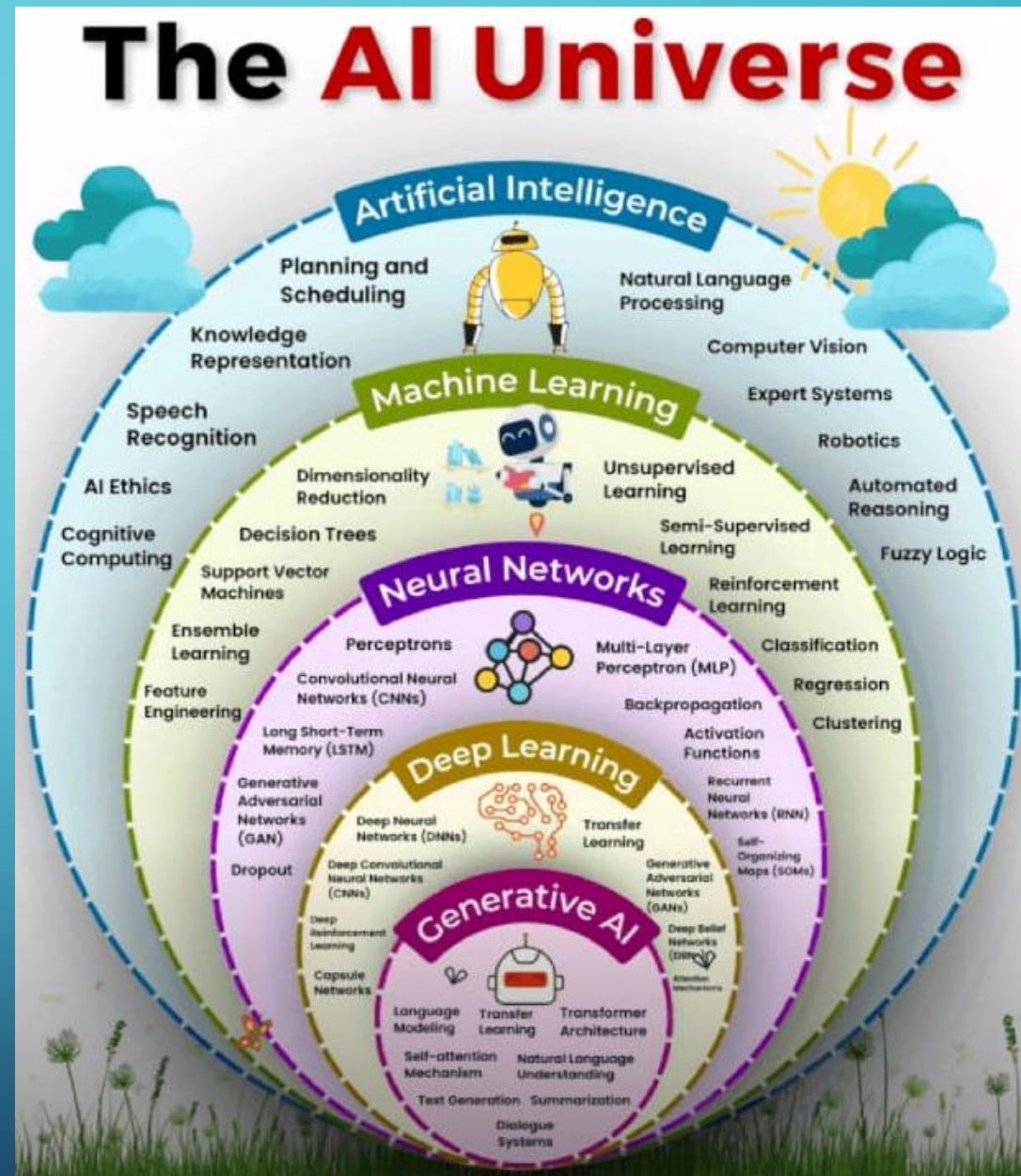# WHAT IS MACHINE LEARNING?

EXPLORING THE IMPACT OF ML ACROSS VARIOUS DOMAINS

WHAT IS MACHINE LEARNING?

WHAT IS MACHINE LEARNING?

- A subset of artificial intelligence that involves training algorithms to learn from and make predictions on data.

