

Artificial Intelligence in Postgraduate Medical Colleges in West Africa: Navigating Ethical Tensions Between Innovation and Responsibility

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Presentation Agenda

- Some benefits of Artificial Intelligence (AI)
- What is ethics, why ethics
- Responsibility for being ethical
- Ethical tensions and challenges in AI integration
- Strategies for responsible AI deployment



Introduction

Artificial Intelligence definition

~~The study of intelligent agents –~~
The study of intelligent agents –
tasks that normally require
systems that act in ways that
human intelligence such as
maximize their chances of
reasoning and learning, OR
success, OR

Ability of a system to perceive its
The capacity of an entity to
environment, learn from,
exhibit intelligent behaviour such
experience, and take action
as problem-solving, planning, and
autonomously to achieve specific
adaptation
goals.



Potential Benefits for Educational Outcomes



- Personalized learning
- Clinical scenarios simulation
- Access to cutting-edge knowledge
- Heavy-lifting of administrative duties
- Examination proctoring
- Post-assessment analytics
 - Summative/formative





Current Adoption Levels in West African Postgraduate Medical Colleges

Emerging AI Adoption

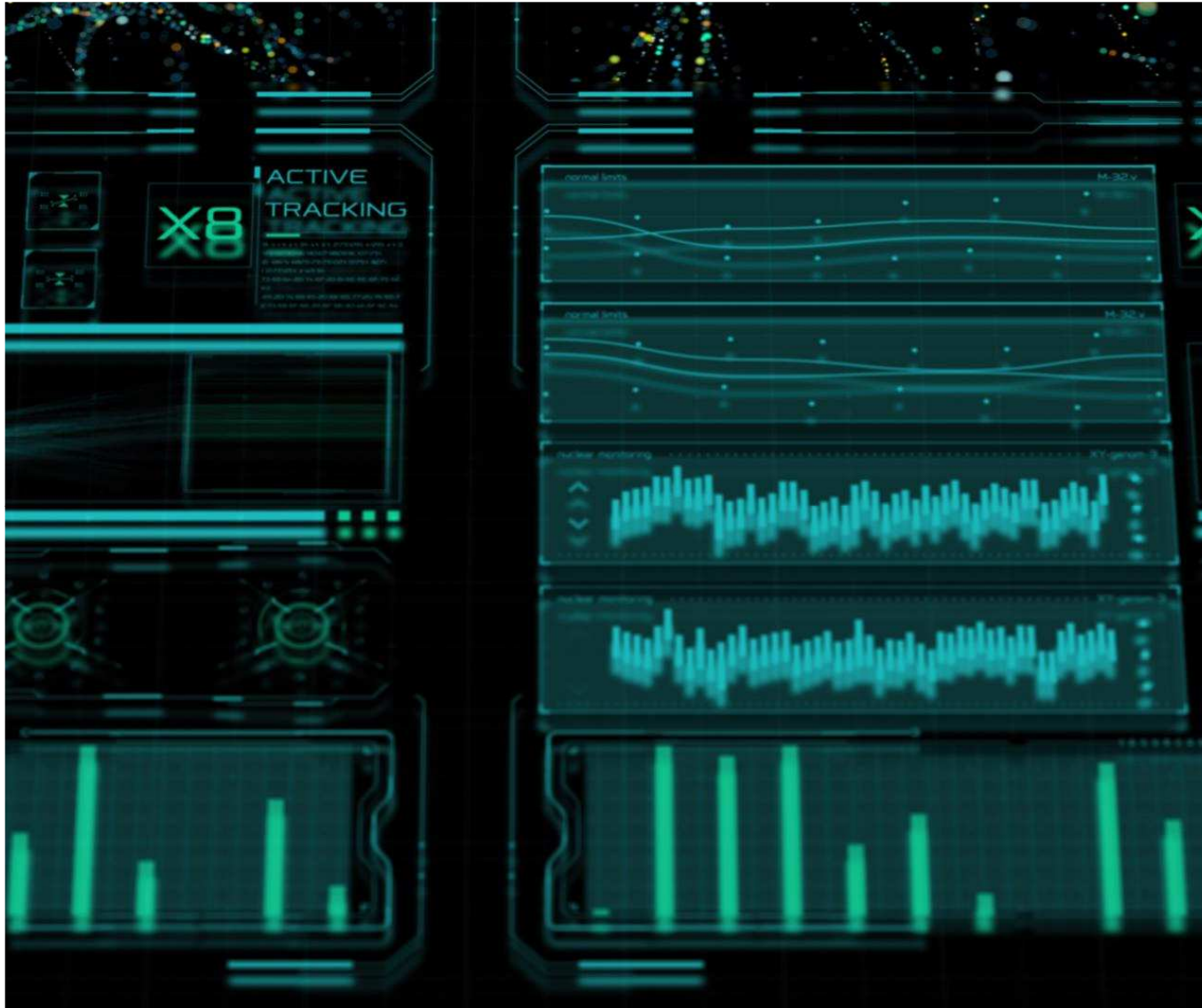
AI use is gradually increasing in West African postgraduate medical colleges with growing interest across institutions.

