

Five Days FDP

On

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

15th - 19th 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

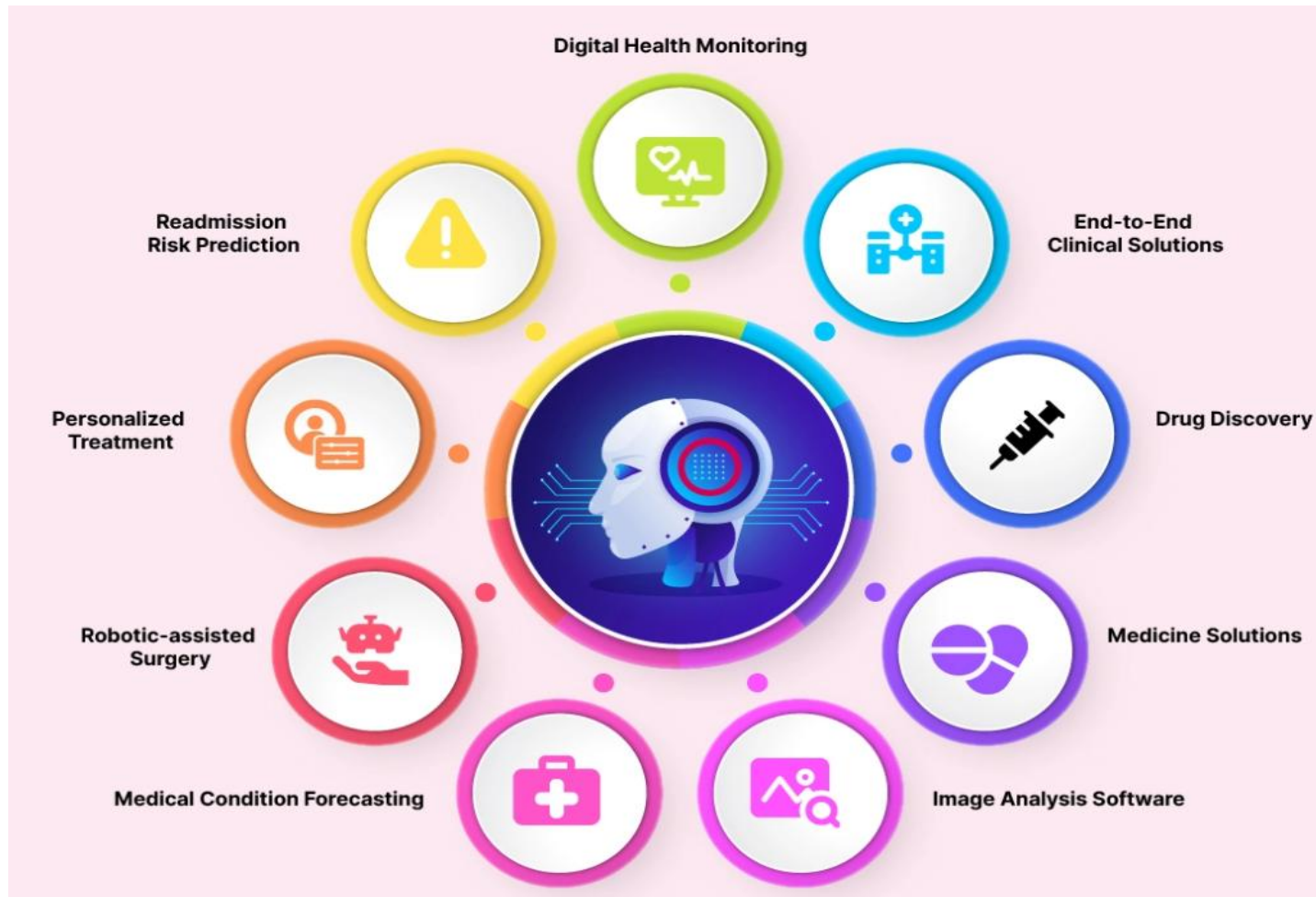