- Types: Supervised, Unsupervised, and Reinforcement Learning

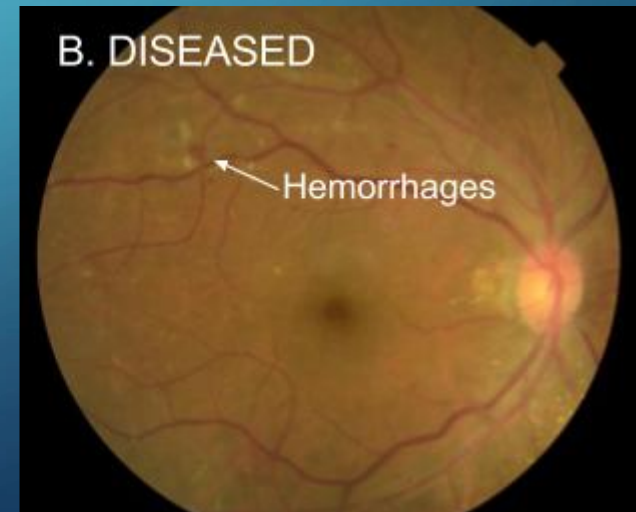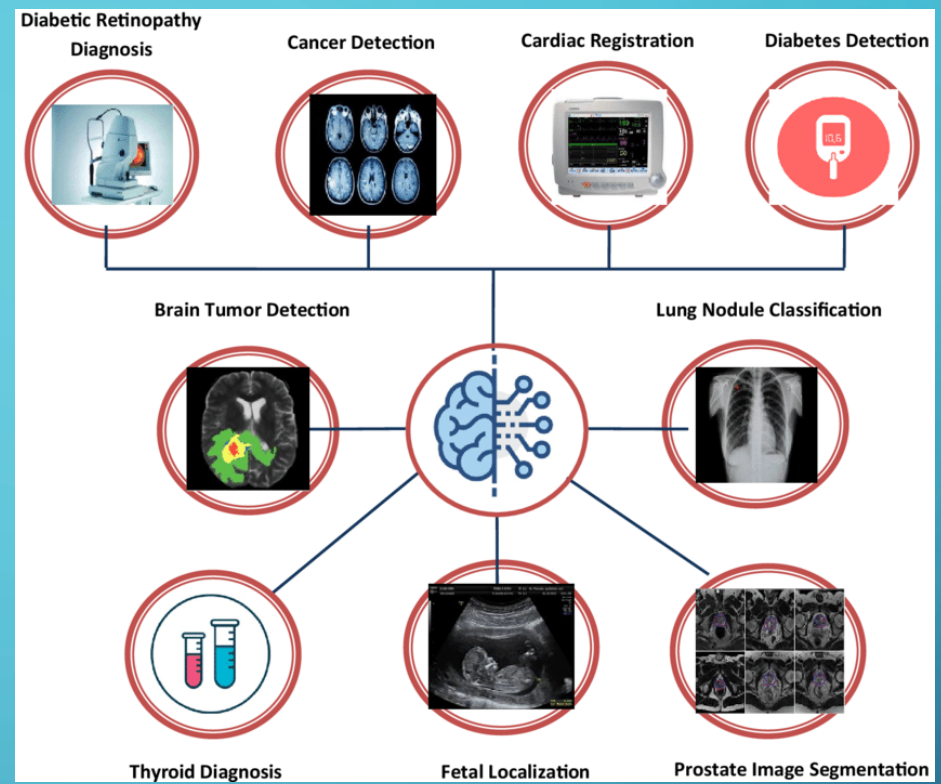- Decision trees, Semi-Supervised, Neural Network

EVER WONDERED HOW?

- Recipe of any dish (Webpage Sorting)

- Family/Friends face recognition (Social Media)

- Recommendation (similar movies/products)

- Voice to Text (Okay Google, Hey Siri)

