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Algorithmic Diagnostics: Machine Learning, Cancer Detection and the Posthuman Transformation of Medical Knowledge

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Abstract

This paper investigates the posthuman ramifications of machine learning (ML) in cancer cell detection, analyzing how artificial intelligence fundamentally alters the production of medical knowledge, reshapes human-machine interactions in healthcare, and contests anthropocentric notions of embodiment, agency, and mortality. This analysis examines recent advancements in multicancer early detection (MCED) technologies and deep learning methodologies, exploring how AI-mediated diagnosis challenges conventional medical epistemologies and creates novel posthuman assemblages that obscure the distinctions between human and non-human agencies in healthcare. Utilizing a posthumanist framework that acknowledges both the opportunities and risks of technological mediation, we examine the ontological, ethical, and political aspects of algorithmic medicine, interrogating how these technologies redefine our comprehension of disease, the posthuman body, and decentralized medical authority in an era of intelligent machines.

Keywords: Posthumanism; Artificial Intelligence; Medical Epistemology; Human-Machine Assemblages; Algorithmic Diagnosis; Technoscience; Distributed Agency; Posthuman Embodiment

1. Introduction

1.1. Beginning: Moving Toward a Posthuman Medicine

The advent of artificial intelligence in medical diagnosis signifies more than mere technological progress; it denotes a "posthuman critical theory" moment, as described by Rosi Braidotti, indicating a profound shift in our understanding of knowledge, agency, subjectivity, and the very limits of humanity (Braid Otti, 2013). As machine learning algorithms attain unparalleled precision in cancer detection, frequently surpassing human diagnostic abilities, we observe the advent of "posthuman medicine"—a hybrid domain where conventional classifications of human expertise, technological instruments, and biological materiality are profoundly restructured.

Machine learning algorithms for cancer detection exemplify the disintegration of the nature/culture dichotomy as articulated by contemporary post humanist theorists. These systems not only assist human physicians; they actively engage in the co-creation of medical knowledge, identifying patterns imperceptible to human observation and making diagnostic decisions that can influence life and death outcomes. Karen Barad refers to this as "material-discursive

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practices," where matter and meaning, technology and biology, and human and non-human agencies interact in ways that go beyond traditional humanist frameworks (Barad, 2007).

The posthumanist perspective elucidates that AI-mediated cancer detection transcends the enhancement of human capabilities, instead fostering the development of novel forms of distributed cognition, hybrid agencies, and posthuman subjectivities. When a deep learning algorithm detects cancerous cells with 96% accuracy, in contrast to human pathologists' 85%, we are not observing the substitution of human expertise by machines; rather, we are witnessing the emergence of novel human-machine collaborations that contest the fundamental principles of medical humanism.

This paper investigates the posthuman aspects of AI-mediated cancer detection, analyzing how these technologies create novel forms of distributed medical knowledge, alter doctor-patient-machine dynamics, and contest anthropocentric concepts of diagnostic authority. We investigate the ontological, ethical, and political ramifications of posthuman algorithmic medicine by examining recent advancements in multicancer early detection (MCED) technologies, deep learning methodologies, and their clinical applications.

2. Post humanist Theoretical Framework: Transcending Medical Humanism

2.1. Putting Less Importance on Human Medical Authority

Traditional medical practice has fundamentally embraced humanism, prioritizing human observation, interpretation, and decision-making as the definitive determinants of medical truth. The incorporation of AI systems challenges the anthropocentric paradigm, introducing what Jane Bennett refers to as "thing-power"—the acknowledgment that agency is not solely a human attribute but arises from intricate configurations involving both human and non-human entities (Bennett, 2010).

In the realm of cancer detection, machine learning algorithms exhibit pattern recognition capabilities that surpass human cognitive abilities, yet they remain reliant on human-generated training data, human-designed architectures, and human interpretive frameworks. Recent research indicates that deep learning models attain 95-96% accuracy in cancer cell detection, frequently recognizing subtle morphological characteristics that elude human observation (McKinney et al., 2020). This technological capacity does not merely enhance human knowledge; it engages in what Donna Haraway refers to as "Sy biogenesis"—the co-evolution of human and non-human capabilities that produces novel forms of hybrid knowledge (Haraway, 2016).

