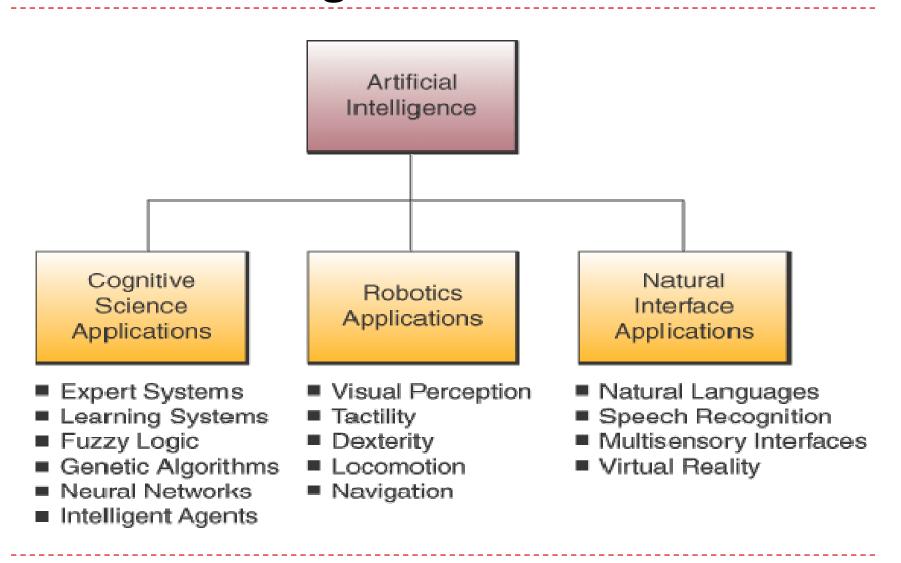
Information and Communication Technology Management

Topic: Artificial Intelligence

Artificial Intelligence

- AI is a field of science and technology based on computer science, biology, psychology, linguistics, mathematics and engineering.
- The goal is to develop computers than can simulate the ability to think and see, hear, walk, talk, and feel as well.

Artificial Intelligence



Artificial Intelligence

- **Cognitive Science:** Focuses on how the human brain works and how humans think and learn.
- **Robotics:** Produces robot machines with computer intelligence and human like physical capabilities.
- Natural Interfaces: Involves research and development in linguistics, psychology, computer science and other disciplines.

Commercial Applications of AI

- Decision Support
- ▶ Information Retrieval
- Virtual Reality
- Robotics

Expert System

It is a knowledge-based information system.

Components of an Expert System:

- Knowledge Base
- Software Resources

Expert System

Methods of Knowledge Representation:

- Case-Based
- > Frame-Based
- Object-Based
- > Rule-Based

Expert System Application:

- Decision Management
- Diagnostic/Troubleshooting
- Design/ Configuration
- > Selection / Classification
- Process Monitoring/ Control

Neural Networks

- ✓ Computing systems modeled after the brain's mesh-like network of interconnected processing elements (neurons).
- ✓ Interconnected processors operate in parallel and interact with each other
- ✓ Allows the network to learn from the data it processes

Fuzzy logic

- Resembles human reasoning
- Allows for approximate values and inferences and incomplete or ambiguous data.
- Used in fuzzy process controllers used in subway trains,
 elevators, and cars

Genetic Algorithms

- ✓ Uses Darwinian, randomizing, and other mathematical functions
- ✓ Simulates an evolutionary process, yielding increasingly better solutions to a problem
- ✓ Used to model a variety of scientific, technical, and business processes
- Especially useful for situations in which thousands of solutions are possible

- **Descriptive Analytics:** What happened?
- Diagnostic Analytics: Why did it happen?
- Predictive Analytics: What could happen in the future?
- Prescriptive Analytics: How should we respond to those potential

future events?

Evolution of the Data Platform, 1990 – 2016 FIRST WAVE THIRD WAVE SECOND WAVE Constrained Data... Data Explosion / Chaos... Mass Data Intelligence... Monolithic Systems, Decentralized Systems, Pervasive Systems, Expensive Storage. Cheap Storage, Big/Fast Storage, Data for Targeted Use Cases Big Data Everywhere Data Instruments the Business VISUALIZATION BUSINESS DEPARTMENTAL INTELLIGENCE (BI) APPLICATIONS **CLOUD BI** Gainsight, Datadog, Business Objects, Cognos, MicroStrategy InsideSales CACHING ORGANIZATION-WIDE DATA INTEGRATION ANALYTICS PREP / WRANGLING PLATFORMS Informatica Evolution Revolution ETL Looker, Domo, Anaplan Breaking Apart Data Integrated Data Bottleneck into Everything INFRASTRCUTURE-DATA-CENTRIC **CENTRIC SECURITY &** DATA INTEGRITY SECURITY & MANAGEMENT MANAGEMENT Microsoft, Oracle Palo Alto Networks. Ionic Security, Tanium FireEye nfrastructure Age of Big Data Age of Big/Fast Hadoop, Teradata, Age of Oracle, Sybase Redshift, BigQuery. Netezza, NetApp, EMC, Spark, Presto Greenplum