- Spam email

HEALTHCARE

- Diagnosis and Treatment Recommendations

- Medical Imaging

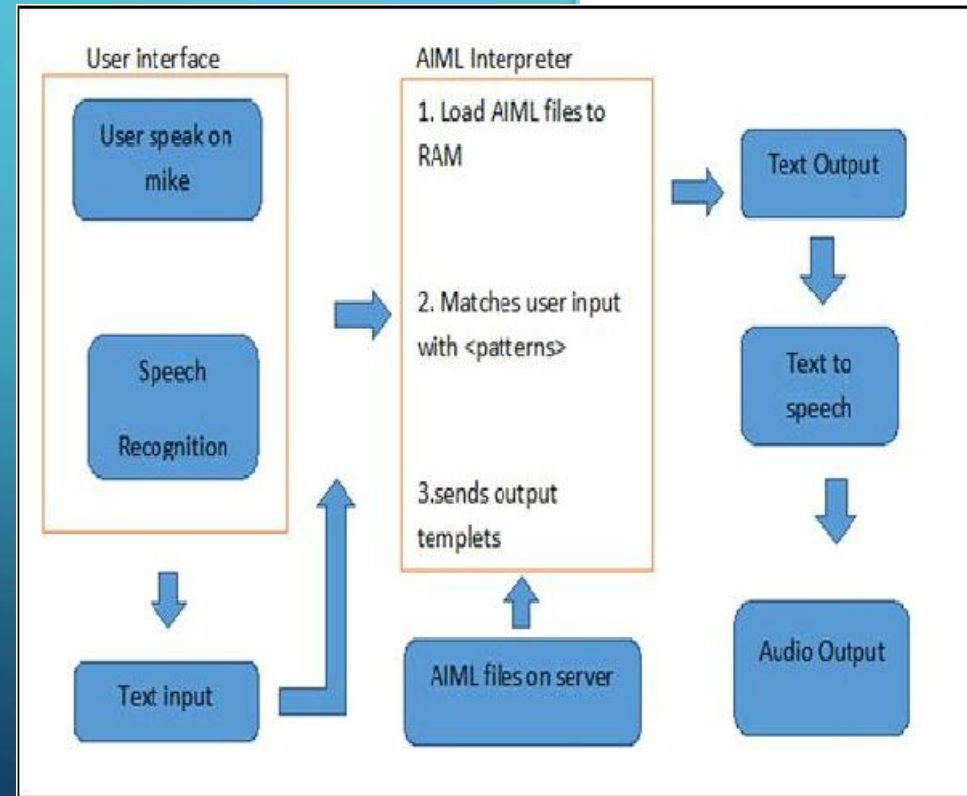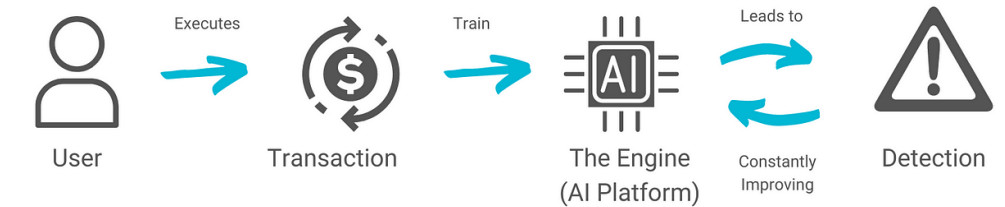- Drug Discovery