- Poor AI knowledge (92%)
- Students outperform lectures

International Journal of Medical Informatics. 2025 Aug 17;106085
Nigerian Postgraduate Medical Journal. 2023 Oct 1;30(4):285-92



Innovative Uses of AI in Medical Training and Practice



AI-Powered Diagnostic Tools and Simulation Platforms

Simulating Clinical Scenarios

AI tools simulate complex clinical scenarios to train healthcare professionals effectively and safely.

Improving Diagnostic Accuracy

AI enhances diagnostic accuracy by assisting trainees in recognizing patterns and anomalies in medical data.

Developing Critical Thinking

Interactive AI platforms foster critical thinking and clinical decision-making skills among medical trainees.

Personalized Learning and Adaptive Curricula

Adaptive Learning Systems

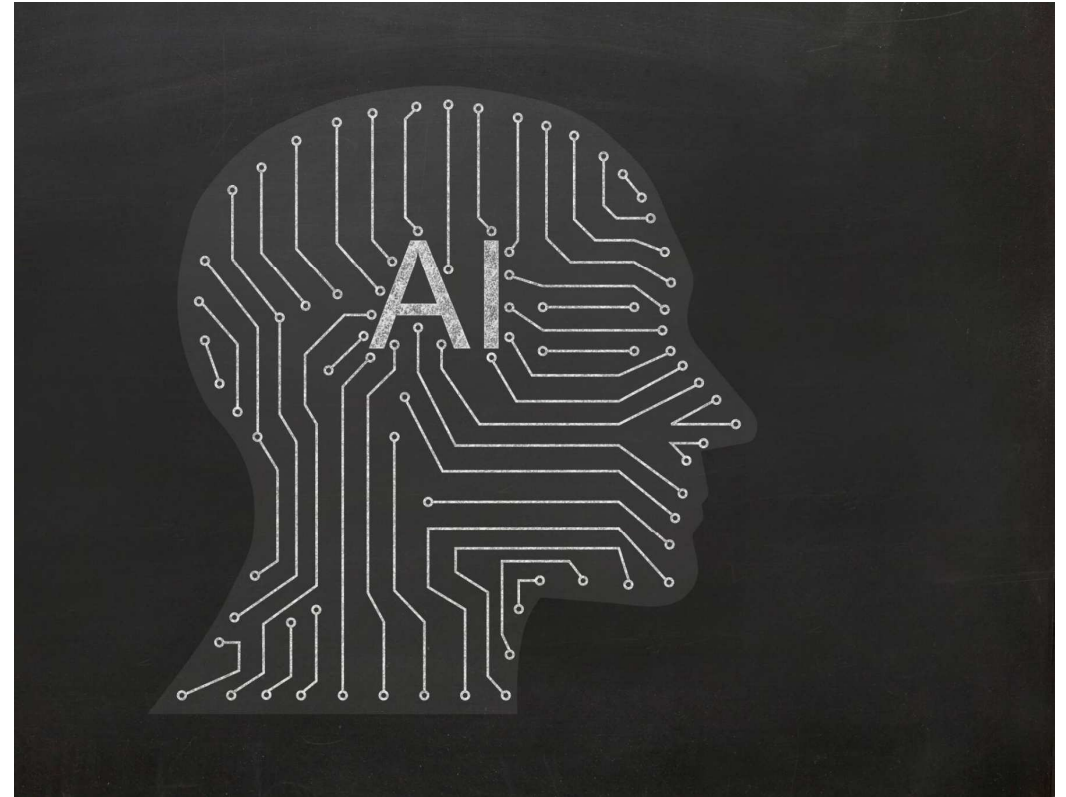
systems that adjust to individual strengths and weaknesses

