):* One of the benefits is that AI can help streamline huge workloads for the radiologist by automating image analysis, measurement, etc., so they can focus on complex cases and direct patient interaction (N. Kapoor et al., 2020) [17].
- *Earlier Identification:* AI can catch breast cancer earlier, at its most treatable stage, by looking for subtle differences that would go unnoticed in an ordinary image (L. Hirsch et al., 2023) [18].
- *Reduced False Positives:* AI can reduce the inappropriate findings that result in needless anxiety and, often, more imaging and biopsies (S. Kim et al., 2021; Y. Shen et al., 2021) [19, 20].

Several studies demonstrate the potential of AI for breast cancer detection. To illustrate, some (D. Killock., 2020) [16] claim that AI surpasses radiologists for mammographic screening. Another study (N. Eisemann et al., 2025) [15] describes the nationwide introduction of AI-assisted cancer detection within a real-world clinical setting in the unique context of population-based mammography screening. Continuous research is performed for refinement of such technologies, incorporation in the clinical setting and probably most importantly evaluation of its clinical practicality.

Artificial Intelligence for Pathology and Imaging

Diagnostic AI

AI applications in pathology and histopathology AI-based algorithms have effectively automated the analysis of tissue samples for the fast and accurate detection of disease subtypes, including many cancer types. These AI systems are trained with deep learning techniques (B. Khan et al., 2023) [2], allowing them to rapidly process digital pathology slides at a scale and precision never before possible, which may alleviate some of the burden on the pathologist and increase the consistency (and, therefore, accuracy) of the diagnosis (Bhandari A., 2024) [3]. These AI models use deep learning algorithms that have shown the ability to identify intricate patterns and features in histopathological images, frequently outdoing human specialists in diagnostic precision and consistency. AI can also assess histological markers to enable more individualized diagnosis.

Artificial Intelligence in Genomics and Precision Medicine

If utilized properly, this technology can modernize the delivery of precision medicine. Geonomic commands for detecting genetic markers and patterns of diseases and from prepositions work with large volume data. This would allow doctors to move past mere symptoms to a person's genetic makeup and develop diagnostic and therapeutic approaches tailored to an individual. Genetic information might also be integrated by AI to understand their features and pneumonate clinically significant variants, effects on medicine. In addition to genomics, AI would also enable better predictive models to diagnose diseases at the earliest stage possible, as well as classify potential patients at risk for diseases. AI is revolutionizing the delivery of care, and perhaps nowhere is that more agonizing than in diagnostics. The analytical systems driven by AI include possesses the capacity to identify & diagnose a wide range of diseases, providing precision, speed, and results. This abstract provides a summary of AI in diagnostics: its foundations, main applications, transformative effects and future perspective. This article aims to demystify AI and explores its potential to play a role in health care – specifically in diagnostics. Whether it is medical images and laboratory results, genomic data and electronic health records, these algorithms can sift through huge amounts of information to assist health care providers in making more precise and timely diagnostic decisions. From genomic profiles for prediction of disease risk & discovery of imperceptibly small aberrations in clinical imagery – where humans couple to the 2D images the problem of diagnostic accuracy – AI extends human capabilities by entering the realm of diagnostic accuracy. Diagnostics and AI are extremely specialty-agnostic. Radiology-specific AI algorithms analyze medical images to identify and describe abnormalities. In pathology, for instance, AI can streamline the analysis of tissue samples, helping pathologists to identify cancerous cells. In genomics, for instance, AI aids scientists in making sense of intricate, detailed genetic information that can spur developments in personalized medicine. AI is bridging the gap in point-of-care diagnostics, facilitating prompt and precise testing. However, the application of AI in the diagnostic process improves the accuracy of diagnostic results as it also minimizes the risk of diagnostic errors and enhances the quality of care that ultimately leads to improved patient safety. It expedites diagnostic workflows, reduces turnaround times, and enhances access to care. AI frees healthcare practitioners of tedious, low-skilled jobs, and gives them more time to spend on complex cases and on patients. AI is also speeding up the detection of disease at an early stage, allowing for more effective treatment. The potential is there, but there are challenges. AI models should generalize to diverse patient populations.

