Artificial Intelligence (AI) and Machine Learning

Jessica Sanchez

CS131 Spring 2025 Semester Project

What is Artificial Intelligence

- AI is the ability of machines to mimic or replicate human intelligence and behaviors.

- It encompasses capabilities such as reasoning, learning, problem-solving, perception, and understanding language.

- Examples include virtual assistants, facial recognition systems, and self-driving cars.

What is Machine Learning

- Machine Learning (ML), a branch of AI, allows systems to learn from experience and enhance their performance over time.

- It relies on algorithms to analyze data, extract patterns, and make informed decisions.

- Examples include spam email filters, personalized product recommendations, and fraud detecti... systems.

Types of Machine Learning

- Supervised Learning: Involves training models using labeled datasets where the input-output pairs are known.

- Unsupervised Learning: Discovers hidden patterns or structures in data that has no predefined labels.

- Reinforcement Learning: Learns optimal actions through trial and error by interacting with an environment and receiving feedback.

Applications of AI and ML

- Healthcare: Disease prediction, drug discovery.

- Finance: Credit scoring, algorithmic trading.

- Transportation: Self-driving cars.

- Retail: Personalized recommendations, inventory management.

Ethical Considerations

- Algorithmic bias and fairness concerns

- Issues related to privacy and increased surveillance

- Potential for job loss due to automation

- The need for transparency and accountability in AI systems

Conclusion

- AI and ML are revolutionizing various industries and everyday life.

- It is essential to comprehend both their strengths and limitations.

- Sustainable advancement depends on ethical and responsible development practices.