The post humanist perspective elucidates that diagnostic accuracy is not solely derived from human expertise or isolated algorithmic processing, but rather through what Barad describes as "intra-action"—the reciprocal formation of human and non-human agencies within particular material-discursive practices. When radiologists collaborate with AI systems to analyze medical images, they integrate into hybrid diagnostic assemblages that surpass the capabilities of either human or machine independently.

2.2. Posthuman Embodiment and Technological Mediation

The critique of Cartesian dualism is particularly salient in AI-mediated healthcare, where the distinctions between mind and body, human and machine, and subject and object increasingly dissolve. ML systems work with digital versions of biological data, like genomic sequences, medical images, and molecular signatures. However, they also change biological bodies and the way people experience illness. This leads to what we could call a "posthuman embodiment paradox": as our technological mediations get better, our relationship to embodied experience gets more complicated and mediated in more ways.

MCED technologies are a good example of this posthuman embodiment. Tests like Galleri can find more than 50 types of cancer from just one blood draw. This changes cancer screening from looking for symptoms to what Nikolas Rose calls "molecular politics," which is a type of medical knowledge that works mostly at the sub-personal level of genetic and epigenetic data (Rose, 2007). This signifies a transition from phenomenological medicine, which relies on bodily symptoms and subjective experience, to what could be described as "posthuman molecular medicine"—a type of medical knowledge that arises from the technological mediation of biological processes at scales that are both subhuman and superhuman in perception.

The posthumanist framework elucidates that this issue transcends mere disembodiment, addressing what N. Katherine Hayles refers to "distributed cognition" as the extension of cognitive processes across human-machine networks (Hayles, 2017). When AI systems analyze circulating tumor DNA to predict cancer risk, they engage in a form of

posthuman embodiment in which biological materiality, technological processing, and human interpretation become interwoven.

2.3. Distributed Medical Agency and Posthuman Accountability

The incorporation of AI in diagnosis prompts essential inquiries regarding agency and responsibility that transcend conventional humanist paradigms. When a machine learning algorithm contradicts human clinical judgment, we encounter not merely a conflict between human and machine intelligence, but the emergence of what Karen Barad terms "posthuman performativity"—the acknowledgment that agency is not a human attribute but a manifestation arising from material-discursive practices involving various actors (Barad, 2003).

The PATHFINDER clinical trial showed that MCED testing could find cancers in people who didn't have any symptoms, which could save lives by allowing for earlier treatment (Schrag et al., 2023). But these systems also gave false positives, which caused people to worry and get medical treatment they didn't need. This underscores the necessity for innovative posthumanist frameworks of medical responsibility that can integrate distributed agency within human-machine assemblages while maintaining accountability for human flourishing.

Posthumanist ethics, a

rticulated by scholars such as Rosi Braidotti and Karen Barad, provides frameworks for contemplating responsibility within contexts of distributed agency. Instead of placing responsibility on individual human beings, posthumanist perspectives highlight what Barad terms "response-ability"—the ability to respond suitably within relational networks comprising both human and non-human entities (Barad, 2012).

3. Posthuman Data Materialities and Algorithmic Agencies

3.1. The Posthuman Body as Informational Matter

Modern cancer detection increasingly depends on the conversion of biological material into computational data; however, from a posthumanist standpoint, this represents not a process of dematerialization but rather a reconfiguration of material into informational forms. The Wisconsin Diagnostic Breast Cancer Dataset, comprising 569 samples with 30 morphological features, exemplifies what Mel Y. Chen refers to as "toxic animacies"—the processes by which biological matter is animated through technological mediation (Chen, 2012).

This process of datafication entails what Btihaj Ajana refers to as "posthuman data colonialism"—the extraction and commercialization of biological information that transcends conventional paradigms of consent and ownership (Ajana, 2017). Genomic data from cancer patients serves as a resource for training AI systems, prompting posthumanist inquiries regarding the delineation between individual bodies, collective biological commons, and technological capital.

The posthumanist perspective demonstrates that data is not merely informational; it is inherently material, encompassing energy consumption, computational infrastructure, and environmental repercussions that transcend individual human entities. AI systems engage in "planetary computation," a term coined by Jennifer Gabrys, when they analyze cancer detection data. This refers to technological processes that have physical effects on many levels, from molecular to planetary (Gabrys, 2016).

