



Sedibelo Platinum Mines – Pilanesberg Platinum Mine

AI IN OCCUPATIONAL HEALTH: A CASE OF HCP

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MINERALS COUNCIL
SOUTH AFRICA

WHAT IS AI?

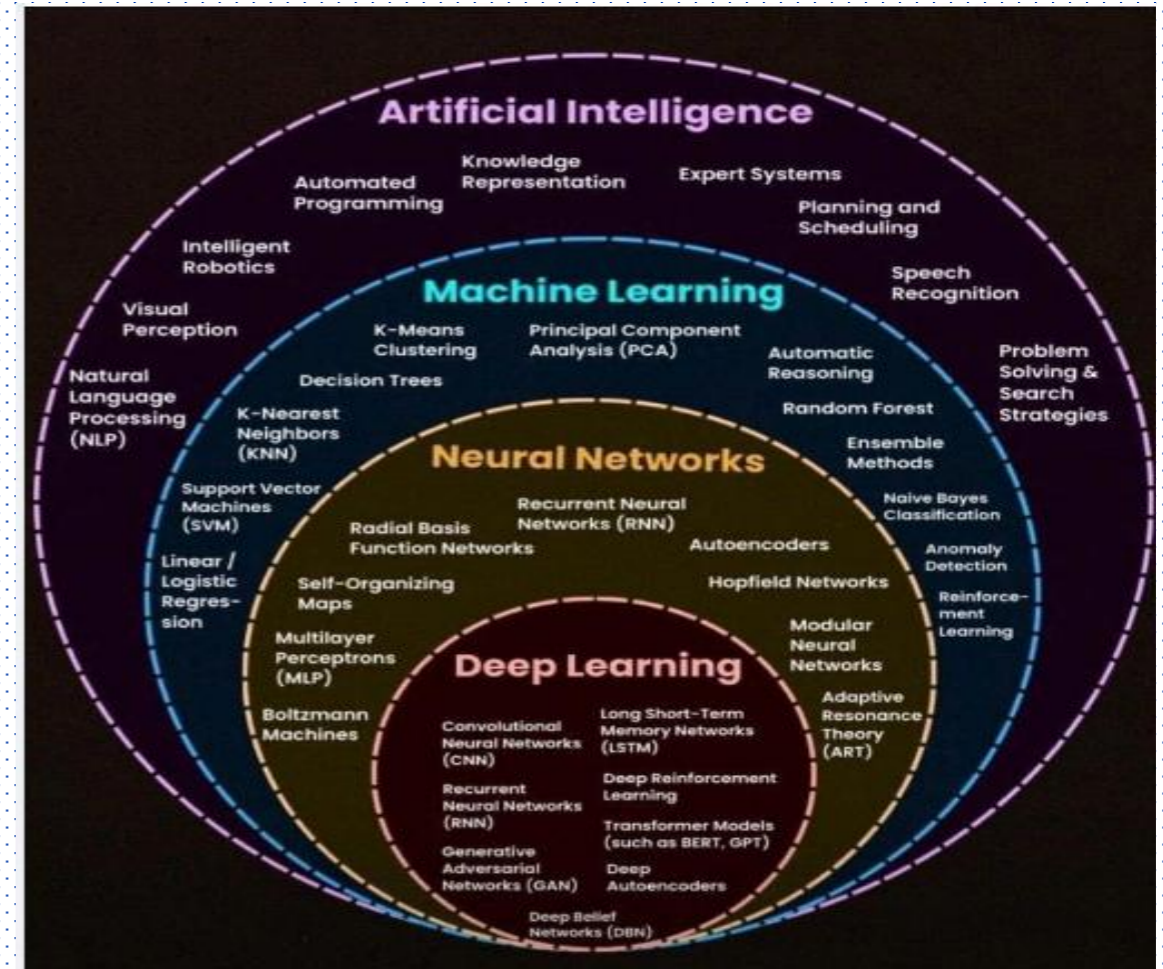
It is defined as a branch of science and engineering focused on understanding intelligent behaviour through computational methods and developing systems or machines that can replicate or demonstrate such behaviour (Saxena et al, 2024) .



