

**Five Days FDP**

On

**Artificial Intelligence and Data Science:  
Foundations, Pedagogy, Tools, and Emerging  
Research Trends**

**15<sup>th</sup> - 19<sup>th</sup> December, 2025**

**Organized by**

**Department of Artificial Intelligence, SVNIT Surat**

# **AI in Industry, Research Funding, Faculty Development, and Guiding ML Student Projects**

# Overview

- AI in Industry
- Research Funding Opportunities
- Faculty Development
- Guiding Student ML Projects

# AI in Industry: Introduction

- Transformation across sectors
- Automation
- Data-driven decision making

# AI in Manufacturing

- Predictive maintenance
- Quality inspection
- Supply chain optimization
- Collaborative Robots
- Warehouse management
- Assembly line automation

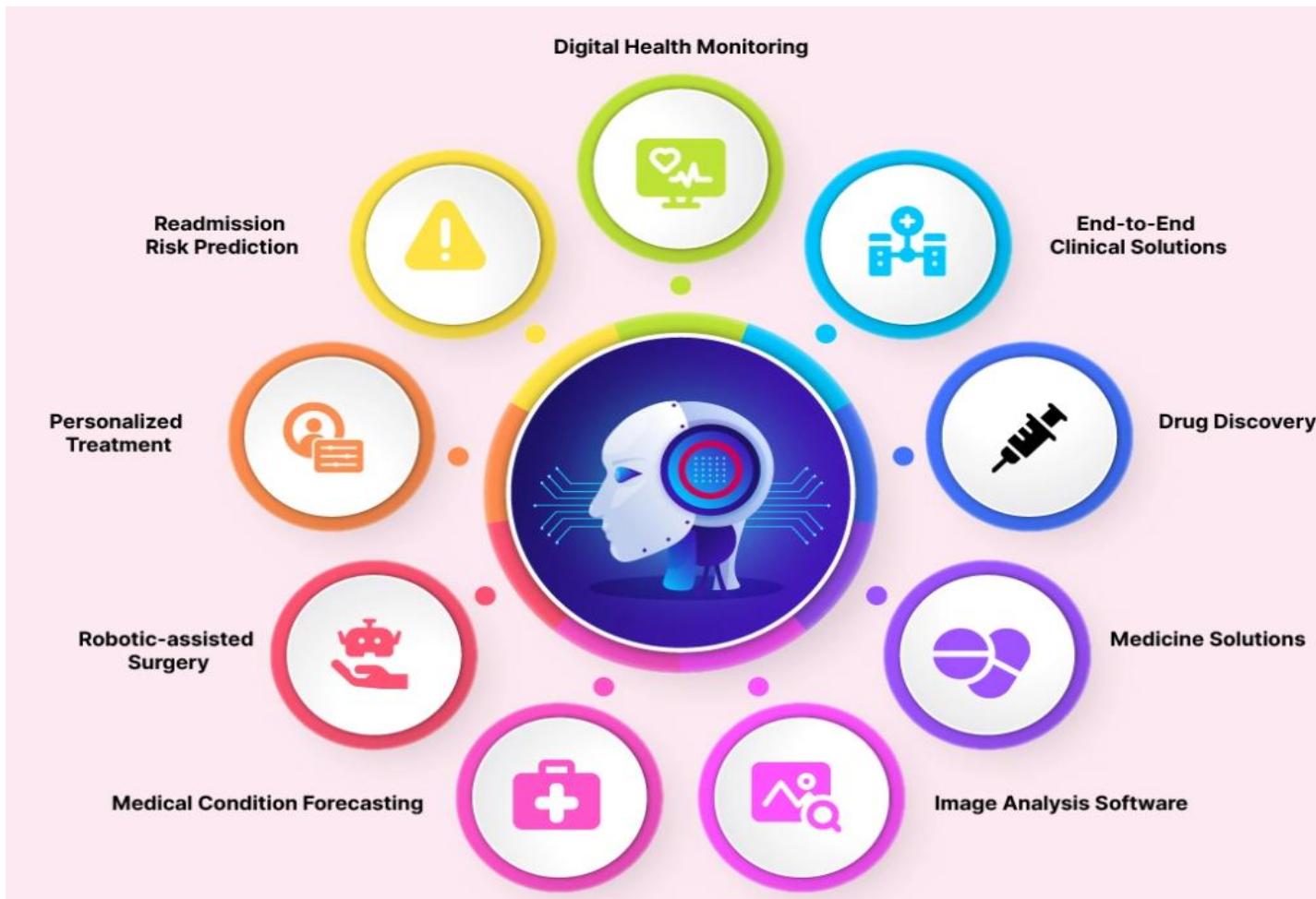
# AI in Manufacturing



# AI in Healthcare

- Diagnostics
- Drug discovery
- Digital health monitoring
- Image analysis software
- Personalized treatment
- Robotic assisted surgery

# AI in Healthcare



# AI in Finance

- Banking
- Fraud detection
- Algorithmic trading
- Risk assessment

# AI in Finance

## Retail Banking

- Customer Service
- Personalized Banking
- Customer Sentiment Analysis
- Fraud Detection