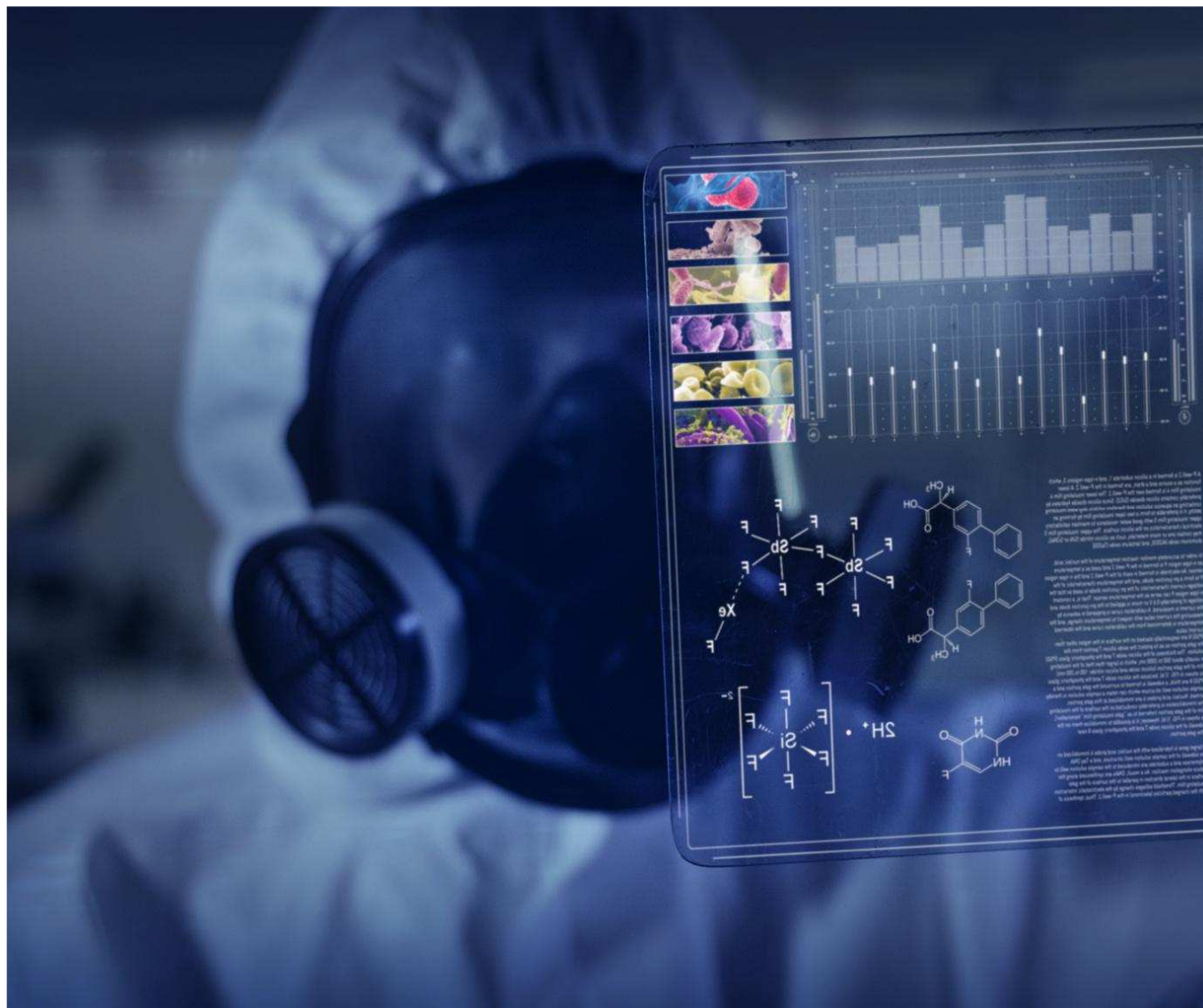
Continuous Assessment

tracks learner progress and personalizes content delivery

Targeted Content Delivery

learners receive relevant material





Enhancing Research and Data Analytics

Rapid data
processing

Pattern Identification

Informed clinical
practice

Overview of Ethics in Medical Education

Preconventional & Conventional Orientations



Preconventional orientation

- Stage 1. The punishment and obedience orientation. Fear of punishment and deference to an authority
- Stage 2. The instrumental/relativist orientation. Self-serving moral decision-making. May relate to others. Pragmatic

Conventional orientation

- Stage 3. Interpersonal concordance, people please. Workplace conformity
- Stage 4. The law-and-order orientation
Doing one's duty and respect the law



Post-conventional orientation



Post conventional, autonomous, or principled orientation

- Stage 5
 - The social contract orientation
 - Stage 5 people understand that there are ends beyond the law and that laws are crafted to bring about these ends
- Stage 6
 - The universal ethical-principle-orientation
 - Logicality, universality, consistency
 - Large stock of ethical concepts



What is Ethics? Why? Applicability?



The five major branches of philosophy are:

- Epistemology, the study of knowledge
- Metaphysics, the study of the nature of reality
- Ethics, the study of morality
- Aesthetics, the study of values in art or beauty
- Logic, the study of argument and the principles of correct reasoning

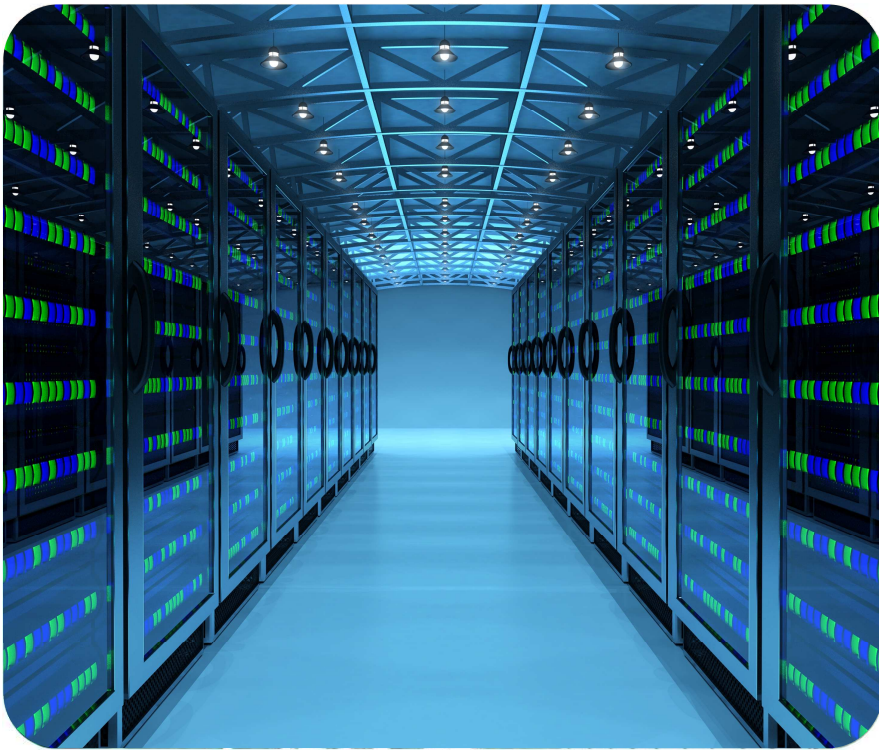
Morality the function of human (Aristotle
384-322 CE)