Lastly, ethical issues around data privacy and algorithmic discrimination also need to be tackled. Trust between healthcare workers and patients is essential. This lack of clarity has led to calls for more transparency about where the lines are drawn for regulators around AI and health care. Also, federated learning, a relatively new technology, and explainable AI will greatly enhance AI-powered diagnostic systems. Work in both areas will need to be done going forward to mitigate such problems and unlock such promise of AI in diagnostics. AI will be instrumental in health and wellness – but it will take the efforts of AI researchers, healthcare professionals and regulatory authorities to make that happen (Table 1).

Table 1. Showcasing the role of AI in genomics and precision medicine.

Area of Application	Role of AI	Benefits	Challenges
Genomic Data Analysis	Analyzing large genomic datasets to identify disease-associated genetic markers and patterns	–Deeper understanding of individual genetic profiles –Personalized diagnostic and treatment approaches –Development of accurate predictive models	–Data availability and quality. –Computational complexity. –Interpretation of complex genetic variants.
Precision Medicine	Integrating genomic information with clinical data to tailor treatment strategies	–Targeted therapies based on individual genetic makeup –Improved treatment –Reduced adverse effects	–Ethical considerations of personalized medicine. –Cost-effectiveness of genomic testing. –Clinical validation of AI-driven insights.
Pharmacogenomics	Predicting drug response and adverse events based on genetic variations	–Optimized drug selection and dosage –Minimized risk of adverse drug reactions –Improved drug development and clinical trials	–Limited availability of pharmacogenomic data. –Generalizability of AI models across populations. –Regulatory approval of AI-based pharmacogenomic tools.
Disease Risk Prediction	Identifying individuals at increased risk of developing specific diseases based on genetic predispositions	– Early disease detection and prevention –Personalized screening and surveillance strategies –Improved public health outcomes	–Accuracy and reliability of risk prediction models. –Psychological impact of genetic risk information. –Ethical considerations of genetic screening.

Artificial Intelligence in Clinical Diagnostic Processing

Distrust in AI-based clinical diagnostics may be justified, taking a constructive approach is central. With the capacity to rapidly analyze huge volumes of clinical and ancillary medical data, such as imaging, pathology, genomic, and clinical data, artificial intelligence computer-guided diagnostic systems, can deliver accurate, definitive, and timely diagnostic recommendations (R. Dias., 2019; I. Dankwa-Mullan., 2022) [21, 22].

Certain tasks, such as analyzing and interpreting images, can be automated by AI, which will save time for professionals at work who can focus on higher, in-depth level decisions. In addition, guidance offered by AI-driven systems can be applied in real time and highlight deviations or missed diagnoses, guaranteeing the overall quality of treatment of patients.

However, the application of AI in clinical diagnostics is accompanied by obstacles such as data privacy issues, the necessity for stringent clinical validation, and the potential for bias and algorithmic pitfalls [23, 24]. In this manuscript an extensive covering of neurodevelopmental and cognitive profiles comorbidity, diagnosis and management are described in the Down syndrome context. Although, potential implementation of AI and ML, may be a game-changer in improving early diagnosis and specific therapies to enhance quality of life for patients with down syndrome [25].

Wearable & AI Real-Time Powered Point of Care Devices

AI-Powered Point-of-Care Diagnostic Devices and Wearable Technologies

Many AI–driven point-of-care diagnostic devices are entering the market that can radically transform health-care delivery systems especially in resource-rich and remote settings. It features AI-driven medical devices capable of continuously monitoring multiple physiological, including heart rates, blood pressure and glucose levels, and providing patients and health-care partners with real-time feedback and recommendations [26].

Utilizing AI algorithms, this technology can detect disease symptoms early, alert in good time and intervene, allowing even remote management and monitoring of chronic conditions. Point of care diagnostic tools have a key role in Artificial Intelligence. It facilitates the best on-site testing that is proven to not require complex laboratory infrastructure while offering a more accurate and reliable process that can take less time.

While the potential of AI-powered wearable and point-of-care devices is immense, there are still barriers to entry in terms of data security, regulatory approval and integration into current healthcare practices.

There are several articles that speak about how the watch's heart rate monitoring features may have detected potential heart problems and that the users acted on this information by seeking out medical help. An article regarding a person whose heart rate was tipped off on his Apple Watch, which turned out to be a heart attack, is one of them. A second article covered a couple who attributed alerting them to a silent heart condition requiring medical treatment, to the Apple Watch. And a third describes a previously unknown heart blockage revealed by an Apple Watch. These anecdotes are examples of life-saving ability technology: what an implant could do (Tables 2–5).

