Project 178

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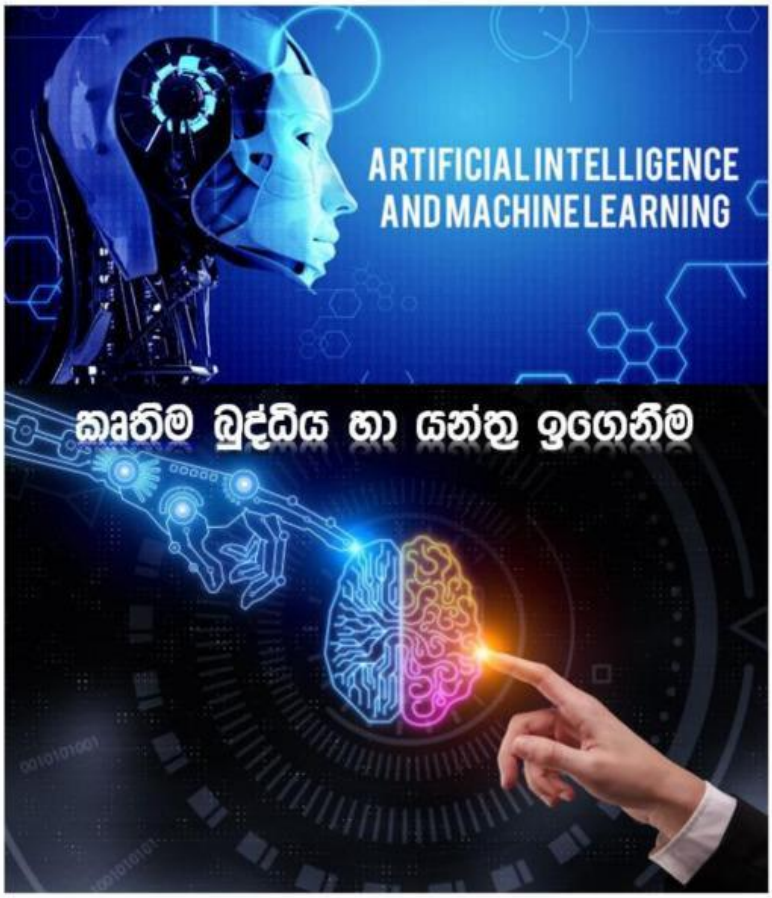
DP EDUCATION

Coding School

AI and Machine Learning



LIVEWORKSHEETS

Cyber security

The use of AI for cyber security is considered a new technology. AI technology is widely used in the architecture of telephone networks and computer systems to detect cyberattacks, perform remediation processes, and ensure system security

1. Machine Learning - ML

- **Objectives** : Identifying and reconstructing random patterns using machine learning. The machine learning AI system continuously analyzes information and repels cyber attacks.
- **Examples**:
  - **Darktrace**: Machine Learning is one of the leading AI technologies used to ensure cyber security.

2. Natural Language Processing - NLP

- **Objectives**: NLP uses AI in detecting cyber attacks and finding relevant information. NLP is used in detecting fraudulent emails, aggressive messages and malicious activities.
- **Examples**:
  - **Vectra AI**: Probabilistic analysis with NLP and Machine Learning techniques for cyber security.

3. Threat Detection Systems

- **Objectives**: Using AI to identify vulnerabilities within a cyber security system. AI detects disasters and takes action to mitigate them.

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- **Examples**:
  - **Cylance**: Cylance as AI-Based Threat Detection Core System to Detect Cyber Attacks and Malicious Situations.

4. Cyber Incident Response Systems

- **Objectives** : Implementing AI-based countermeasures and renewing the security posture after cyber-attacks. AI detects events in real-time and provides countermeasures.
- **Example**:
  - **IBM QRadar**: A system that uses AI methods to detect cyber attacks and take remedial measures.

5. Encryption and Decryption Analysis

- **Objectives**: AI-based analysis of encryption information, and security against unauthorized access.
- **Example**:
  - **Fortinet AI**: Analyzes encryption and connection security using AI.

6. Anomaly Detection and Monitoring

- **Objectives**: AI can monitor and identify alternative actions in systems. It uses AI to detect abnormal activity and help protect the system.
- **Examples**:
  - **Splunk**: AI and Machine Learning is a tool used to monitor high-end computer systems and detect abnormal conditions.

7. Targeted Attack Detection

- **Objectives**: Perform detailed analysis using AI methods to detect targeted attacks on the system. From this, AI is used to reverse the connection as well as identify relevant information.
- **Examples**:
  - **CrowdStrike**: AI-enabled data analytics used to detect targeted cyber-attacks.

8. Secured Transactions and Data Governance

- **Objectives:** Using AI to protect the relationship and implement data governance for financial security. AI protects transactions and controls fraud.

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- Examples:
    - **Symantec AI**: Ensures secure transaction systems and data security using AI technology.

AI technology works based on leading conditions for cyber security, it can detect cyber attacks and contribute greatly to risk control.

Artificial intelligence against Covid-19

AI can help manage medical systems and governments by identifying patterns of disease outbreaks and making quick predictions. Analyzes patient conditions and hospital responses, supports discovery of clinical trials and expanded treatment applications. AI-driven health signal queries and sector management can also physically help control the spread of Covid-19 and improve medical responses.

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1. COVID-19 Predictive Modeling

- **Objectives**: Using AI to study patterns of the spread of COVID-19, and capture the epidemiology of the epidemic. AI can analyze and predict data about patients, disease prevalence, and responses.
- **Exanples** :
  - **BlueDot**: Using AI-enabled data analysis, BlueDot has the ability to predict epidemics like COVID-19 before they spread.
  - **Metabiota**: Metabiota has the potential to use AI to predict disease outbreaks and other responses.