SUBSETS OF AI

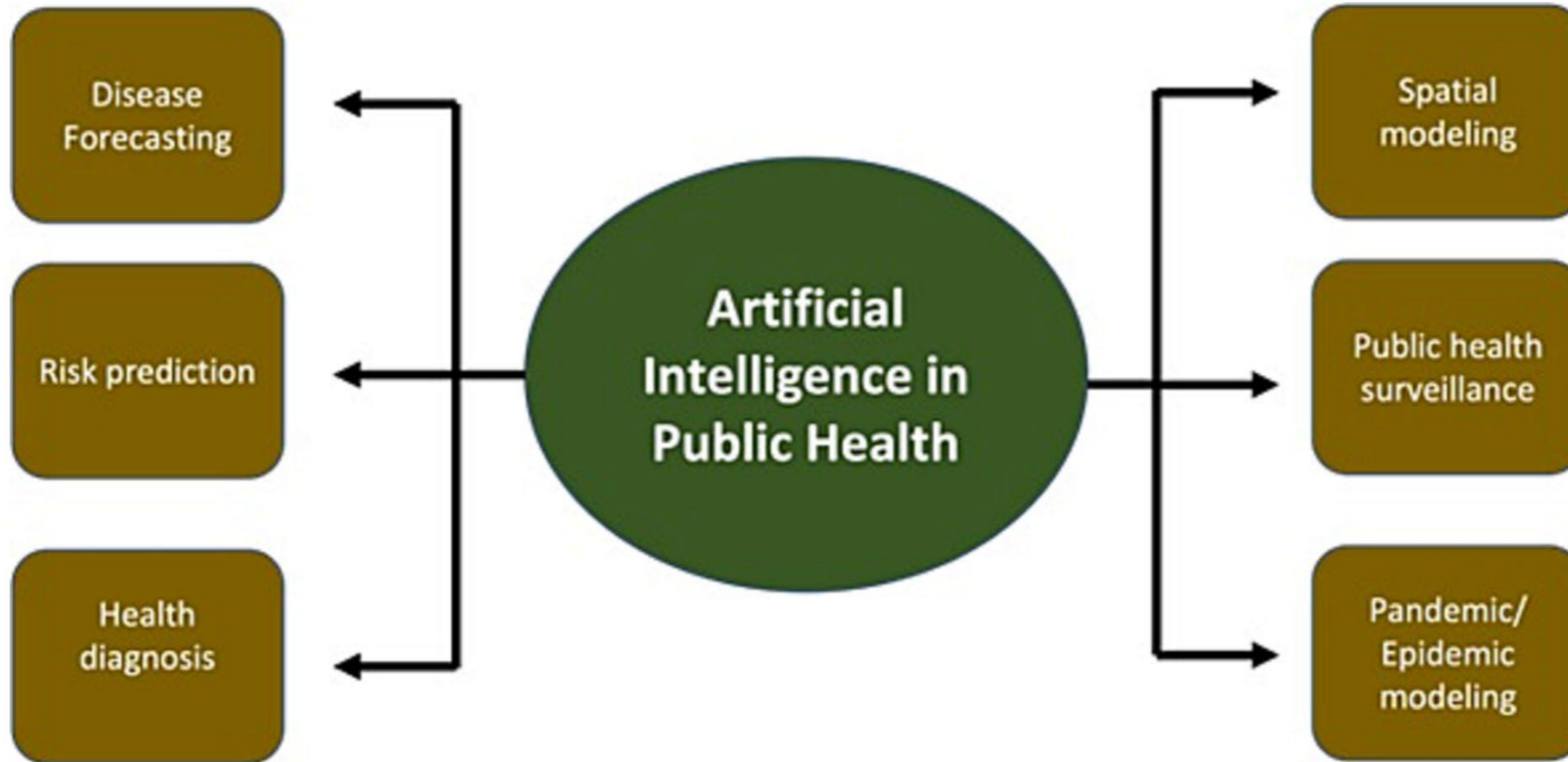
Machine Learning is a branch of artificial intelligence that centers on creating algorithms capable of recognizing patterns in data without being explicitly programmed for each task.

Deep learning is a subset of machine learning technique that layers algorithms and computing units-or neurons-into artificial neural networks that mimic the human brain.



USE OF AI IN PUBLIC HEALTH

AI is more extensively utilized in developed countries than in developing ones, with healthcare being one of its primary application areas. Its use in healthcare includes:



KEY STAKEHOLDERS TO ENSURE INTEGRATION

Stakeholder	Roles and Responsibility
Leadership	Provide support and resources required for the successful integration.
IM/Data Scientist/IT	Responsible for the development of data pipelines, building, and deploying AI models.
Occupational Hygienist	Ensures that the AI systems are designed and implemented in a way that protects the health and safety of workers .
Occupational Medical Practitioners	Provide medical expertise and ensure that the AI systems align with medical standards and practices.
Engineers	Work on the technical aspects of integrating AI into the HCP, ensuring that the systems are robust and efficient.
Finance and supply chain	Manage the financial aspects and ensure that the necessary resources and supplies are available for the AI implementation.
Employees	Act as change agents, helping to facilitate the adoption of AI systems within the organization.



BENEFITS OF INTEGRATING AI INTO HCP

Benefit	Explanation
Disease forecasting	By forecasting NIHL, employers can allocate resources more efficiently, ensuring that they are available where they are needed most
Predictive Analytics	AI can predict potential health issues before they become critical, enabling early intervention and preventive care
Enhanced Decision-Making	AI systems can analyse vast amounts of data quickly and accurately, providing valuable insights that support better decision-making.
Personalized Care	AI can tailor healthcare solutions to individual patients, improving the quality of care and patient outcomes
Cost Reduction	By optimizing processes and reducing the need for manual intervention, AI can help lower operational costs
Improved Efficiency	AI can automate routine tasks, allowing HCC to focus on more complex and critical activities.

KEY CHALLENGES

Challenge	Explanation
Data Privacy and Security	Ensuring that patient data is protected and used ethically is a significant concern.
Integration with Existing Systems	AI systems need to be compatible with current healthcare infrastructure, which can be complex and outdated.
Cost and Resource Allocation	Implementing AI can be expensive, and securing the necessary resources and funding can be challenging.
Regulatory Compliance	Navigating the regulatory landscape to ensure that AI systems meet all legal and ethical standards is crucial.
Skill and Training	There is a need for skilled professionals who can develop, implement, and maintain AI systems, as well as train healthcare staff to use them effectively.

PREDICTIVE MODELING DEMO TIME





Gold Fields – South Deep

Thank you

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