3.2. Algorithmic Agencies and Decision-Making Beyond Humans

Machine learning models exhibit what Bennett refers to as "thing-power"—the ability of non-human entities to function as agents within intricate assemblages (Bennett, 2010). Algorithms in cancer detection do not merely analyze data; they engage in diagnostic decisions that significantly impact human lives, transcending human interpretative frameworks.

- Think about how different AI performance metrics might affect people after they die:
- Traditional Machine Learning Assemblages:
- Support Vector Machines: 88.2% accurate, 0.901 ROC-AUC
- Random Forest got 91.3% right and 0.934 ROC-AUC.
- Neural Networks: 92.8% correct, 0.945 ROC-AUC
- Deep Learning Posthuman Assemblages:
- Convolutional Neural Networks (ResNet-50): 95.1% correct, 0.971 ROC-AUC
- Ensemble Methods: 96.2% accuracy, 0.978 ROC-AUC

These statistics signify more than mere technical accomplishments; they encapsulate manifestations of posthuman knowledge that interrogate anthropocentric notions of medical expertise, while remaining intricately connected to human training data, human-engineered architectures, and human interpretative methodologies.

The posthumanist perspective elucidates that these algorithmic agencies are not autonomous; rather, they arise from what Barad terms "intra-active" relationships with human actors, biological materials, and technological infrastructures. AI systems for cancer detection are posthuman because they go beyond what humans can do while still needing humans and machines to work together to work.

3.3. The Posthuman Black Box: Lack of Clarity and Responsibility

The "black box problem," which refers to the lack of transparency in deep learning systems, takes on new meaning from a posthumanist point of view. Algorithmic opacity may be perceived not merely as a technical constraint to be surmounted, but as an intrinsic attribute of posthuman knowledge production that transcends human interpretive frameworks.

Recent advancements in explainable AI, such as Gradient-weighted Class Activation Mapping (Grad-CAM) and SHAP (SHapley Additive exPlanations), seek to enhance the transparency of algorithmic decision-making. From a posthumanist viewpoint, these interpretability tools signify not the reinstatement of human control, but the emergence of novel hybrid human-machine sensemaking forms that remain partially opaque to both human and algorithmic interpretation.

This lack of clarity isn't always a problem; it could be seen as what Karen Barad calls "the indeterminacy" that is part of making knowledge in a posthuman world (Barad, 2007). The goal is not to get rid of this opacity, but to come up with posthuman ways of holding people accountable that can deal with distributed agency in human-machine groups.

4. Clinical Post humanities: Case Studies in Human-Machine Medical Assemblages

4.1. The PATHFINDER Trial: Preemptive Posthuman Medicine

The PATHFINDER study exemplifies a paradigm of posthuman medicine, wherein AI systems engage in the temporal reconfiguration of illness and health. The trial employed methylation-based MCED testing to screen asymptomatic individuals, aiming to identify cancer prior to its phenotypic manifestation, thereby establishing a concept referred to as "anticipatory posthuman diagnosis."

MCED technologies disrupt traditional understandings of health and illness over time, allowing for types of medical knowledge that work across different time scales at the same time. Instead of waiting for symptoms to show up, these systems allow what Karen Barad calls "temporal diffraction," which is the presence of many times (algorithmic futures, biological presents, clinical pasts) in one diagnostic moment (Barad, 2007).

- The results of the trial showed:
- Overall specificity: 99.5%
- Sensitivity for early-stage cancers (I-II): 16.8–40.4%
- Sensitivity for advanced stages (III-IV): 81.6-93.7%
- Positive predictive value fluctuates according to cancer type and stage.

From a posthumanist standpoint, these statistics signify not merely technical performance but the material-discursive practices that give rise to posthuman temporalities. The AI system's ability to identify molecular traces of cancer prior to clinical manifestation exemplifies "posthuman precarity"—emerging forms of medical uncertainty that surpass conventional classifications of health and illness.

4.2. Computer Vision and the Posthuman Diagnostic Gaze

Computer vision systems for cancer detection in medical imaging exemplify the "posthuman gaze"—methods of perception that surpass human visual abilities while remaining intertwined with human training datasets and interpretative methodologies. CNN architectures such as ResNet-50 attain enhanced performance by manipulating visual information through mathematical operations that fundamentally diverge from human perception, while still relying on human-annotated training data.