Diabetic Retinopathy

FINANCE

- Fraud Detection
- Algorithmic Trading
- Credit Scoring
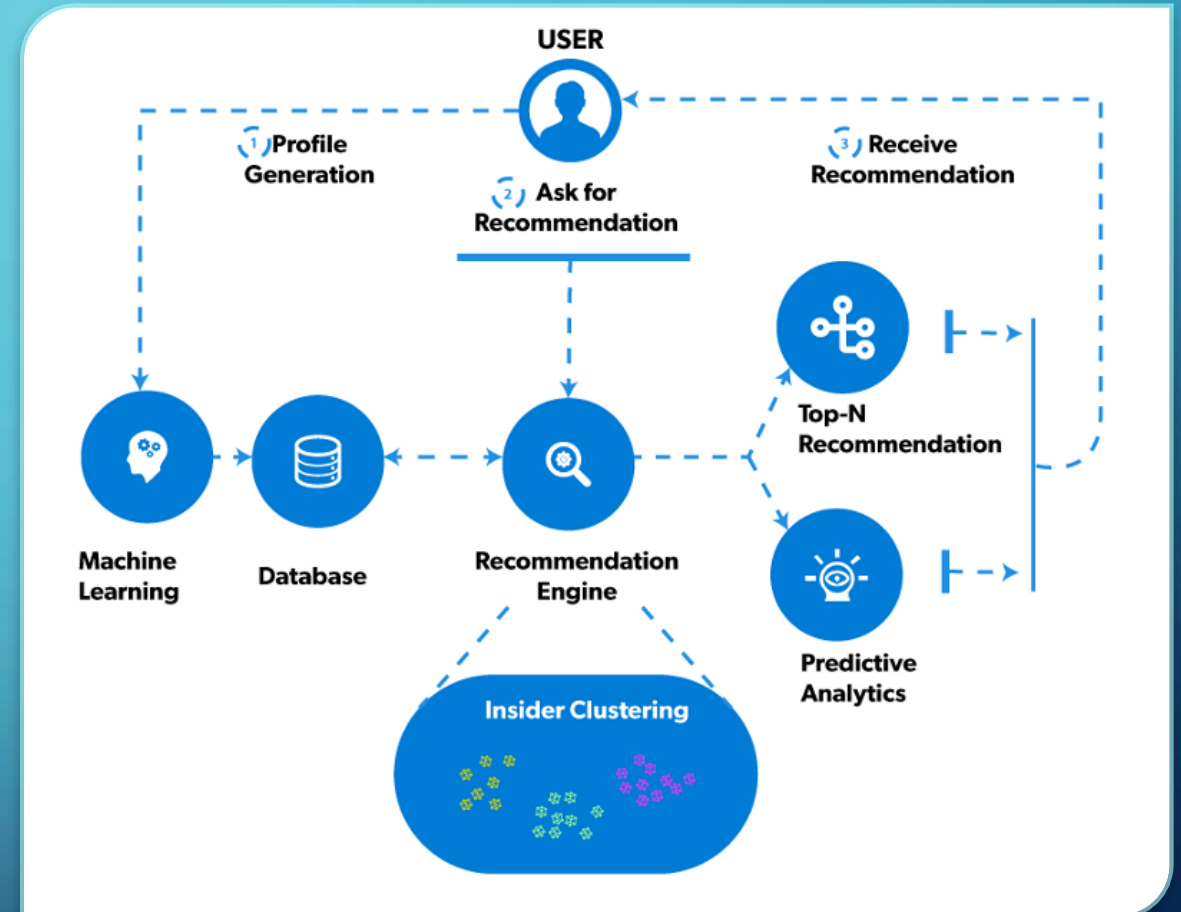- Customer Service and Support

TRADITIONAL RULE-BASED APPROACH

Scammer → Commits → Fraud → Human Intervention → Rules → Leads to → Detection

MACHINE LEARNING APPROACH

User → Executes → Transaction → Train → The Engine (AI Platform) → Leads to / Constantly Improving → Detection

User interface
- User speak on mike
- Speech Recognition

AIML Interpreter
1. Load AIML files to RAM
2. Matches user input with <patterns>
3. sends output templets

- Text Output
- Text to speech
- Audio Output
- Text input
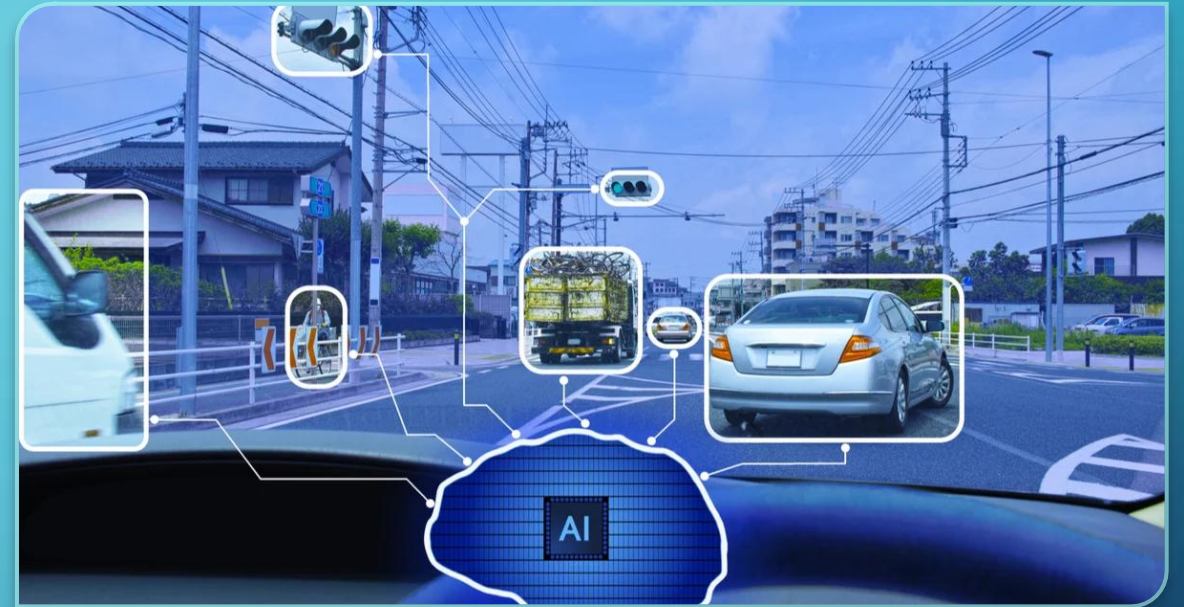- AIML files on server