Animals/Inanimateness - nonmoral



Ethical Tensions and Challenges in AI Integration

Algorithm bias and fairness



- AI trained on large datasets from the West
- Data from the Third World poor/non-existent
- Skewed/inappropriate solutions

AI ethics in higher education: insights from Africa and beyond. Springer Nature; 2023



Professional Autonomy vs Machine Authority



- Train
- AI a

AI and Its Potential for Mistakes

choose an unintended path.

- **Lack of Context:** AI doesn't always understand deeper context, emotional nuance, or cultural subtleties, which can lead to misinterpretation.
- **Overconfidence:** Some AI systems may present incorrect information with high confidence, making it harder to spot errors.
- **Rapidly Changing Information:** In areas like news, prices, or laws, facts change quickly. AI might rely on outdated info unless it checks live sources.

But AI Learns Too

Advanced systems (like me!) are designed to improve over time, especially when users point out errors or ask for clarification.

Mistakes are part of the learning process — for humans and machines alike.

Want to see an example of a famous AI mistake or explore how AI handles uncertainty?

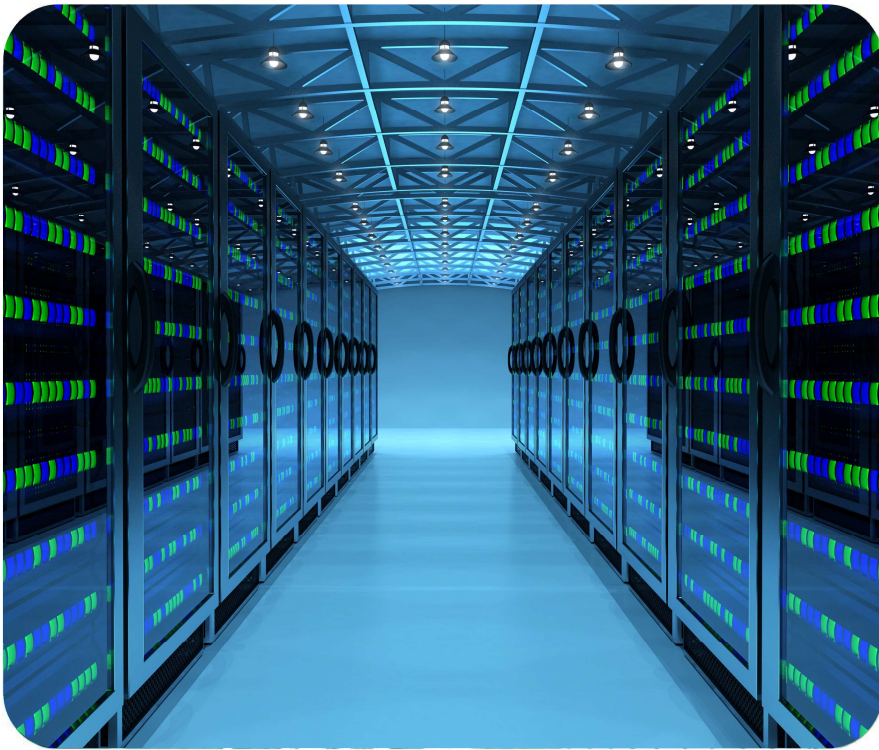
Message Copilot



Quick response



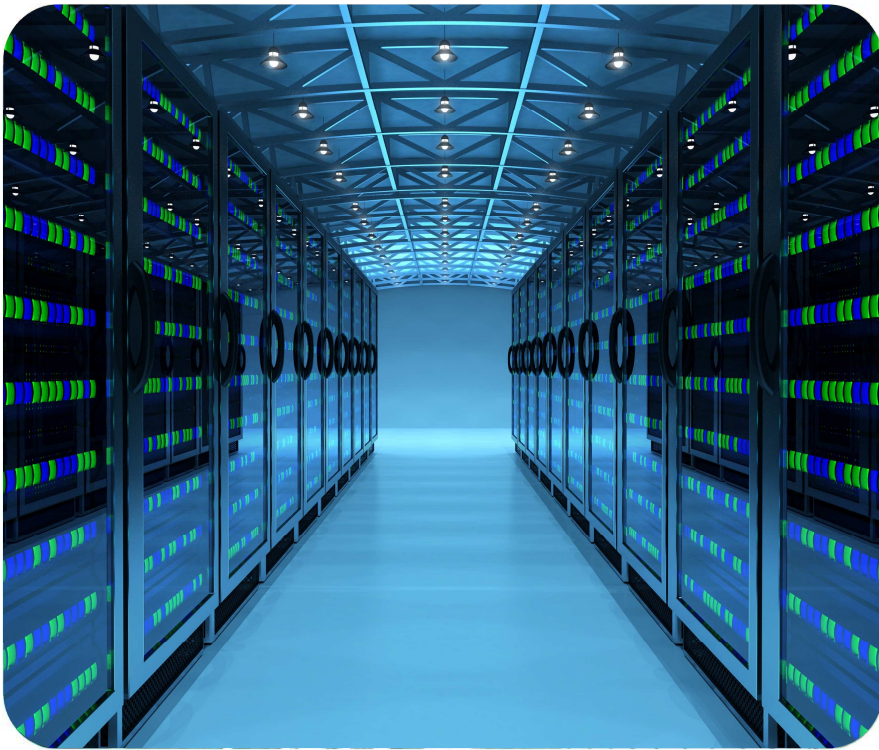
Validity vs Efficiency



- AI extremely efficient
- AI is not infallible
- Skewed/inappropriate solutions
- Role of AI in critical task?



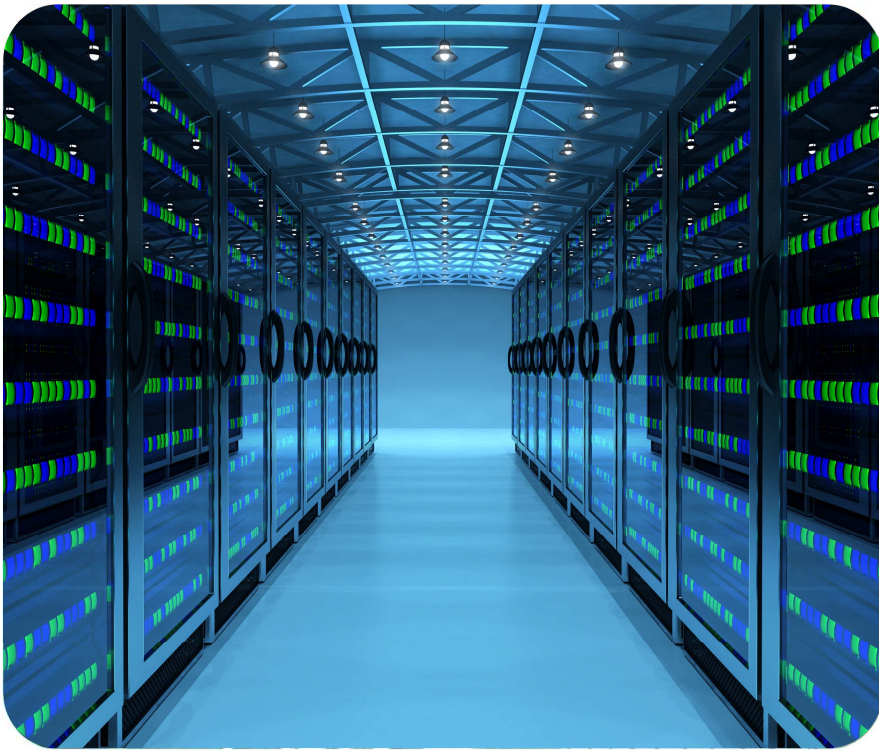
Accountability and Responsibility



- Accountability
 - Developer
 - Institution
 - User



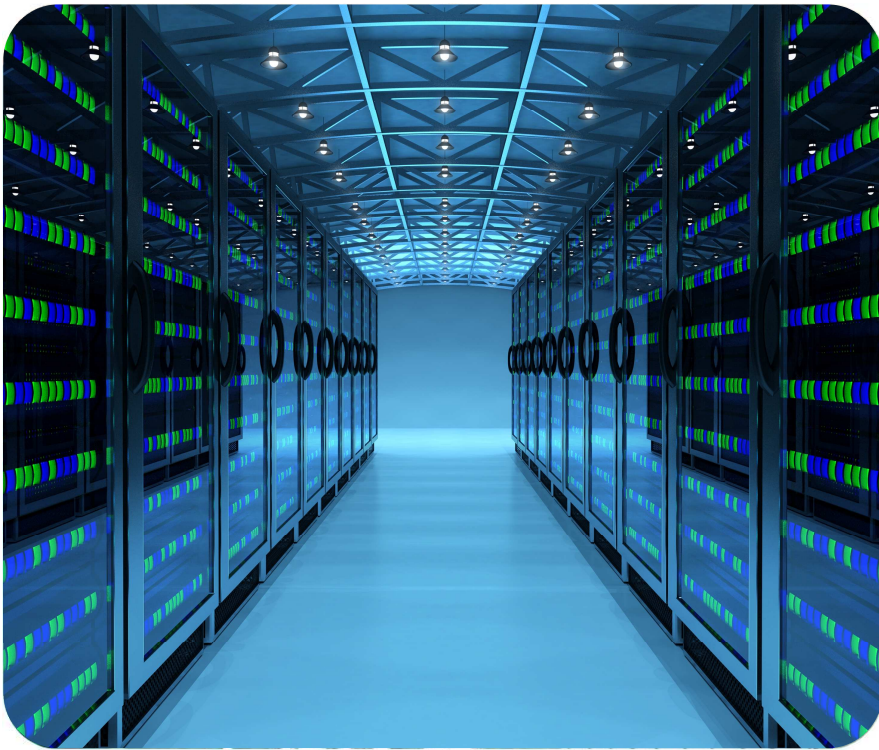
Data Privacy and Security



- Data from
 - Trainees: identity, demographic, performance, professional progression
 - Trainers: question banks and marking schemes
 - Patients: personal medical information