2. Patient Monitoring and Treatment Optimization

- **Objective** : An AI-enabled approach is being used to optimize the health monitoring and treatment processes of COVID-19 patients. AI has the potential to improve and analyze medical care.
- **Examples**:
  - **CloudMedx**: Using AI to manage the health conditions of COVID-19 patients, facilitate hospital operations, and improve responses.
  - **Qure.ai**: AI-enabled anaphylaxis analyzes confirm COVID-19 infection and advise on treatment options.

3. Diagnostic Imaging

- **Objective**: Use of AI-Enabled Imaging Analysis Methods to Identify Patients with COVID-19. Used to confirm the pulmonary health status of patients or to detect the depth of infection.
- **Examples**:
  - **Infervision AI**: Visual acuity analysis can identify people infected with COVID-19 and determine infection status.
  - **RadLogics**: RadLogics uses AI-enabled CT Scan and X-ray analysis to diagnose COVID-19 infection.

4. Drug Discovery

- **Objective**: Using AI to discover new drugs in response to COVID-19. AI-enabled methods enable the development of therapeutics and the discovery of new drugs through molecular modeling.
- **Examples**:
  - **BenevolentAI**: BenevolentAI uses AI to discover new drugs for COVID-19-related responses and medical treatments.

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- **Exscientia**: Using AI and Machine Learning to identify key areas that are suitable for treating COVID-19 and the pandemic.

5. Social Media and Data Analytics

- **Objective**: Monitoring social media and other sources to study COVID-19 availability, disease outbreaks, and public response. AI methods are able to report the actual information of the disease and the trend of the population.
- **Examples**:
  - **HealthMap**: Analyze disease reports from social media and information and report on pandemic situations such as COVID-19.
  - **Dataminr**: Analyzing distributed information systems related to COVID-19 using AI and monitoring social media.

6. Multifunctional Applications and Health Management

- **Objective**: Using AI applications to keep alive various administrative processes associated with COVID-19. Here, AI enables hospital management, medical facilitation, and response detection.
- **Examples**:
  - **Sana AI**: Sana AI is used to detect and provide medical facilities and treatment for COVID-19..
  - **Kinsa**: Kinsa AI powers patient information and health system monitoring related to COVID-19.

Smart and Safe Responses to the COVID-19 Pandemic Bringing in AI Technology, Medical Acuity Analysis, and Intravenous Administration Methods to Control the Spread, and Defeat Epidemics.

AI පරිශීලකයින්ගේ **අන්තර්ජාල රටාවන්, අභිරුචි,** සහ **හැසිරීම්** විශ්ලේෂණය කර, ඒ අනුව නිර්දේශ, දැන්වීම්, සහ අන්තර්ගතය අභිරුචිගත කරයි. මෙය **පෞද්ගලික සහායකයන්** (digital assistants) වැනි සේවාවන් තුළ වඩාත් වැදගත් වන අතර, පරිශීලකයාට ගැලපෙන නිවැරදි තොරතුරු සහ නිෂ්පාදන යෝජනා ලබා දීම සපයයි. එමෙන්ම, AI-driven **ස්මාර්ට්** උපාංග භාවිතයෙන් පෞද්ගලික අවශ්‍යතා හඳුනා ගෙන, ක්‍රියාකාරීත්වය වැඩිදියුණු කරයි.

LIVEWORKSHEETS

1. Virtual Assistants

- **Objective**: Using AI agents through words or information to facilitate users' tasks. AI techniques are used to manage various tasks and answer user questions.
- **Examples**:
  - **Siri (Apple)**: iPhone users use Siri to ask simple questions and manage tasks.
  - **Google Assistant**: Google Assistant uses AI technology to manage schedules, answer user questions, and make daily tasks easier.

2. User Behavior Analysis

- **Objective**: AI based study of personal patterns of users and provide advice accordingly. AI can analyze user behavior and provide unique responses or recommendations.
- **Example**:
  - **Amazon Alexa**: AI and Machine Learning detect user patterns and provide tailored information and advice to users.
  - **Microsoft Cortana**: The Cortana AI agent analyzes user activity and calls and provides advice based on user needs.

3. Chatbots

- **Objective**: Using AI-enabled chatbots to provide initial chat support with users. It facilitates markets, coordination services and personal management.
- **Examples**:
  - **Replika**: As an AI-enabled personal chatbot, Replika lets users ask questions and chat as a personal friend..
  - **Mitsuku**: Mitsuku chatbot uses AI to communicate with users on issues.

4. Web-based Recommendations

- **Objective** : AI-enabled internet-based recommendation systems, providing recommendations based on user patterns. It can get recommendation as well as user.
- **Examples**:
  - **Netflix AI**: Netflix recommends TV shows and movies using AI algorithms that work on user patterns.

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- **Spotify AI**: By analyzing user music patterns, Spotify recommends songs and playlists based on AI terms.

5. AI-powered Medical Assistance

- **Objective**: Using AI methods to provide personalized medical assistance. Provides services that help in providing advice and diagnosis according to the user's medical conditions.

- **Examples**:
  - **Ada Health**: Ada AI-powered query system provides the ability to provide medical advice and control personal medical conditions.
  - **Babylon Health**: AI-powered Babylon Health provides medical advice and controls patient responses.

AI- Enabled digital personas provide immense support in controlling users' lifestyles and daily tasks, and this helps in getting accurate information and precautions.

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