RETAIL

- Personalized Recommendations
- Inventory Management
- Customer Segmentation

AUTONOMOUS VEHICLES

- Self-Driving Cars
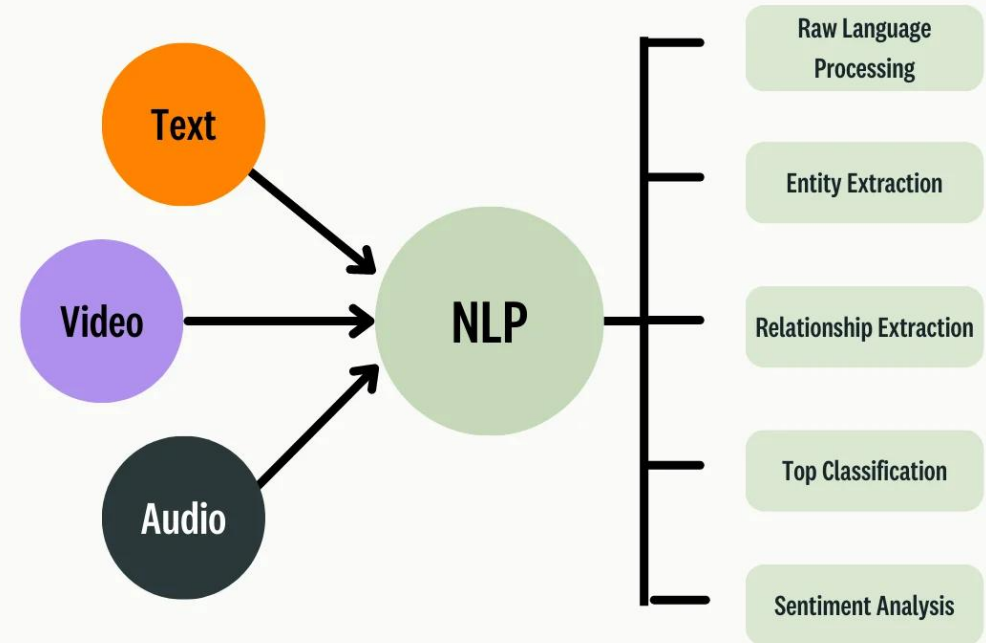
- Driver Assistance Systems

Upadhyaya, V., Tiwari, N. (2024), Monocular Monocular Vision Based Approach for Occlusion Detection and Handling: A Way Forward for Advanced Driver Assistance Systems. International Journal of Intelligent Transportation Systems Research. 22, PP. 205-215. DOI: https://doi.org/10.1007/s13177-024-00389-1
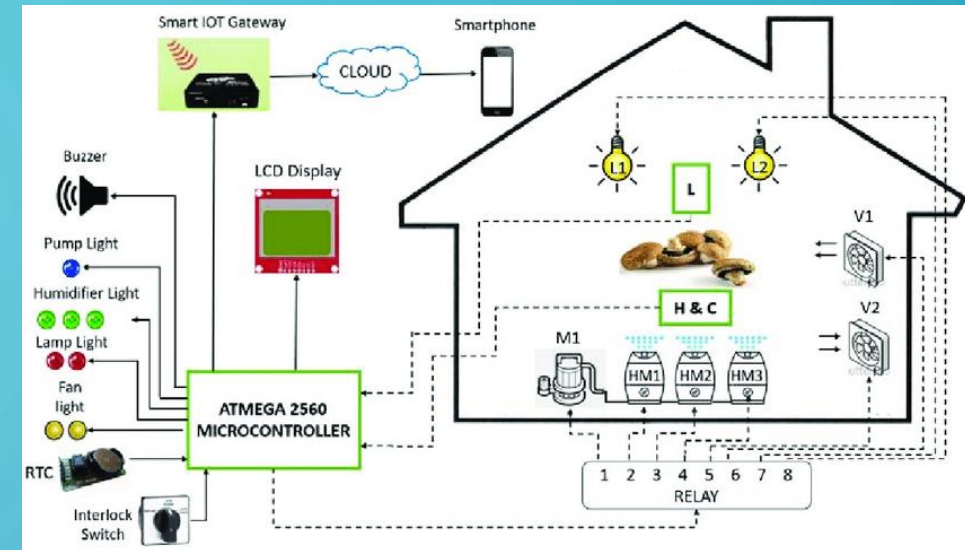
NATURAL LANGUAGE PROCESSING

