UNIVERSITY OF ENGINEERING AND TECHNOLOGY PESHAWAR

MAIN CAMPUS

DEPARTMENT OF CS&IT (DATA SCIENCE)

ASSIGNMENT NO # 01

COMPUTATIONAL INTELLIGENCE

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Distinguish Advanced AI from Basic AI Systems

Basic AI :

- Designed for specific tasks.
- Follows pre-defined rules or algorithms.
- Cannot adapt beyond what it is programmed for.

Examples:

- Email spam filters
- Simple chatbots
- Online calculators
- Chess programs with pre-set strategies

Advanced AI :

- Capable of learning, reasoning, and adapting.
- Can handle complex, dynamic, and multi-domain problems.
- Uses advanced techniques like deep learning, reinforcement learning, and natural language processing.

Examples:

- Autonomous vehicles (Tesla Autopilot)
- Personal AI assistants (Siri, Alexa, ChatGPT)
- Fraud detection systems in banking
- AI-based medical diagnosis systems

Characteristics: (Next page)

Feature	Basic AI Systems	Advanced AI Systems
Scope	Narrow (task-specific)	Broad (multi-task, adaptive)
Learning Ability	Limited or no learning	Learns from data, adapts over time
Decision Making	Rule-based, deterministic	Context-aware, probabilistic, reasoning
Flexibility	Cannot operate outside its domain	Can generalize knowledge across domains
Human Interaction	Minimal, requires explicit instructions	Natural, human-like interactions
Examples	Spell-checkers, calculators, chatbots with fixed responses	Self-driving cars, ChatGPT, healthcare diagnosis systems