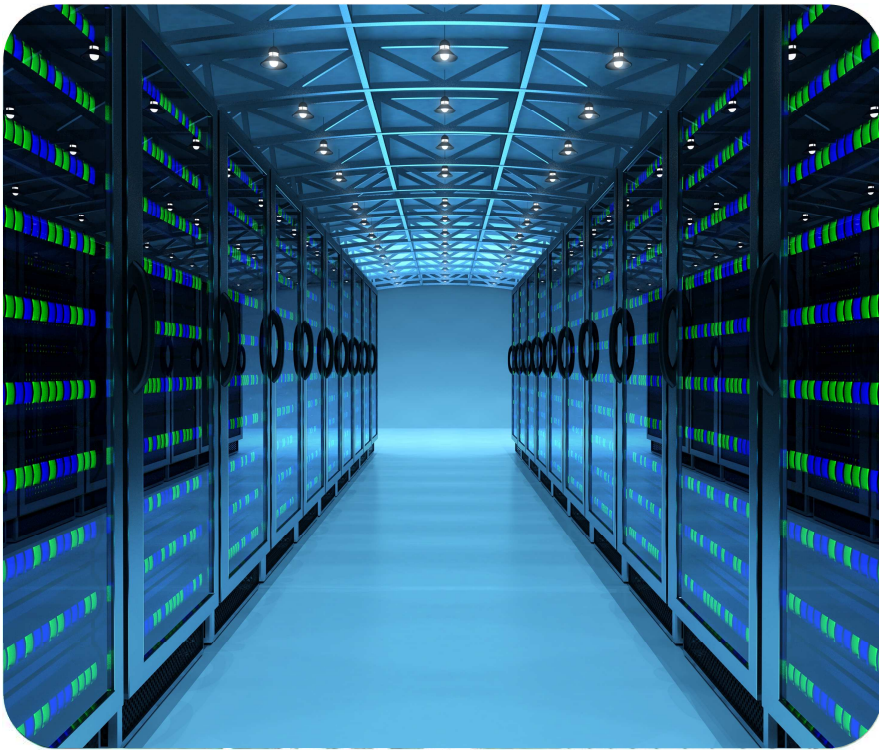
Overreliance on Technology



- Less creativity
- Reduced critical appraisals
- Difficult verification



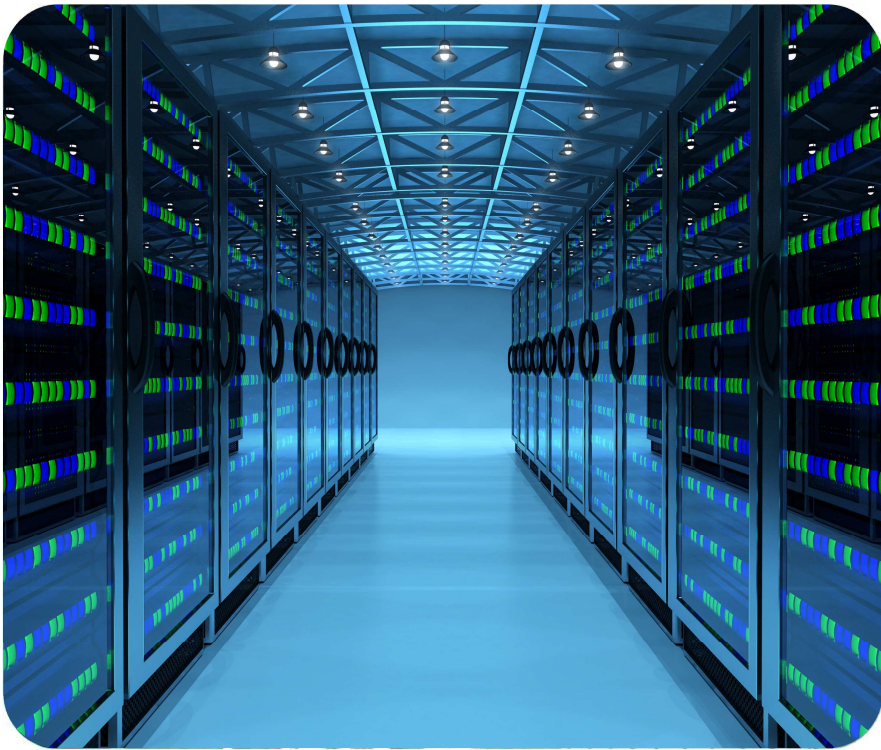
Professional and Ethical Development



- Erosion of clinical reasoning
- Reduced moral agency
- Defective development



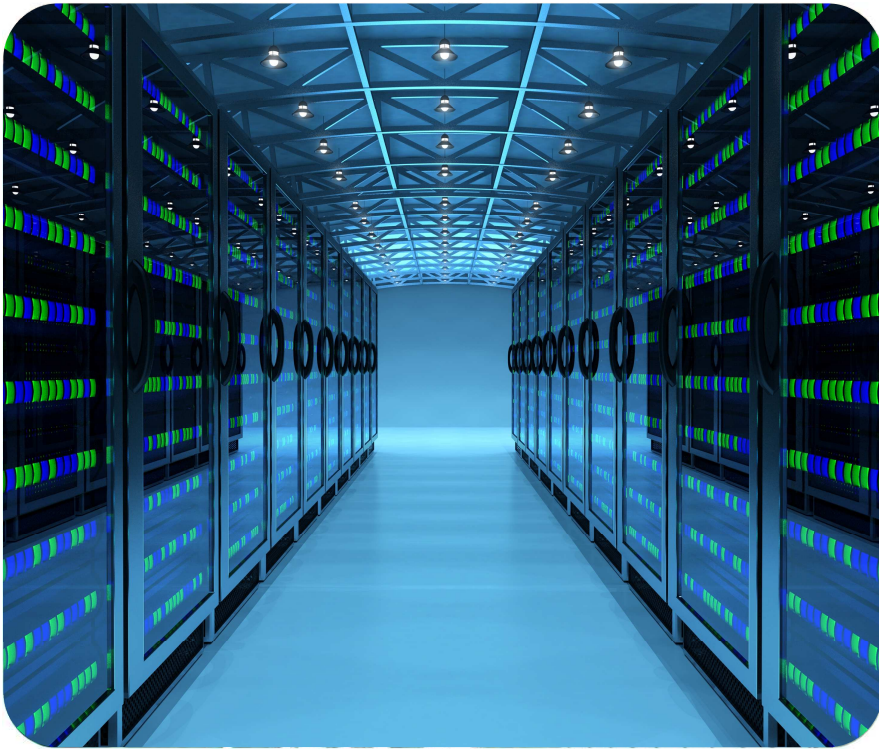