- Speech Recognition

- Language Translation

- Sentiment Analysis
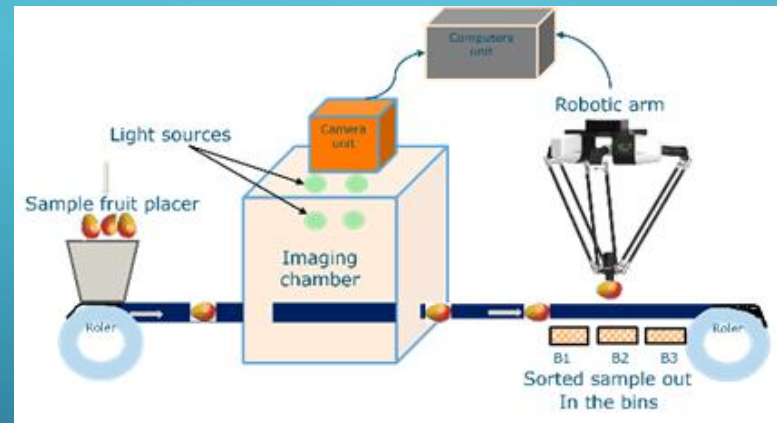
AGRICULTURE

- Precision Farming

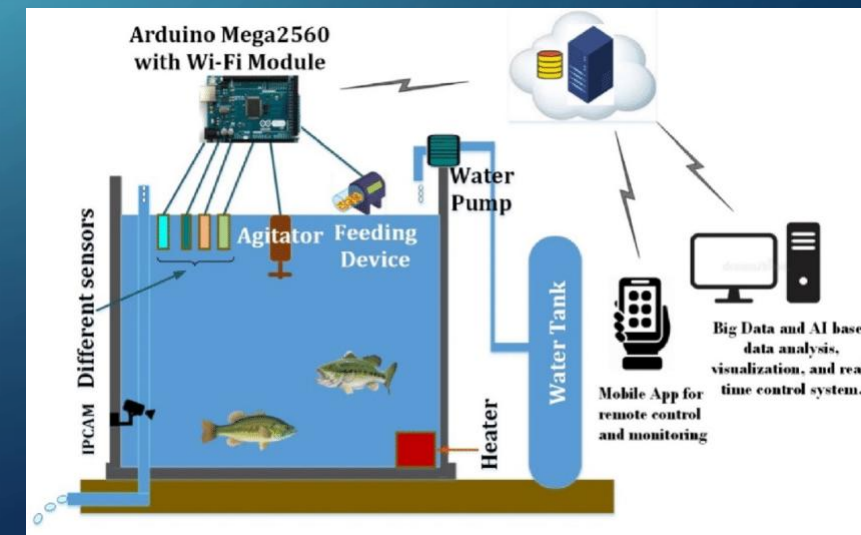- Crop Monitoring
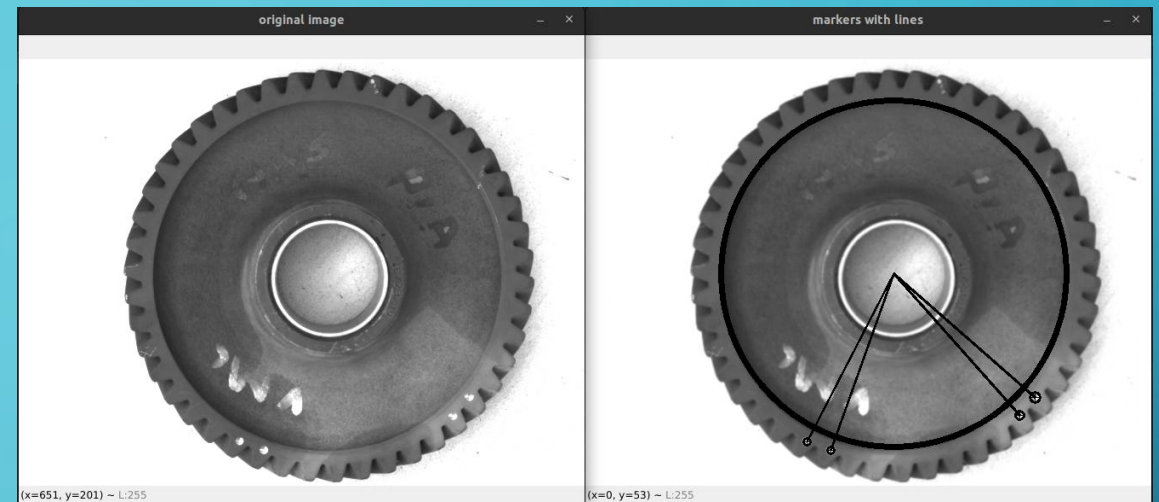
- Soil Health Monitoring