AI in Manufacturing



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

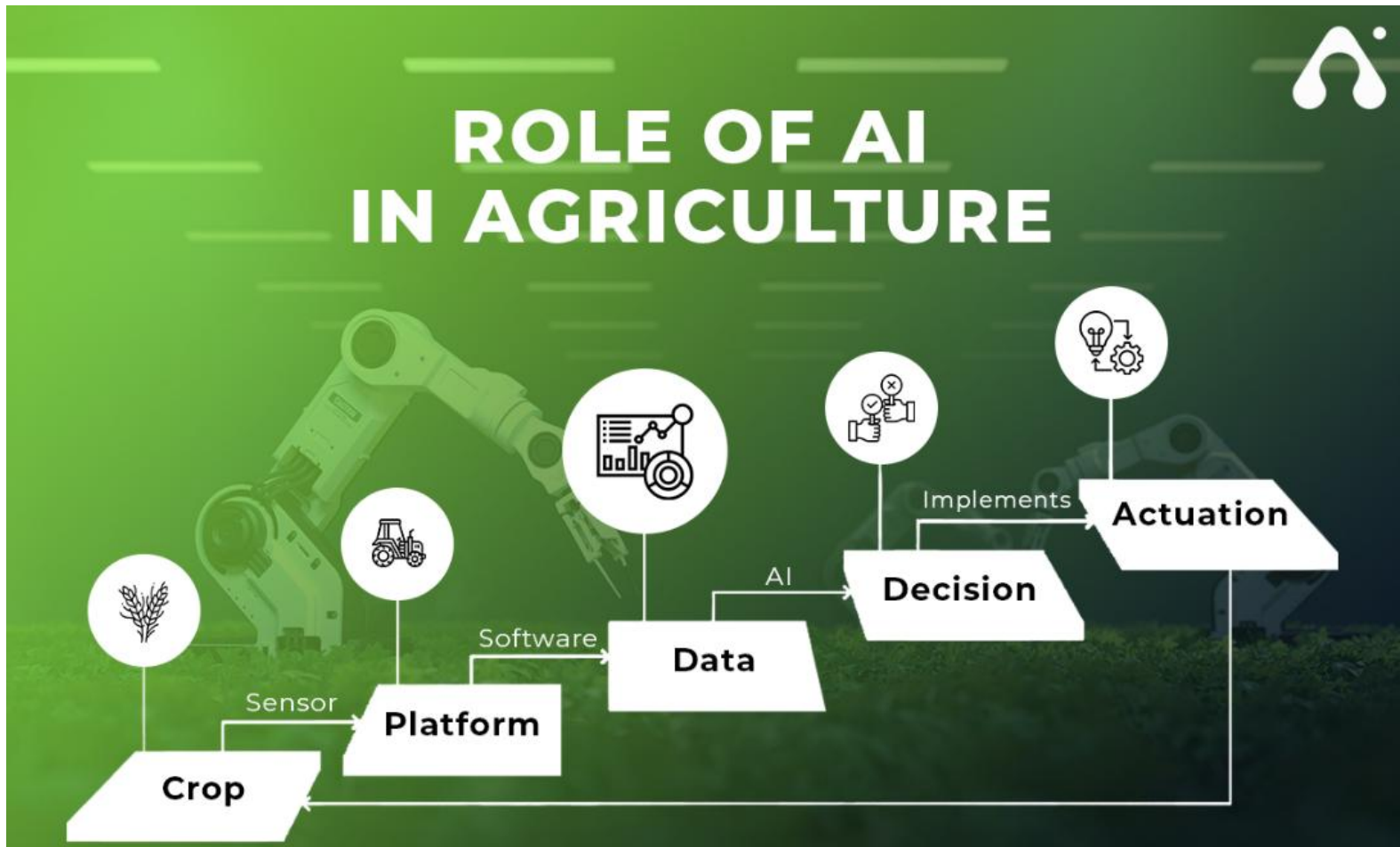
AI in Retail

- Personalized recommendations
- Demand forecasting