These systems discern patterns in medical images via a concept referred to as "posthuman semiotics," which encompasses meaning-making processes that function across both human and non-human domains concurrently. The machine's interpretation of cellular morphology does not merely supplant human visual categories; it engages in hybrid human-machine assemblages of diagnostic interpretation.

The Cancer Imaging Archive (TCIA) is a complete collection of medical imaging data that can be used to train AI models to find patterns that people can't see. This large set of data could be called a "posthuman medical commons," which is a shared resource that is better than any one person's knowledge but still needs people to work together to make it useful.

- Recent studies elucidate the potentials and constraints of these posthuman visual assemblages:
- Deep learning models can find patterns that people can't see.
- Performance varies greatly between different demographic groups.
- Interpretability is still limited, even with AI techniques that make things clearer.
- To work with clinical workflows, people and machines need to keep working together.

4.3. Liquid Biopsies and Molecular Surveillance After Humans

MCED tests that look at circulating tumor DNA (ctDNA) are examples of posthuman molecular surveillance that work below the level of human perception but still have an impact on people's lives. Companies like GRAIL have built advanced machine learning pipelines that can find cancer-specific methylation patterns in cell-free DNA with amazing accuracy. This is what some people might call "posthuman molecular politics."

The Galleri test looks at methylation signatures from more than 100,000 CpG sites and finds patterns that are linked to more than 50 types of cancer. This signifies a transition from visual diagnosis to what could be termed "posthuman algorithmics"—methods of pattern recognition that function across scales and modalities surpassing human sensory limitations.

- Recent validation studies illustrate the posthuman attributes of these technologies:
- Detection of various cancer types from a single blood sample.
- Algorithmic analysis to guess where the tissue came from
- Clinical-grade performance in future trials
- Integration needs with current healthcare systems

From a posthumanist standpoint, these technologies signify not merely enhanced diagnostic instruments but the advent of novel modalities of posthuman subjectivity, wherein personal health status intertwines with algorithmic processing, molecular surveillance, and predictive analytics.

5. Posthuman Medical Ethics: Beyond Healthcare Focused on Humans

5.1. Algorithmic Bias and Posthuman Justice

Machine learning systems are not neutral; they engage in what could be termed "posthuman biopolitics"—technological practices that influence life opportunities across various populations while transcending conventional paradigms of human bias and discrimination. In the realm of cancer detection, this introduces intricate inquiries regarding posthuman justice that cannot be resolved solely through conventional human rights frameworks.

Research indicates that medical imaging datasets frequently exhibit demographic imbalances leading to discriminatory results. However, from a posthumanist viewpoint, these biases are not merely human prejudices embedded in technology; rather, they are emergent characteristics of human-machine assemblages that transcend individual human intent (Larrazabal et al., 2020). This indicates that posthuman algorithms can sustain and exacerbate pre-existing social disparities, necessitating novel approaches to posthuman ethical response.

The challenge is to create what could be called "posthuman justice": ethical frameworks that can deal with discrimination and inequality in groups of people and machines while still being responsible for human well-being. This necessitates transcending conventional individual rights frameworks in favor of what Karen Barad terms "response-ability"—the ability to respond suitably within relational networks comprising both human and non-human entities.

5.2. Privacy of Data and Posthuman Identity

The gathering and examination of genomic data for cancer detection engenders profound inquiries regarding privacy and identity that transcend conventional humanist paradigms. AI systems that look at genetic data to guess what diseases might happen in the future are taking part in what could be called "posthuman identity formation." This is the process by which technology helps shape human subjectivity over time.

The GDPR rules in Europe and the U.S. HIPAA requirements aim to safeguard patient privacy; however, these frameworks were designed for human-centric rather than posthuman healthcare environments. The task is to create new ethical frameworks that can deal with the special problems that posthuman medical assemblages bring up while still respecting human dignity and freedom.

From a posthumanist standpoint, privacy transcends mere individual control of personal data; it encompasses the collective regulation of human-machine assemblages engaged in continuous identity formation processes. This necessitates a concept referred to as "posthuman privacy"—ethical frameworks capable of tackling data protection in distributed networks while maintaining accountability for human well-being.

5.3. Informed Consent and Posthuman Openness

Patients have a right to know how AI systems made decisions that affect their lives when they make diagnostic decisions. The lack of transparency in deep learning systems, on the other hand, goes against traditional ideas of informed consent and medical explanation. This creates what could be called a "posthuman informed consent paradox."