Academic Integrity



- AI-assisted cheating
 - Integrity, fairness
 - Defeating purpose of education
 - Plagiarism
 - morale-damaging, demotivating
- Normalize AI-assistance?



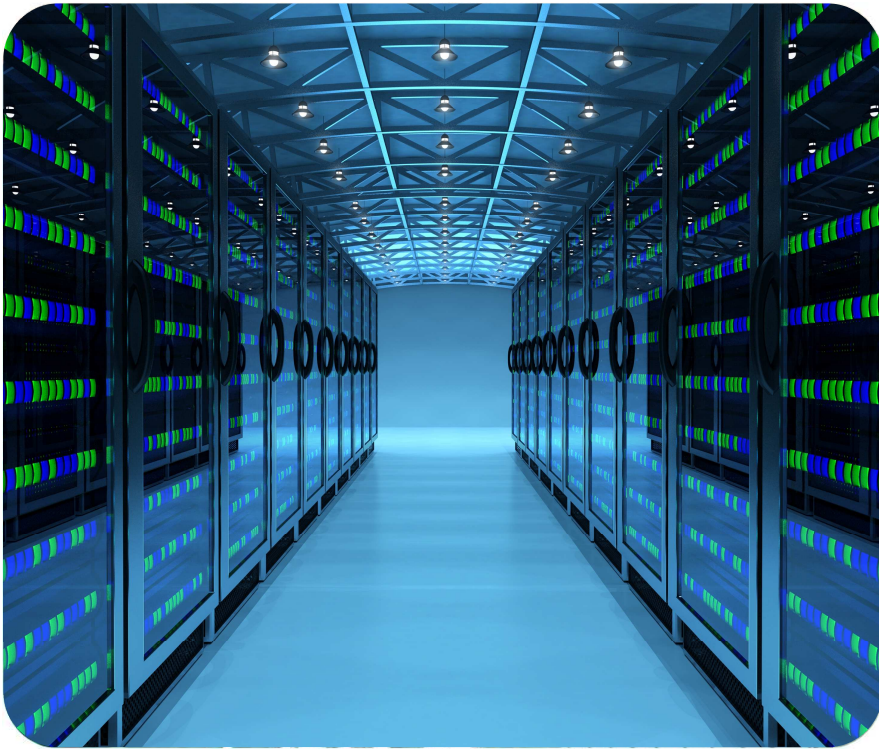
Research Ethics



- Fellowship dissertations
 - Data ownership
 - AI-generated literature review and discussion



