Ubiquity of Communication Devices

Figure 1: Computers are everywhere and processing/generating data.

Internet of Things

Figure 2: Everything is connected and sharing data ...

Data Growth

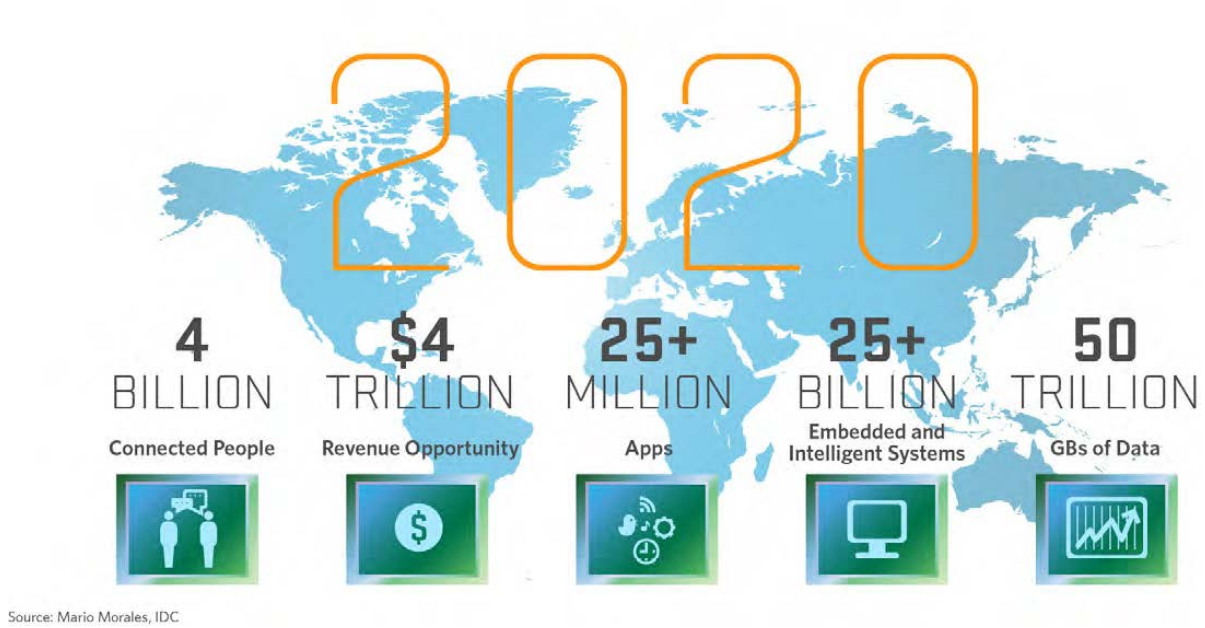


Figure 3: Data is growing at astronomical rates.