## Commercial Banking

- Credit Risk Analysis
- Trade Finance



## Investment Banking

- Algorithmic Trading
- Portfolio Optimization and Risk Assessment

## Operations

- Process Automation
- Back-Office Operations

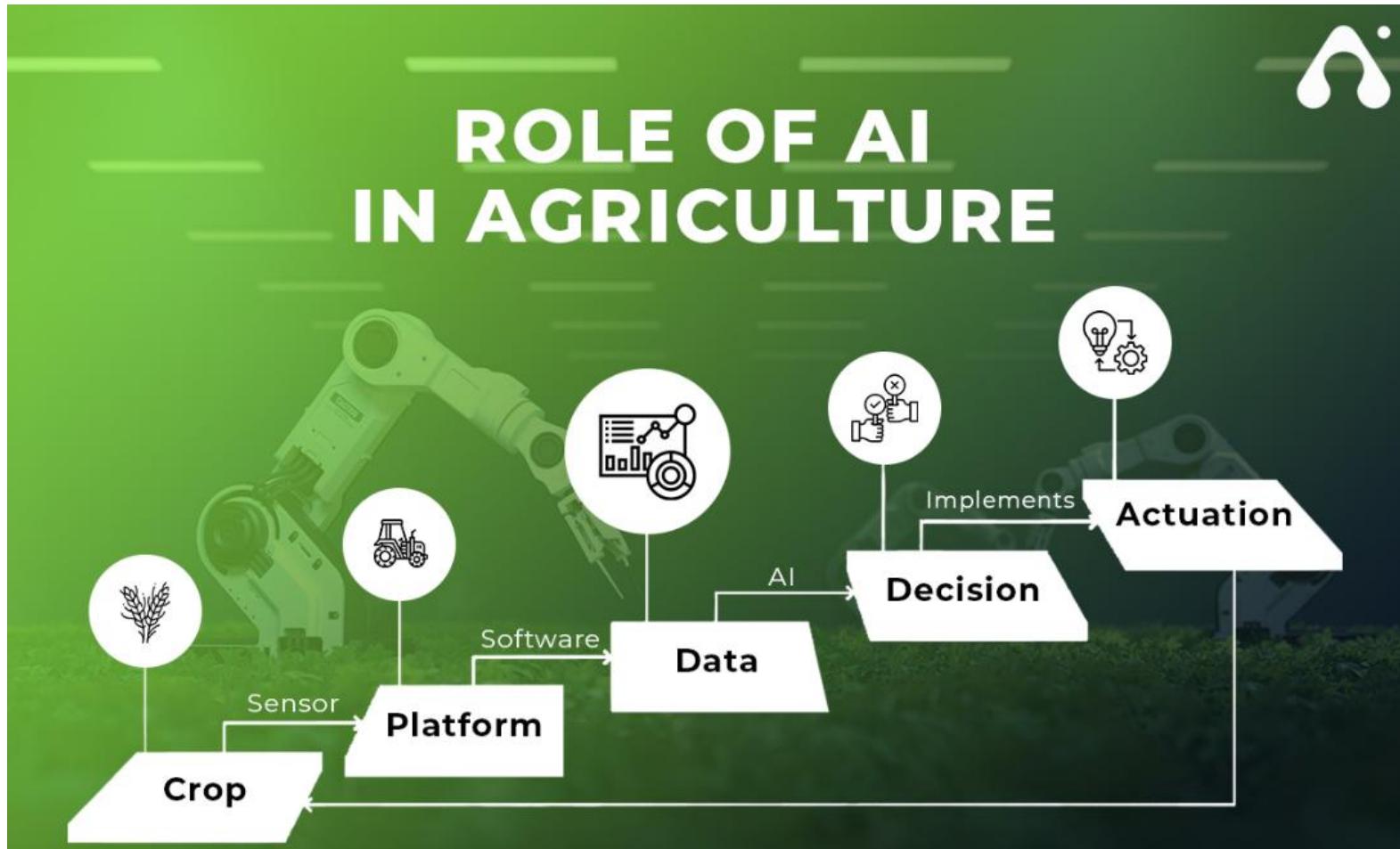
# AI in Retail

- Personalized recommendations
- Demand forecasting
- Inventory management

# AI in Agriculture

- Crop monitoring
- Yield prediction
- Smart irrigation

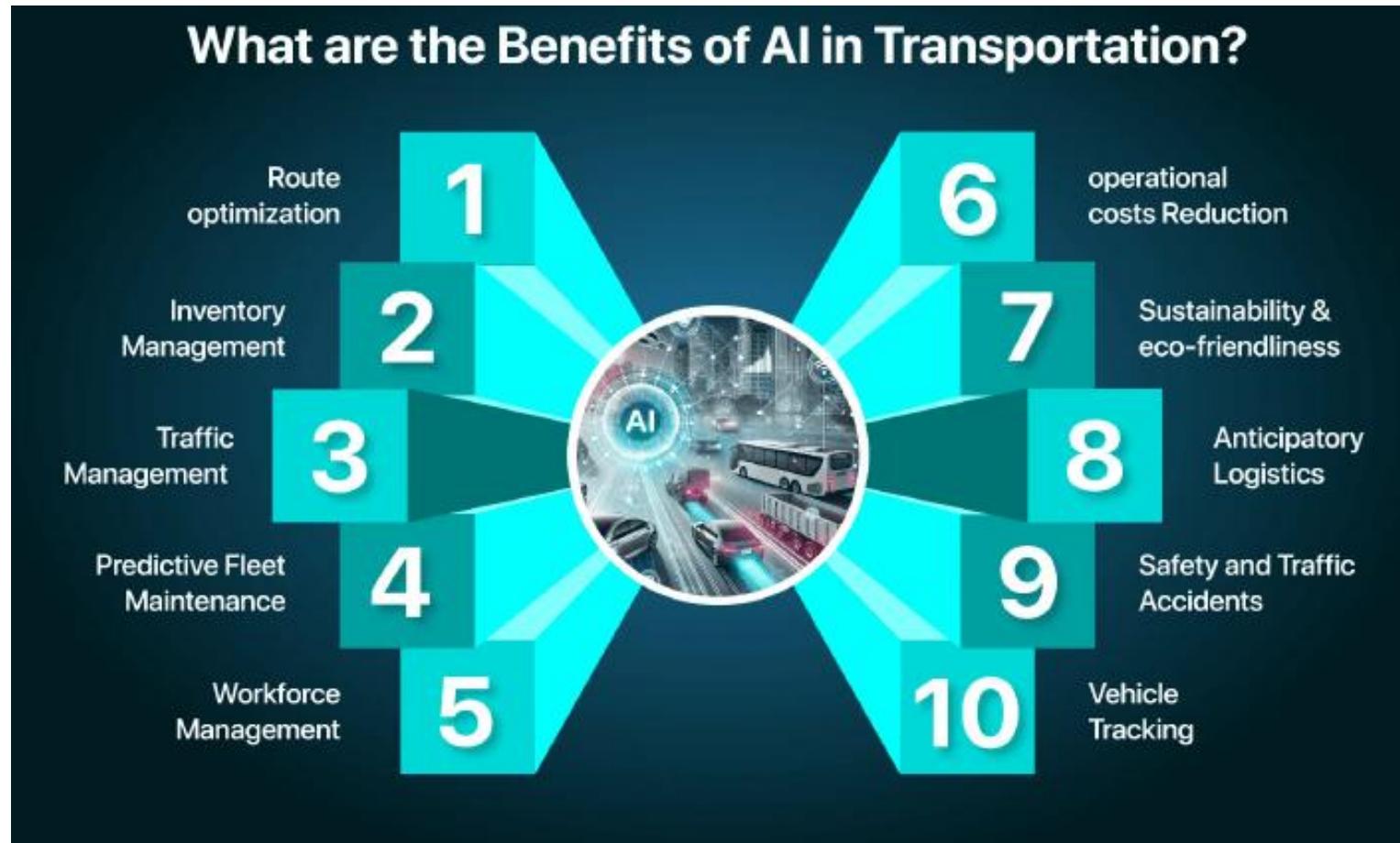
# AI in Agriculture



# AI in Transportation

- Autonomous vehicles
- Traffic analytics
- Fleet optimization

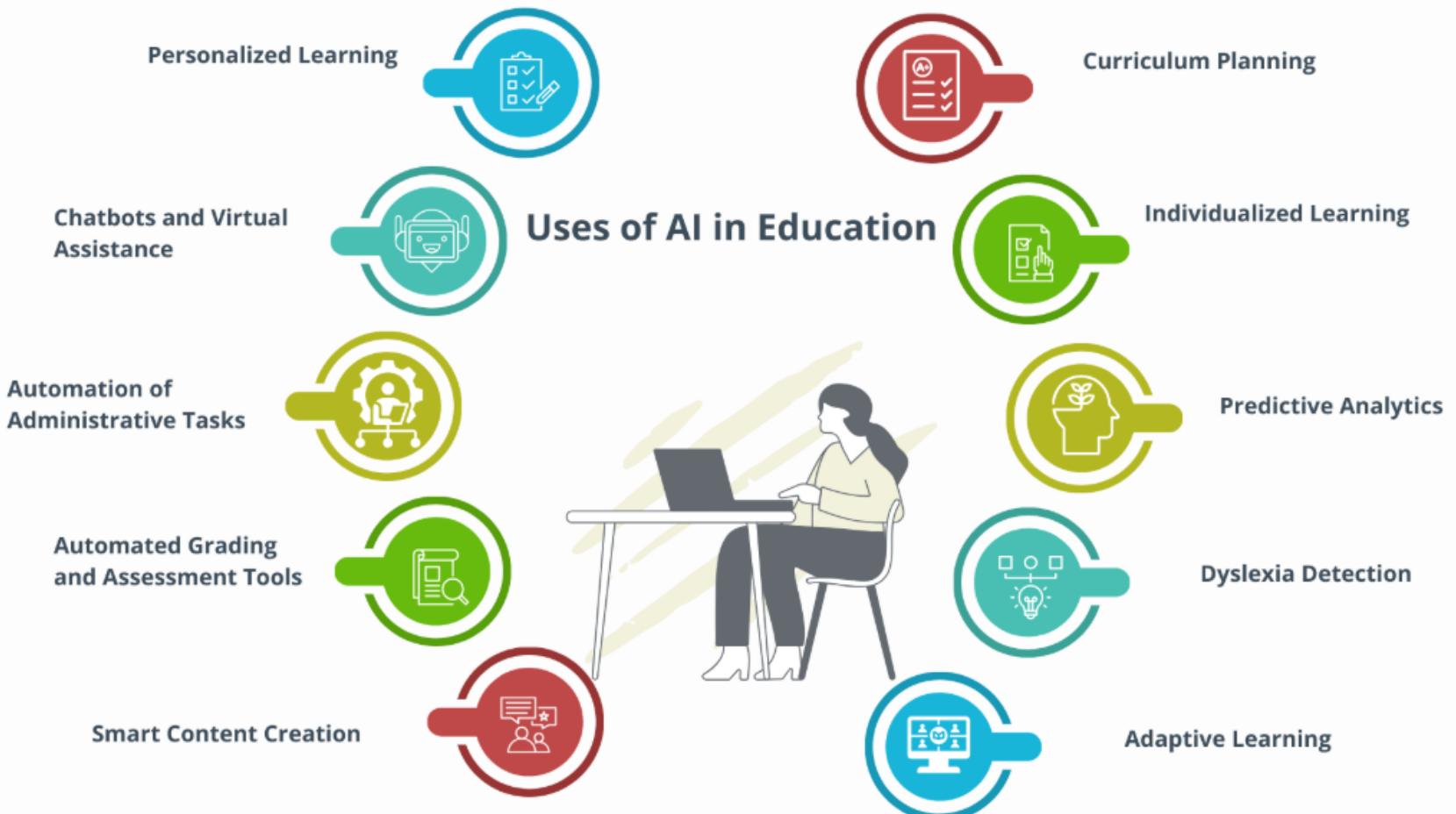
# AI in Transportation



# AI in Education

- Adaptive learning