Smart Mushroom House

Smart Fishery System
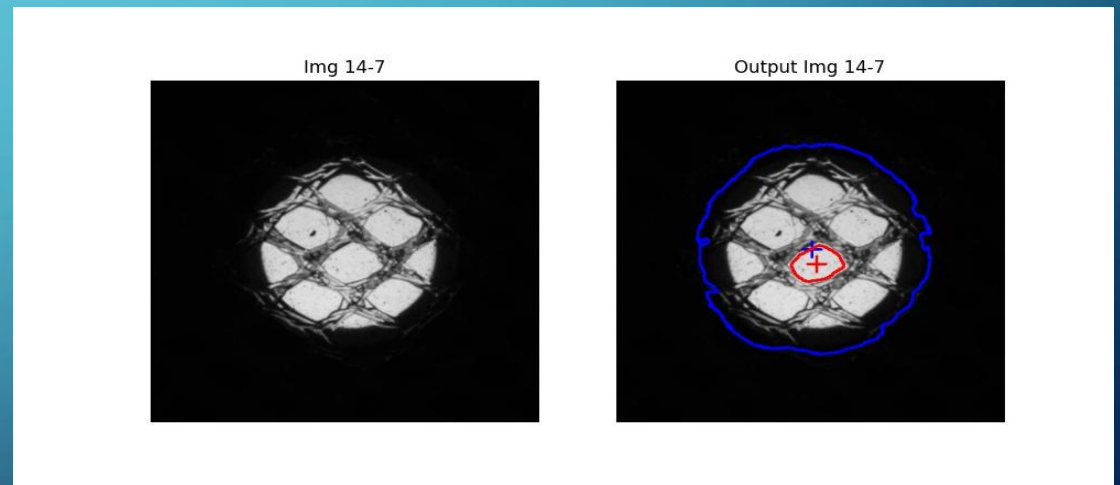

Sorting & Grading System

MANUFACTURING

- Predictive Maintenance

- Quality Control
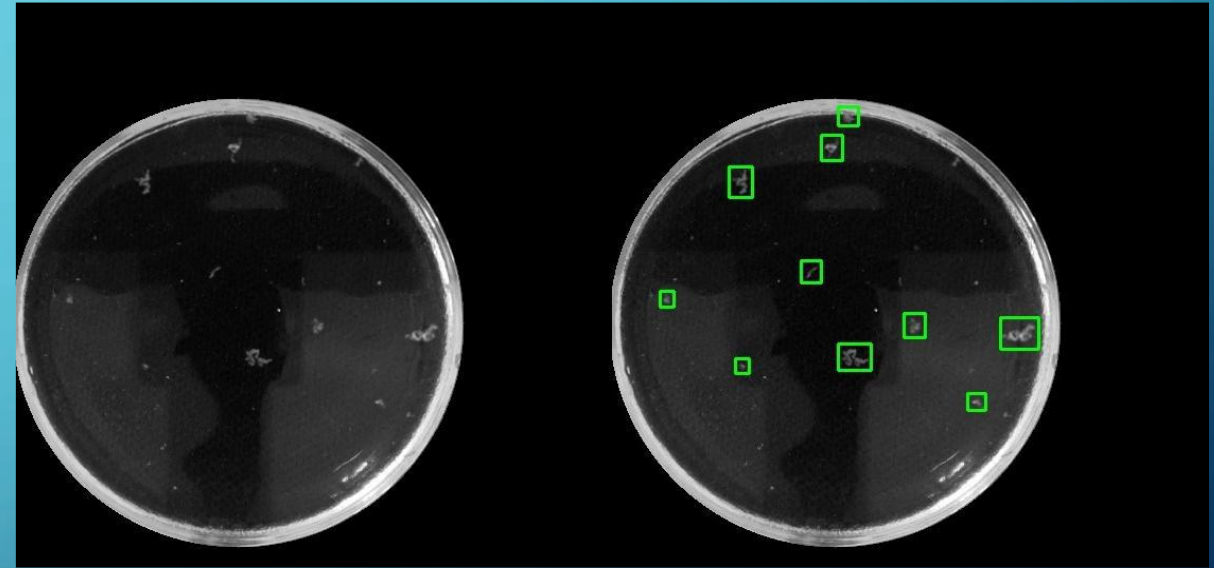
- Supply Chain Optimization