Text

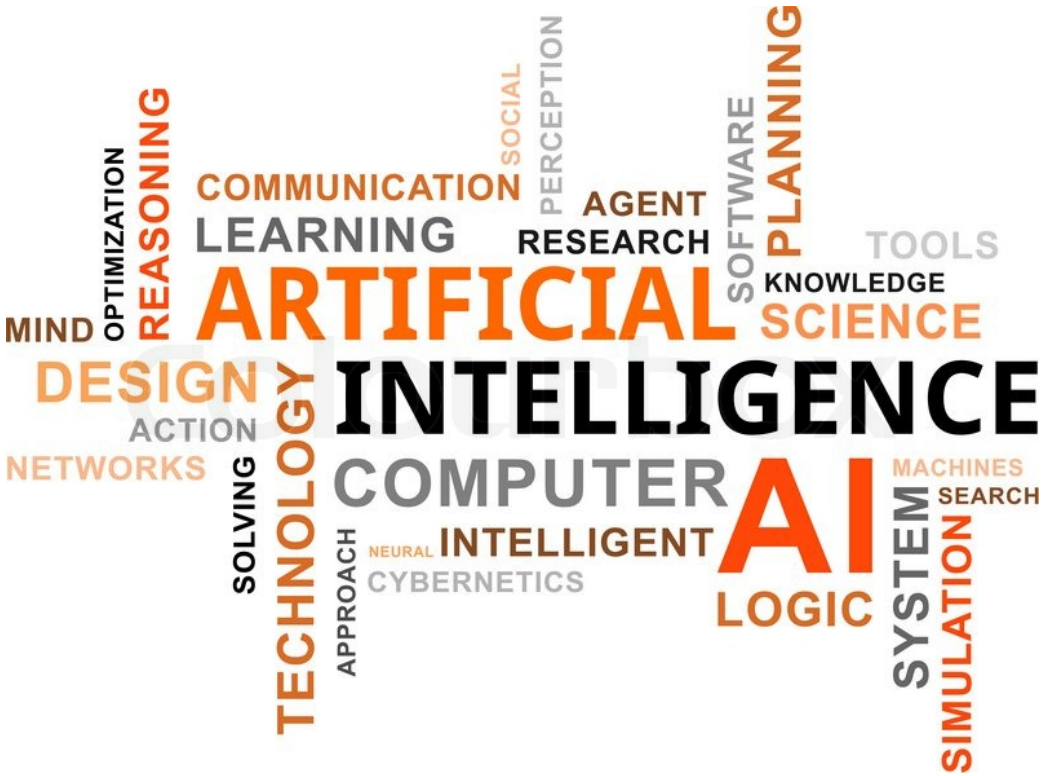


Figure 4: A big chunk of data out there is text.

What is Artificial Intelligence?

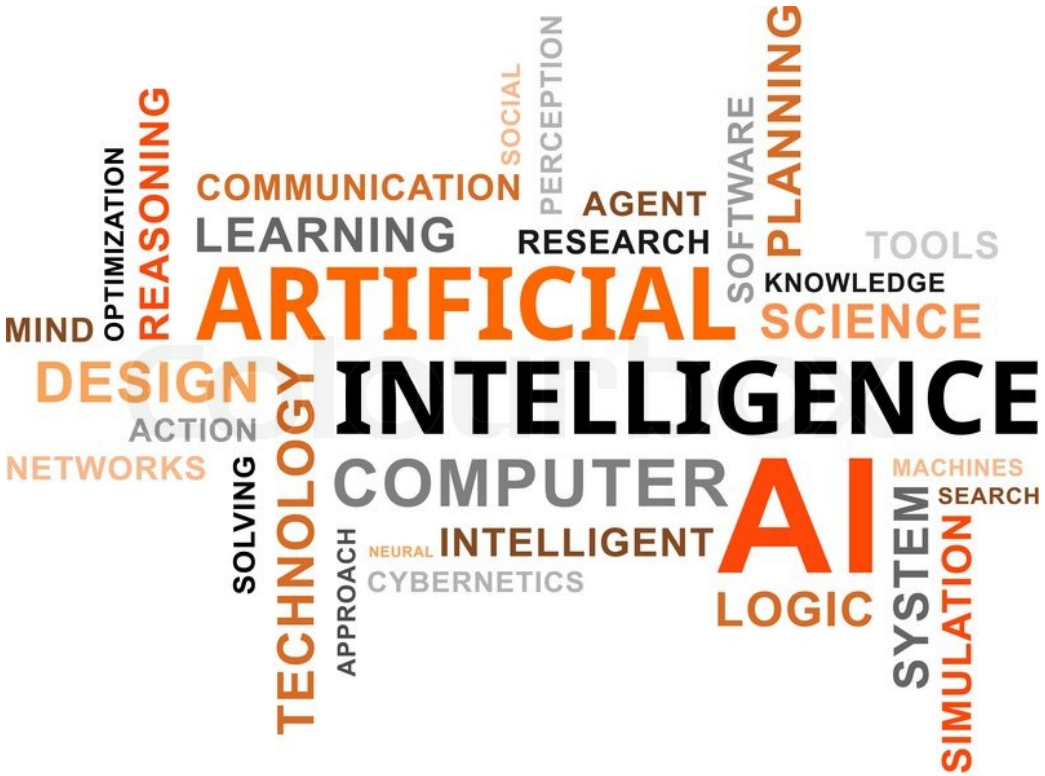


Figure 5: What is AI?