- Inventory management

AI in Agriculture

- Crop monitoring
- Yield prediction
- Smart irrigation

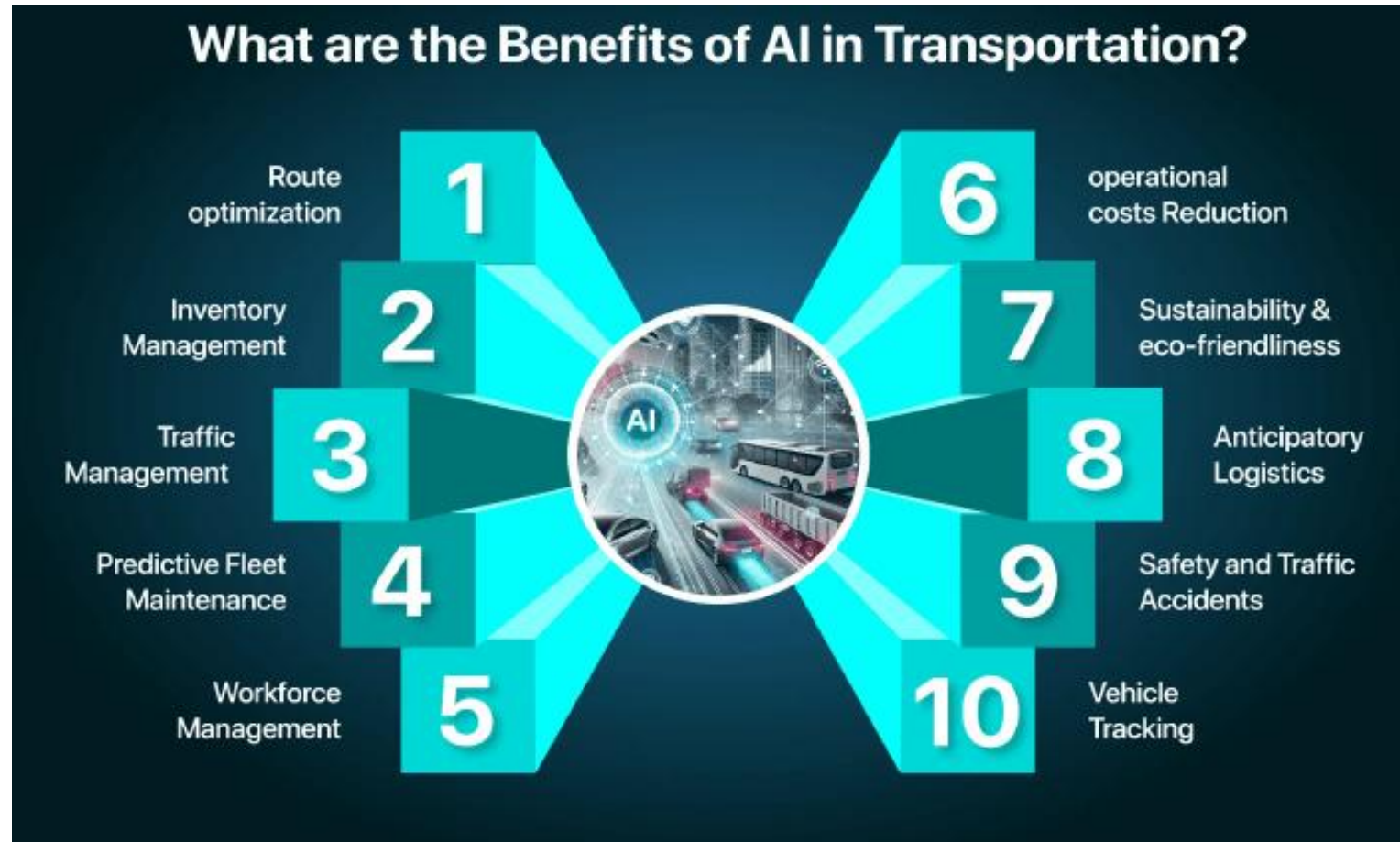
AI in Agriculture



AI in Transportation