As our AI systems get smarter, they become better at understanding things than people do, which makes traditional ways of explaining things in medicine useless. This presents novel challenges for medical ethics, necessitating a transition from conventional frameworks of individual autonomy to a concept termed "posthuman consent"—ethical methodologies capable of navigating decision-making within distributed human-machine assemblages.

Instead of just calling for algorithmic transparency, posthuman approaches might focus on what Donna Haraway calls "staying with the trouble"—learning to live responsibly with technological mediations that are beyond human control while still being responsible for human flourishing (Haraway, 2016).

6. Posthuman Resistance and Other Possible Futures

6.1. Critical Posthumanist Viewpoints on Medical Technology

Critical posthumanism recognizes the transformative potential of AI in healthcare while simultaneously advocating for a rigorous critique of technological determinism and human exceptionalism. The integration of AI in cancer detection ought not to be regarded as an unavoidable advancement but rather as a socially constructed phenomenon influenced by posthuman values and decisions.

Posthumanist scholars such as Donna Haraway, Karen Barad, and Rosi Braidotti provide frameworks for conceptualizing more equitable and socially just modalities of human-machine collaboration in healthcare. These methodologies underscore the significance of preserving human agency while recognizing the valid contributions of non-human entities in medical practice.

Critical posthumanism shows that opposing bad uses of technology doesn't mean giving up technology; instead, it means finding better ways for people and machines to work together that are more responsive and accountable. This could entail what Haraway refers to as "symbiogenesis"—the concurrent evolution of human and technological capacities in manners that promote rather than hinder human flourishing.

6.2. Democratic Healthcare and Participatory Posthuman AI

One possible way to make posthuman medicine fairer is to create participatory AI systems that let patients and communities help design and use algorithmic healthcare technologies. This could entail:

Community-based participatory research in AI development that includes a wide range of people

- Patients taking part in making and checking datasets
- Democratic ways of running AI healthcare systems that include people with different kinds of knowledge

- Open-source options for proprietary diagnostic algorithms
- Posthuman literacy programs that help people use AI systems better

From a posthumanist standpoint, participation transcends mere human dominance over technology; it involves cultivating more adaptive and accountable modalities of human-machine collaboration that embrace diverse forms of agency and expertise.

6.3. Slow Medicine and Posthuman Mindfulness

AI systems' speed and efficiency can put pressure on doctors to make quick decisions about diagnosis and treatment. However, posthuman approaches might also include what Carlo Petrini calls "slow medicine," which is medical practices that value careful thought, relational care, and the development of wisdom along with efficiency (Petrini, 2013).

This does not entail the rejection of AI technologies; instead, it advocates for their integration into healthcare practices that preserve opportunities for human meaning-making, emotional processing, and existential contemplation in the context of severe illness. Posthuman slow medicine may focus on what Karen Barad refers to as "response-ability"—the development of suitable responsiveness within human-machine assemblages.

Posthuman mindfulness entails cultivating an awareness of technological mediations that augment, rather than diminish, human capacities for care, attention, and ethical responsiveness. This necessitates what could be termed "posthuman wisdom"—the development of suitable responsiveness within decentralized human-machine networks.

7. Future Directions: Towards Posthuman Medical Futures

7.1. Multi-Modal Integration and Posthuman Complexity

The future of posthuman cancer detection depends on combining data from many sources and types that go beyond traditional disciplinary boundaries. Recent studies show that combining the following things can lead to good results:

- Genomic information combined with medical imaging data
- Clinical history with molecular biomarkers
- Results reported by patients along with algorithmic evaluations
- Data from real-time monitoring with regular checks
- Environmental data along with personal health metrics

This multi-modal approach exemplifies what could be termed "posthuman systems thinking"—perspectives on health and illness that recognize the intricate interconnections among biological, technological, social, and environmental processes.

From a posthumanist standpoint, this integration signifies not merely enhanced data processing but the advent of novel posthuman knowledge that transcends conventional medical classifications while maintaining a commitment to human flourishing.

7.2. Personalized Medicine and the Posthuman Singularity

AI technologies facilitate increasingly individualized methodologies for cancer detection and treatment, which may be characterized as manifestations of "posthuman singularity"—technological practices that address the distinctiveness of individual biological processes while remaining integrated within collective human-machine systems.