The Turing Test

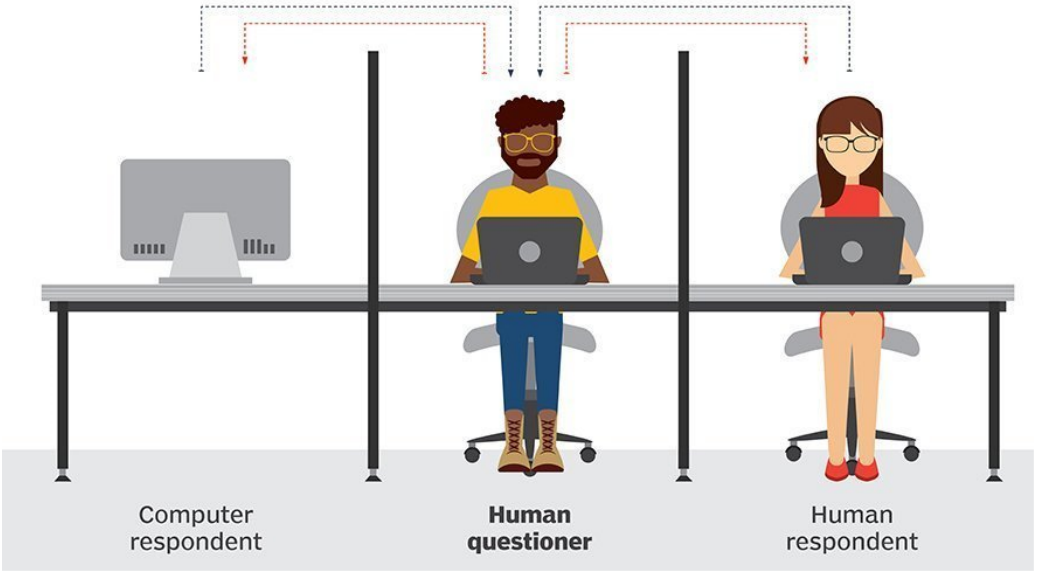
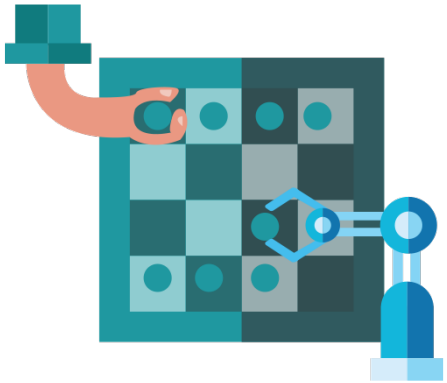


Figure 6: Man vs Machine

Applications of Artificial Intelligence



Artificial Intelligence Skills

Problem Solving

- The art of problem formulation and design

Artificial Intelligence Skills

Problem Solving

- The art of problem formulation and design

Computer Programming

- Implementing a computational solution for a problem

Artificial Intelligence Skills

Problem Solving

- The art of problem formulation and design

Computer Programming

- Implementing a computational solution for a problem

Analytical Skills

- Mathematical analysis of problems and their solutions

Artificial Intelligence Challenges

mostly solved

Spam Classification

COVID-19 AWARD PRIZE{Open Attachment} ✓

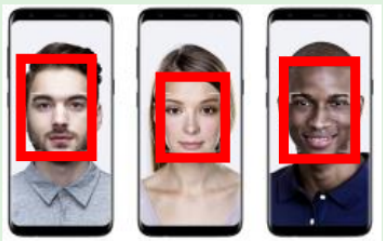
SLATE: Course Registration Open! ✗

Object Recognition

vs

?