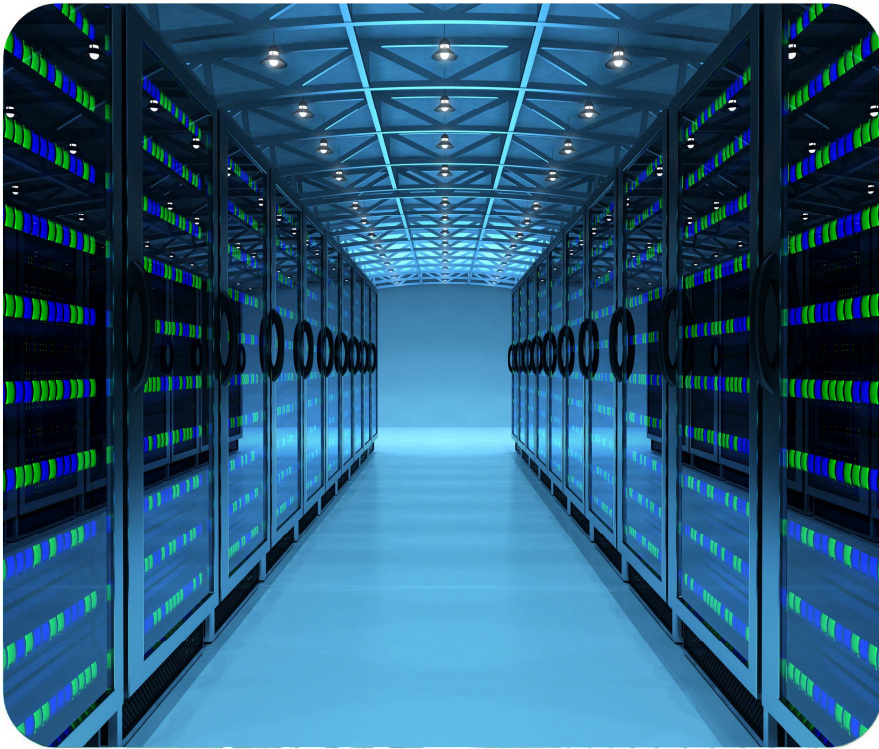
Access Equity



- Training institutions/different strokes
- Trainees' socioeconomic status
- Connectivity factors, institutions, chapters
- Digital literacy levels



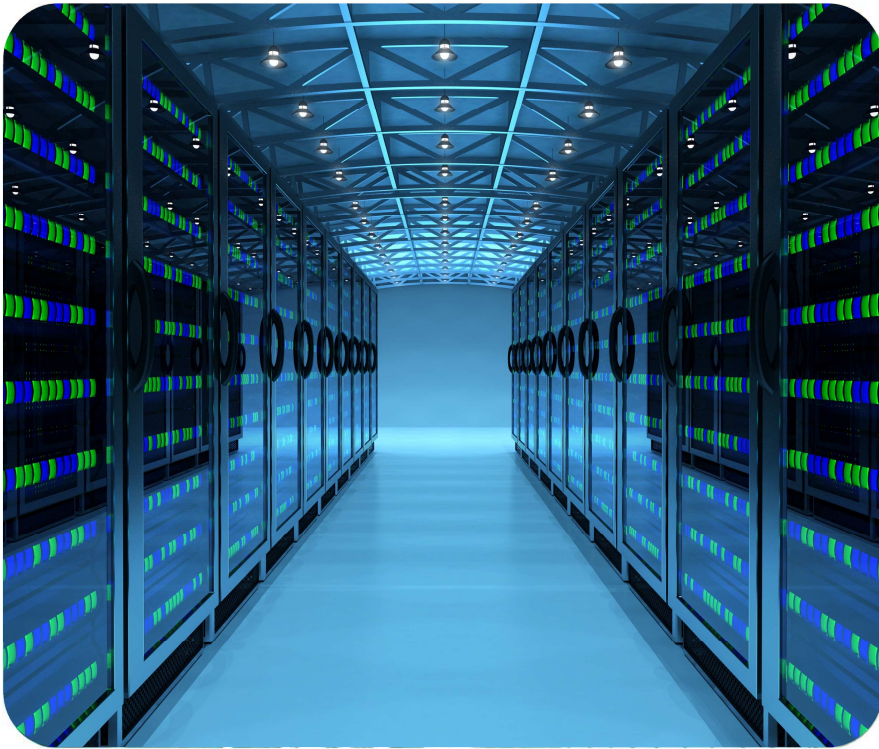
Ethics of Simulation



- Beneficial
- May be harmful
 - Psychological trauma
 - Desensitization
- Access inequity



Professional Identity Formation



- Knowledge
- Ethics
- Empathy
- judgment



Strategies for Responsible AI Deployment

Establishing Robust Ethical Guidelines and Governance

Clear ethical standards

Ethical standards provide a foundation for responsible AI use in medical education and practice, ensuring fairness and respect

Governance structures

Robust governance frameworks oversee AI implementation, guaranteeing accountability and compliance with ethical practices

Transparency and accountability

Transparency in AI processes and accountability mechanisms protect all stakeholders and build trust in medical AI applications



Training Faculty and Students in Ethical AI Practices



Ethical AI Education

Teaching ethical AI principles ensures responsible AI use in medical education and practice.

Curriculum Integration

Incorporating ethical AI topics into curricula prepares learners to evaluate AI tools critically.

Responsible AI Implementation

Training supports responsible development and application of AI technologies in healthcare.



Fostering Collaboration Between Stakeholders for Responsible Innovation



Stakeholder Collaboration

Collaboration among diverse stakeholders fosters shared understanding and inclusive innovation in AI technology.

Ethical Alignment

Aligning AI innovation with ethical and cultural values ensures responsible technology development.

Regional Focus

West African context highlights the importance of culturally sensitive AI innovation and policymaking.



Conclusion

AI Opportunities in Education

AI offers transformative potential to improve postgraduate medical education in West Africa through innovative learning methods.

Ethical Considerations

Navigating ethical challenges carefully is essential to ensure AI integration respects equity, safety, and accountability.

Responsible Implementation

Implementing AI responsibly can enhance learning outcomes while protecting core values in medical education.

Humans + machines



Acknowledgement

Copilot was used to design the slides

ChatGPT 5.0 contributed some information and guidance

Google Scholar used to identify some literature using keywords like
“AI and ethics”

Thank you!