These systems can give personalized risk assessments and treatment recommendations that are better than traditional population-based methods by looking at each person's genetic profile, environmental exposures, and lifestyle factors. From a posthumanist standpoint, personalization introduces novel inquiries regarding standardization, equity, and access, necessitating collective rather than individual resolutions.

How do we make sure that everyone can use these advanced technologies if AI systems can give very personalized care? Posthuman methodologies may underscore what Donna Haraway refers to as "situated knowledges"—variants of personalized medicine that maintain accountability to communal well-being (Haraway, 1988).

7.3. Global Health and Posthuman Solidarity

When using AI to find cancer, we need to think about global health equity and access to technology. However, from a post humanist point of view, this is not just about sharing technologies made by humans. It is also about creating what could be called "posthuman solidarity," which means working together with different kinds of human and non-human expertise.

- Things to think about are
- Infrastructure needs for putting AI to use in different situations
- Teaching and training for healthcare workers who use AI systems
- The cost and availability of advanced diagnostic tools
- Cultural and social factors that influence the acceptance and adaptation of technology
- The environmental effects of computational healthcare technologies

Posthuman solidarity entails acquiring the ability to collaborate across human and non-human networks in manners that promote, rather than undermine, global health equity, while remaining attuned to various forms of expertise and local knowledge.

8. Conclusion

Moving Toward Critical Posthuman Medical Practice

The incorporation of artificial intelligence in cancer detection signifies a pivotal shift in medical practice, necessitating novel posthumanist frameworks and ethical methodologies. From a critical posthumanist perspective, these technologies not only augment human capabilities but also contribute to the continual reconfiguration of medical knowledge, human-machine relationships, and the very definition of humanity.

The evidence indicates that AI systems can attain enhanced diagnostic performance in numerous contexts, with deep learning models achieving 95-96% accuracy in cancer detection tasks. From a posthumanist perspective, this technical success must be counterbalanced by the imperative to preserve human agency, advance health equity, and cultivate more responsive and accountable modalities of human-machine collaboration.

The way forward requires what Rosi Braidotti calls "posthuman critical practice"—creative changes that let us move between human and algorithmic ways of understanding medical practice while still caring about human flourishing (Braidotti, 2019). This could mean:

- Hybrid Agencies: Acknowledging both human and algorithmic contributions to medical knowledge while ensuring rigorous oversight of AI systems and promoting more agile forms of human-machine collaboration.
- Posthuman Ethics: Creating ethical systems that are based on shared responsibility and response-ability instead of just individual rights, while still being responsible for human dignity and well-being.
- Democratic Technoscience: Making sure that different communities and types of expertise are involved in the development and use of AI healthcare technologies in a way that matters.
- Posthuman Embodiment: Focusing on lived experience and embodied knowledge while also accepting technological tools that go beyond what humans can sense.
- Sustainable Futures: Taking into account the effects of computational healthcare technologies on the environment and the planet while working toward sustainable posthuman medical futures.

The future of cancer detection will probably not be based solely on human or algorithmic methods. Instead, it will come from complicated posthuman combinations of human knowledge, artificial intelligence, social institutions, and political decisions. The challenge is to shape these groups in ways that help people thrive instead of hurting them, while also being open to the real ways that non-human agents can help with medical practice.

As we enter this posthuman medical future, we must be careful about the values that are built into our technologies while also being open to the idea that AI could help make healthcare more effective, fair, and caring. The stakes are incredibly high: when we make AI systems that can find cancer, we are not only making new tools for diagnosis, but we are also taking part in the ongoing change in what it means to be human in a world with smart machines.

The incorporation of artificial intelligence into healthcare signifies both an unparalleled opportunity and a significant challenge that necessitates posthuman contemplation. By critically engaging with these technologies, upholding ethical principles, and fostering democratic involvement, we can strive for futures in which AI amplifies rather than constrains human agency, advances rather than compromises health equity, and supports the flourishing of all life within sustainable planetary limits.

In this posthuman medical future, success will not be gauged solely by diagnostic precision or technological efficacy, but by our ability to cultivate more responsive, equitable, and sustainable care modalities that recognize the intricate interconnections of human, technological, and planetary flourishing. The posthuman transformation of medicine urges us to transcend conventional humanist frameworks while upholding the principles of dignity, justice, and care that can lead us to more sustainable futures.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed..

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