Table 2. Showing comparison of AI-powered wearable and point-of-care devices.

Feature	Wearable Devices	Point-of-Care Devices
Portability	Highly portable, designed for continuous wear	Portable or handheld, designed for on-site use.
Data Collection	Continuous, real-time physiological data	On-demand, specific diagnostic data.
AI Applications	Real-time monitoring, early detection, personalized feedback	Rapid diagnostics, on-site analysis, decision support.
Examples	Smartwatches with ECG, fitness trackers, continuous glucose monitors	Portable ultrasound, blood analyzers, rapid diagnostic tests.
Connectivity	Typically connected to smartphones or cloud platforms	May or may not require connectivity.
Cost	Generally lower cost	Can vary widely in cost.
Clinical Setting	Primarily used for remote monitoring and personal health management	Used in clinics, hospitals, and other point-of-care settings.

Table 3. Showing features comparison of AI-powered wearable and point-of-care devices.

Feature	Wearable Devices	Point-of-Care Devices
Enhanced Accuracy & Sensitivity	AI algorithms can filter noise and artifacts in real-time physiological data, leading to more accurate measurements and earlier detection of subtle changes.	AI can improve the sensitivity and specificity of diagnostic tests, reduce false positives/negatives and enabling more confident diagnoses.
Personalized Insights & Feedback	AI can analyze individual patterns and trends in physiological data to provide personalized insights, feedback, and recommendations for lifestyle changes or interventions.	AI can tailor diagnostic results and treatment recommendations based on individual patient characteristics and preferences.
Early Disease Detection & Prevention	Continuous monitoring and AI-driven analysis can detect early warning signs of developing diseases, enabling timely interventions and potentially preventing disease progression.	Rapid on-site diagnostics with AI can facilitate early disease detection and treatment, especially in resource-limited settings.
Remote Monitoring & Management	AI-powered wearables enable remote monitoring of patients' health status, facilitating timely interventions and reducing the need for frequent hospital visits.	AI-enabled point-of-care devices can transmit diagnostic data remotely, enabling remote consultations and collaborative care.
Improved Efficiency & Workflow	AI can automate data analysis and interpretation, freeing up healthcare professionals' time and enabling them to focus on more complex cases.	AI can streamline diagnostic workflows, reducing turnaround time for results and enabling faster decision-making.
Cost-Effectiveness	Early detection and personalized interventions can lead to more cost-effective healthcare delivery by reducing hospitalizations and long-term care costs.	AI-powered point-of-care devices can reduce the need for expensive laboratory testing and specialized equipment.

Table 4. AI applications in point-of-care diagnostics.

Area	AI Application Example	Benefits
Infectious Disease Diagnosis	Rapid diagnostic tests powered by artificial intelligence for infections such as strep throat, influenza, or malaria	Quicker, more accurate diagnosis, which allows more rapid treatment.
Blood Glucose Monitoring	Continuous glucose monitors, predicting glucose fluctuations, and recommending personalized insulin dosages using AI algorithms	Enhanced Glycemic Control and Lowered Complication Rate.
Cardiac Health	Artificial intelligence in ECG from portable devices for the early diagnosis of arrhythmias and other heart diseases	Early diagnosis and treatment of cardiac events.
Cancer Screening	Early detection of skin cancer or cervical cancer employing AI-assisted point-of-care devices	Screening can be more accurate and accessible, particularly in most rural regions.
Pregnancy Testing	AI-enhanced home pregnancy tests, i.e., more sensitive, specific	It results in more accurate and reliable detection of pregnancy.
Drug Monitoring	Point-of-care devices enabled with AI to monitor drug level in patients' blood	Adaptive dosing and enhanced clinical efficacy.

Table 5. Outlining the challenges in implementing AI-powered wearable and point-of-care devices.

