

Intelligent Tutoring System

Enhancing Personalized Learning
through AI

Presented by: Maneesh Chauhan

Introduction

- • Intelligent Tutoring Systems (ITS) use artificial intelligence to provide personalized instruction to learners.
- • They adapt to individual learning styles, pace, and knowledge levels.
- • Aim: To simulate the guidance of a human tutor.

Key Components

- • Domain Model: Represents the subject knowledge.
- • Student Model: Tracks learner's progress and understanding.
- • Tutoring Model: Determines instructional strategies.
- • User Interface: Enables interaction between the system and learner.

How ITS Works

- 1. The student interacts with the system.
- 2. The system evaluates the student's responses.
- 3. It updates the student model based on performance.
- 4. The system adapts its teaching strategy accordingly.

Technologies Used

- • Artificial Intelligence
- • Natural Language Processing (NLP)
- • Machine Learning
- • Data Analytics
- • User Modeling

Advantages

- • Personalized learning experiences
- • Immediate feedback
- • Self-paced learning
- • Scalability and accessibility
- • Reduction in teacher workload

Challenges

- • High development costs
- • Need for high-quality data
- • Limited emotional understanding
- • Privacy and data security concerns

Real-world Applications

- • Carnegie Learning (Math Tutor)
- • Duolingo (Language Learning)
- • ALEKS (Assessment and Learning in Knowledge Spaces)
- • Smart Sparrow (Adaptive eLearning Platform)

Future Scope

- • Integration with AR/VR for immersive learning
- • Emotion-aware tutoring
- • Improved NLP for better interaction
- • Greater customization and inclusivity

Conclusion

- • Intelligent Tutoring Systems revolutionize education by making learning more adaptive and efficient.
- • With advancements in AI, ITS will continue to become more sophisticated and widely used.

Q&A

- Any questions?
- Thank you for your attention.