Machine Learning and Artificial Intelligence

Group - 4

Automation in different sectors

- ▶ Manufacturing
- ▶ Healthcare
- ▶ Retail

Manufacturing / Energy

▶ Using AI-backed analytics and data to reduce unplanned downtime, enhance efficiency, product quality, and the safety of employees

▶ Predictive Maintenance- AI helps in enhancing asset utilization, and productivity by predicting unplanned machine and equipment breakdown

▶ Production Enhancement- With the help of AI engines, businesses can successfully identify underlying causes of yield losses

▶ Quality Enhancement- AI technologies need specialist skills and the automation that manufacturers have already adopted demand skilled workforce

▶ Gas leak deduction and response (https://www.edf.org/climate/methanemaps)
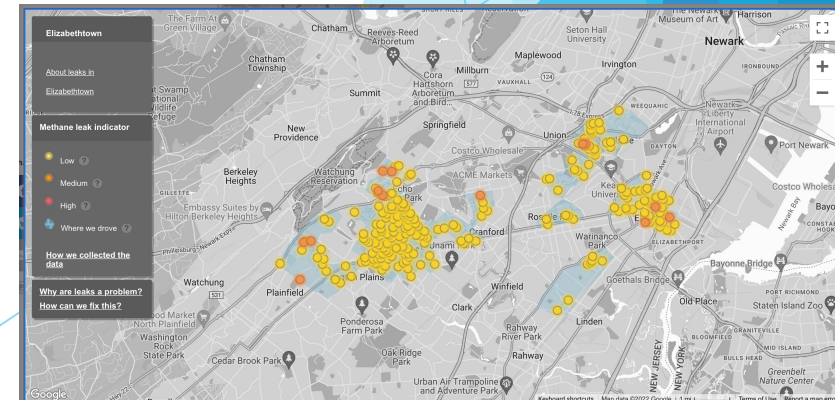
Healthcare

- AI already being used to diagnose and treat diseases

- AI can be extensively used in treating cardiovascular diseases

- It assist medical professionals in diagnosing illnesses faster and, using the data collected from AI algorithms, work on finding better solutions.

- Essential for healthcare providers/radiologists/pathologists to learn and implement these technologies.

Retail

- Use of robots and AI in the retail sector is growing at a rapid pace

- According to IBM, 85% of retail and 79% of consumer products companies aim to use intelligent automation for supply chain planning

- Set to redesign the entire retail industry model and the broader value chain. This transition will result in the emergence of organizations with fewer layers and a better-skilled, and trusted workforce backed by real-time data and analytics

Security Risks and Mitigations

- Hacking, phishing, ransomware, and malware attacks become more frequent and sophisticated, the adoption of hyper-automation techniques highlight how AI and machine learning present possible solutions, and can be applied at every stage of protection – from software to infrastructure, and from devices to cloud computing.

- Data breaches can be solved by AI tools that simplify data security procedures, from discovery to classification to remediation

- Security automation is expected to reduce the cost of a data breach by playing an important role in various phases of a cyberattack, such as in data loss prevention tools (DLP), encryption, and tokenization

Legal, Social, Ethical, and Professional issues faced by information security and risk professionals

Social:

Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing

- Avoid harm
- Be honest and trustworthy
- Respect the work required to produce new ideas, inventions, creative works, and computing artifacts
- Respect privacy
- Honor confidentiality

Professional Issues:

- Maintain high standards of professional competence, conduct, and ethical practice.
- Design and implement systems that are robustly and usably secure

- **Legal:**

To minimize liabilities/reduce risks, the information security practitioner must:

- Understand current legal environment
- Stay current with laws and regulations
- Watch for new issues that emerge

Ref :https://www.acm.org/code-of-ethics

References

► Anon (2018) *The code affirms an obligation of computing professionals to use their skills for the benefit of society.*, *Code of Ethics*. Available at: https://www.acm.org/code-of-ethics (Accessed: October 24, 2022).

► Curryer, E. (2022) Automation and AI cyber security necessary to combat threats, TechInformed. Available at: https://techinformed.com/automation-and-ai-cyber-security-necessary-to-combat-threats/ (Accessed: October 24, 2022).

► Verma, E. (2022) How AI and automation are changing the nature of work, Simplilearn.com. Simplilearn. Available at: https://www.simplilearn.com/how-ai-and-automation-are-changing-the-nature-of-work-article (Accessed: October 24, 2022).

Legal, Social, Ethical, and Professional issues faced by information security and risk professionals Cont..

- Liability
- Restitution
- Due care
- Due diligence
- Jurisdiction
- Long arm jurisdiction