- Automated grading
- Learning analytics

# AI in Education



# Challenges in Industry AI Adoption

- Data quality
- Skill gaps
- Ethical concerns

# Research Funding Opportunities: Introduction

- Global and Indian agencies
- Grant types
- Proposal best practices

# Indian Funding Agencies

- DST
- DBT
- MeitY
- ICMR
- ANRF
- GUJCOST

# International Funding Agencies

- Indo Singapore
- Indo French
- Indo Norway
- Indo Germany
- Many

# Corporate Funding

- Google AI
- Microsoft Research
- IBM Research

# Grant Types

- Seed grants
- Major research grants
- Industry collaboration grants

# Writing a Strong Proposal

- Problem relevance
- Novelty
- Methodology clarity
- Expected outcomes

# Faculty Development Pathways

- Skill evolution
- Training programs
- Collaborations

# Upskilling in AI

- Online courses
- Certification programs
- Workshops & seminars

# Research Collaboration

- Interdisciplinary teams
- Industry partnerships

# Building AI Labs

- Infrastructure needs
- Computing resources
- Data governance

# Publishing in AI

- Top conferences
- Journals
- Patent

# Faculty Mentorship Roles

- Supervising projects
- Building research culture

# Guiding Student ML Projects:

## Overview

- Idea generation
- Implementation
- Evaluation

# Idea Generation

- Problem identification
- Brainstorming techniques
- Feasibility analysis

# Dataset Selection

- Open datasets
- Data collection ethics
- Preprocessing needs

# Model Building

- Choosing algorithms
- Baseline models
- Experimentation

# Implementation Practices

- Version control
- Modular coding
- Reproducibility

# Evaluation Strategies

- Metrics selection
- Cross-validation
- Ablation studies

# Deployment Awareness

- APIs
- Edge vs cloud
- Monitoring

# Documentation

- Project report structure
- Code documentation
- Result interpretation

# Common Mistakes

- Overfitting
- Data leakage
- Improper evaluation

# Conclusion

- AI is evolving
- Opportunities
- Faculty & students must grow together