Gear Testing

Medical Mesh

ENVIRONMENT

- Climate Change Mitigation

- Renewable Energy

- Biodiversity Conservation

- Disaster Prediction and Response

- Pollution Management

- Urban Planning

- Ocean and Marine Health
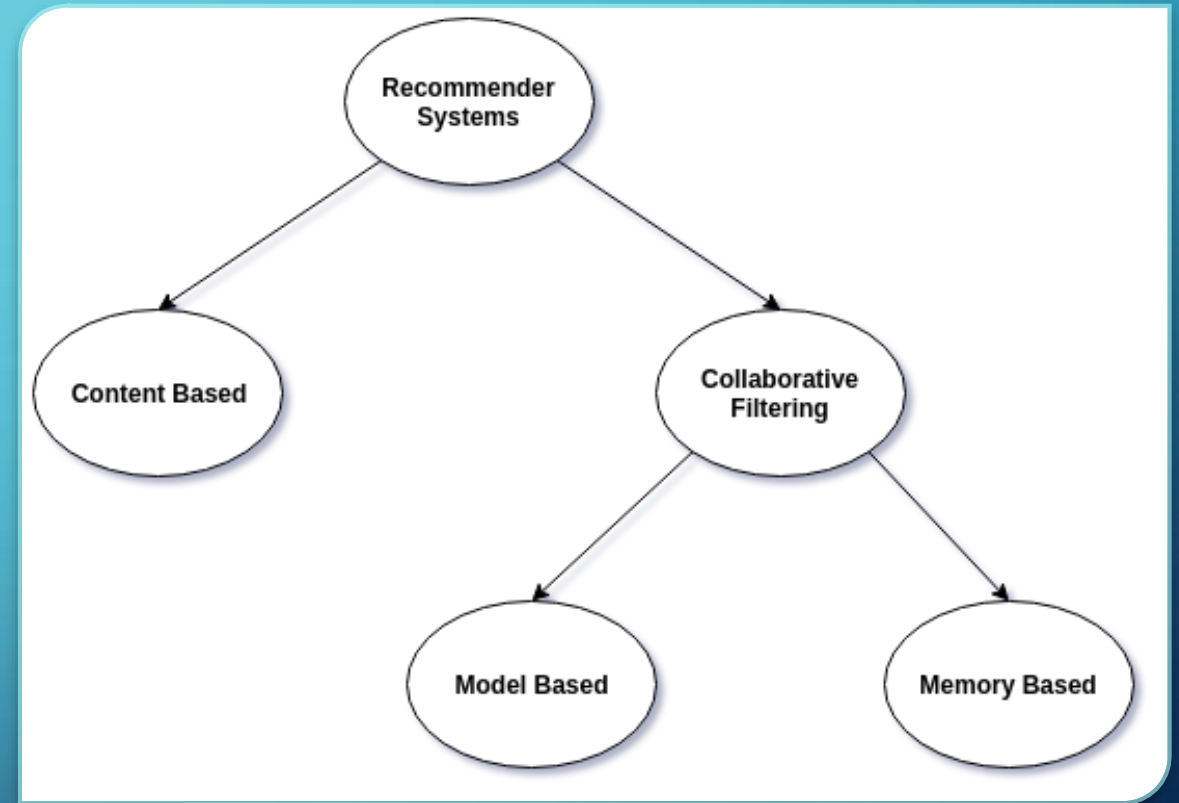

Microplastic detection

CYBER SECURITY

- Threat Detection

- Anomaly Detection

- Spam Filtering

Fraud Detection Using Machine Learning

ENTERTAINMENT

- Content Recommendation

- Game Development

- Audience Analysis

SUMMARY

DIVERSE APPLICATIONS ACROSS VARIOUS SECTORS

THE TRANSFORMATIVE IMPACT OF MACHINE LEARNING ON INDUSTRY AND SOCIETY