Challenge	Wearable Devices	Point-of-Care Devices
Data Privacy and Security	Wearables also collect sensitive health data that must be secured with strong encryption and proper access control.	Data privacy and security in point-of-care environments, especially with interconnected devices, is a necessity in protecting sensitive patient data.
Regulatory Approval and Validation	Gaining regulatory clearance for AI-based wearables and proving their clinical validity is a complicated, lengthy process.	AI diagnostic tools need to be rigorously validated and get regulatory clearance to ensure they are accurate and reliable.
Integration with Existing Healthcare Systems	Integrating wearable data into electronic health records and existing clinical workflows in a seamless manner can be difficult.	Existing healthcare infrastructure and laboratory information systems can make it complex to integrate AI-powered point-of-care devices.
Data Bias and Algorithm Fairness	But AI algorithms that are trained on biased data sets can sustain health disparities. AI systems have the potential to make unfair, unintentional biases when working with data.	Diagnostics use between AI algorithms need to be precisely vetted for potential patient population bias.
User Adoption and Acceptance	Adoption in terms of patients and healthcare providers will depend on usability, trust and perceived value of AI powered wearables.	Without proper education and training, clinicians will not be able to effectively leverage AI-powered point-of-care devices for the right diagnosis, making it imperative that they receive adequate education and training on the devices (both in terms of use and interpretation).
Cost and Accessibility	AI applications require more hardware, which in turn increases the cost of AI-powered wearables and point-of-care devices, making them potentially inaccessible for such people or healthcare systems.	Overall, it is believed that equal access to these tools is necessary, regardless of whether it is wealth, income level or geographic location.
Technical Limitations	The effectiveness of AI-powered wearables can be limited due to battery life, sensor accuracy and connectivity issues.	The use of AI algorithms for point-of-care devices can be influenced by sample quality and environmental conditions.

TECHNICAL, ETHICAL AND REGULATORY CHALLENGES

Healthcare diagnostics can also face ethical and regulatory challenges, which must be solved in addition to technical integration challenges. These include,

- Avoid bias, use AI diagnostic tools, fairness, and non-discrimination.
- Protecting the privacy and security of patients, particularly given the collection and use of sensitive health data.

- Creating clear regulatory frameworks of approval processes for AI-based diagnostic devices, ensuring safety and efficacy.
- Responsible for accountability and liability issues, as AI based systems make diagnoses that inform patient management.

How AI Can be Preventative of Diagnostic Errors

Diagnostic errors which lead to patient harm and medical costs remain a major source of patient injury and cost, and AI-enabled diagnostic tools help reduce these cases. AI algorithms can process thousands of patient records and pinpoint trends, patterns, and correlations that the human brain is incapable of recognizing by itself [27–29]. With AI in the field of medicine continually progressing, may its marriage with diagnostic procedure do amazing things for healthcare in years to come.

INTEGRATION OF AI INTO HEALTHCARE SYSTEMS

Challenges for adoption and implementation: Several challenges exist for healthcare systems that are willing to adopt and implement technologies for AI-powered diagnostics, including:

- *Resistance to Change:* Medical practitioners are often at odds with change in their practices, especially with technologies that may supplement or supplant decision-making [30].
- *Distrust*: Clinicians may get skeptical about the reliability and clarity of AI-driven systems and may hesitate to trust their recommendations.
- *Data Availability and Quality:* AI algorithms require large high-quality datasets for their training/validation phases, which might not be uniformly accessible or evenly distributed in some healthcare settings.
- *Regulatory and Legal Barriers:* The regulation of AI-based medical devices is still a developing process and thus, health care providers may wait until regulatory guidelines and approval mechanisms are established before integrating these new technologies into practice [31–32].

Future Trends and Innovations in AI Diagnostics– Emerging Trends and Research Areas

Multimodal Data Integration

Combining heterogeneous data sources (e.g., medical imaging, genomics, and electronic health records) can enhance AI-based diagnosis' accuracy and completeness.

Federated Learning

This method of training AI models allows for the collection of data from multiple health care systems without actual transfer of sensitive patient-level data, protecting privacy.

Interpretable and Explainable AI

Developing AI models that can explain their decision-making processes may build clinician trust and facilitate incorporation into clinical workflows.

CONCLUSIONS

AI has the potential to revolutionize health care diagnostics in numerous ways, from enhancing diagnosis accuracy and enabling personalized treatment plans, to allowing early disease detection, speeding up diagnoses, and assisting doctors with clinical workflows and decision making. But to fully capture the potential that AI may deliver, the researchers, healthcare providers, and policymakers alike will need to work together to crack both the technical and the ethical and regulatory challenges that will exist. When combined with the goodwill and commitment of a collaborative community, it is possible that in future AI-powered diagnostics can be expected which can transform healthcare as we know it today building smarter diagnostics that are better tailored to the individual needs of the people who need them, and that deliver them to people who need them most.

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