- Autonomous vehicles
- Traffic analytics
- Fleet optimization

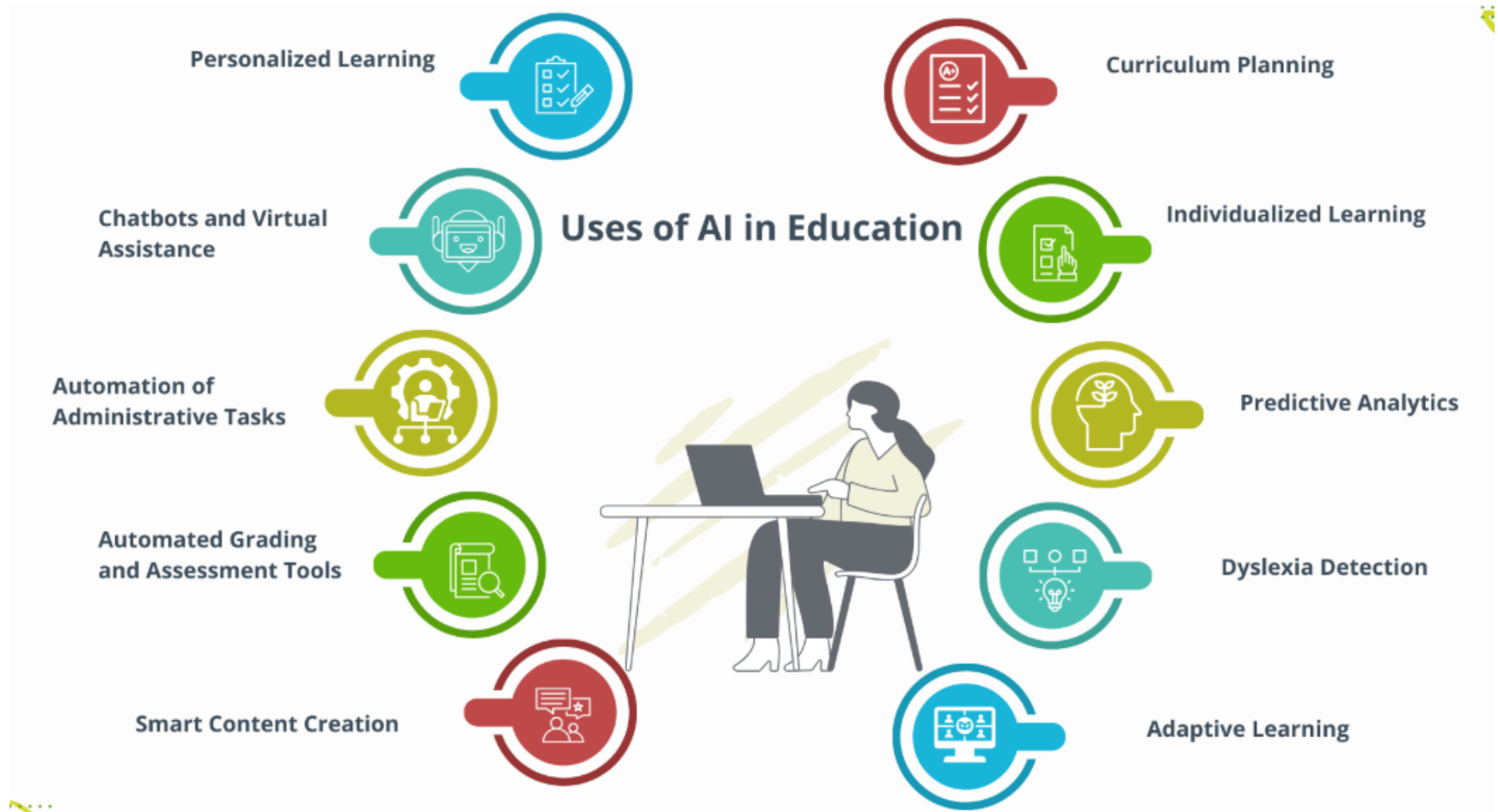
AI in Transportation



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