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A03- Analysis of AI in HealthCare and Agriculture - Class Notes

**HEALTHCARE**

* Hospitals, medical research, elderly care, etc.
* Mundane/Repetitive task = AI can be used

**Medical Solutions –** Nursing outsourcing firm (employees many nurses to send off to hospitals that are short staff or in need of nurses)

* Time sensitive data entry
* Manual data entry

AI can take data and create a specialized treatment plan for a patient. (It is not 100% accurate)

**Predictions –** Computerization with AI

* **Predictive Analytics-** Identify problems before or preemptive care. AI can detect early predictions on healthcare using data.
* **Hospital Administration-** Records are protected by HIPPA guidelines, highly regulated, encrypted data, PHI- Personal Health Information
* **Drug Discovery -** **Instadrug –** AI company that estimates the chances/names of the drug to hit the market.

GPUS train data- Estimate/Analyze clinical research, drug data

Compound interactions in the body

AI systems thrive around data

Remote Variable – Timely interventions

More data = More experience

Medical Data

Prediction Treatment

Specialized Treatment

Drug Discovery

Remote Monitoring

**Problems yet to be solved**

* **Data Privacy =** HIPPA Audits
* **Data Security**
* **Data Integrity**
* **Bias –** Needs to be taught/trained, if you don’t manage bias in AI it can hurt/hinder care.

**Idea: Integration with existing Hospital Systems an application;** An Application that integrates patient(s) data, enters problem, suggest what doctor is available and the who has the closest data available for appointments, shows reviews, MFAH transfers records from one doctor to another if the patient needs a specialist, and can process/ make payments to.

\*Integration maps, Gen AI electronic records

Hospitals immediately embraced AI

Regulating Approvals

Ethical Questions/ Dilemmas

* **Job Displacement-** Automation of routine tasks may lead to job displacement for some healthcare workers, although it may also create new roles requiring advanced technical skills.
* **Over Reliance on Technology –** There’s a risk of overreliance on AI, which might lead to complacency among healthcare professionals and potential neglect of critical thinking and clinical judgment.
* **Misdiagnoses –** While AI can improve diagnostic accuracy, errors can still occur, especially if the AI system is not properly trained or if there is a lack of human oversight(diligence)
* **Digital Divide –** The benefits of AI in healthcare may not be equally distributed, potentially widening the gap between well-resourced(rich) healthcare systems and those with limited resources(poor).
* **Increase Complexity –** Implementing AI systems can add layers of complexity to healthcare operations, requiring significant investments in infrastructure, training, and ongoing maintenance.

**AGRICULTURE**

* **Preventative care**
* **Reactive**
* **Precision Farming**
* **Crop Monitoring =** AI powered drones
* **Disease Detection =** Can use data from drones to predict early detection of pest/disease

AI can be a candidate for making Agriculture easier on farmers but at this time it would be only for those who could afford the expensive technology but hopefully we can make it more affordable to those who are not as well off. AI can aid farmers to promote responsible farming.

\*\* Banana peel + water = Potassium for plants (tell husband) Used coffee grounds/powder can also be used for plants. Whatever veggies, rice, lentils, beans being washed use that water for plants\*\*

* **Automatic Weed/ Pest Control -** Satellites, Able to build robots with AI, Mundane/Repetitive task = reduce labor costs
* **Yield Predictions –** Help to store and utilize crops
  + Supply Chain Optimization- Stores able to use AI to predict the amount of yield to be set to stores to avoid wasting the yield.

**Problems not yet solved**

* Data Security, Privacy, Integrity, and Diligence
* Potential for altering genealogy of crops by injecting a compound into the crops to create tainted ones.
* Integration of traditional practices
* Initial Costs- make it more available for all not just for rich farmers.
* Managing **BIAS** in AI models- Dangerous inaccurate farming predictions/ solutions.
* Environmental Impact or implications

What do Healthcare and Agriculture have in common?

1. **Job Displacement**
2. **Overreliance on Technology**
3. **Digital Divide**
4. **Increase Complexity**