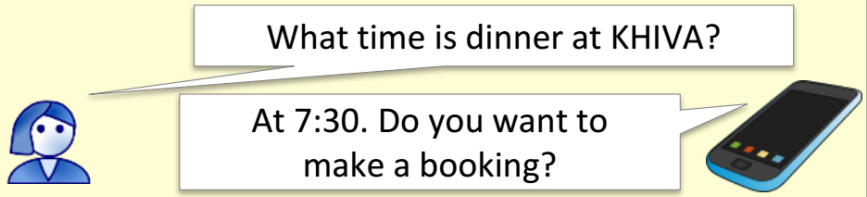
Facial Recognition



Artificial Intelligence Challenges

making good progress

Personal Assistants

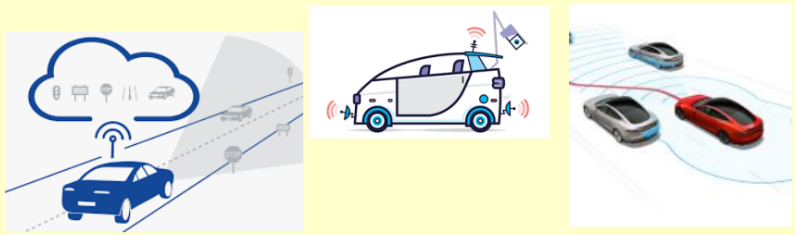


Machine Translation

موت کا ایک دن معین ہے

There is a certain day of death

Self Driving Cars

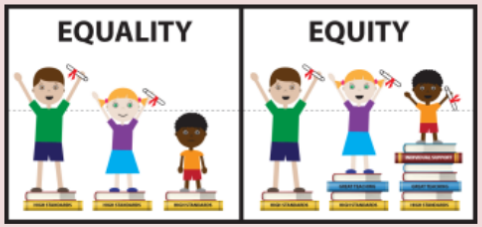


Artificial Intelligence Challenges

still really hard

Fairness: Equality vs Equity

- Racism
- Data bias

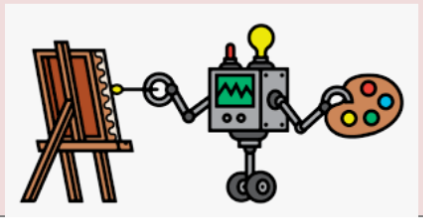


Language Understanding

عشق نے غالب نکما کر دیا
ورنہ ہم بھی آدمی تھے کام کے

Creativity

- Art, Literature
- Ideas
- Imagination



Course Text

There is no official text

Recommended reference texts

- *Artificial Intelligence: A Modern Approach*
  - Peter Norvig and Stuart J. Russell
- Papers from AAAI and IJCAI

Course Project (30%)

- Gives you the opportunity to explore a specific area of Artificial Intelligence in depth (preferably individual projects)
- You will report on your project in a paper in the style of a AAAI research paper ($\tilde{1}$0pages)
- A final presentation of your project ($\tilde{1}$0min)
- Deliverables
  - Project idea (0%)
  - Project Proposal (5%)
  - Project Mid Report (5%)
  - Project Presentation (5%)
  - Final Project Report (15%)

Project Topics

- Local AI — AI for solving problems in Pakistan
- Artificial General Intelligence — The study of generalizing intelligence
- Story Analysis — Learning representations from stories
- Meta-Learning — One-shot Learning, Learning from very little or no data

Project Deadlines

Oct 30	Project idea (Problem statement)
Nov 16	Project proposal due
	Proposal Presentations
Nov 30	Mid-term Project report due
Dec 14	Project Report
Dec 14 +	Project Presentations

Conferences and Journals

- AAAI — Conference on Artificial Intelligence
- IJCAI — International Joint Conference on Artificial Intelligence
- ICML — International Conference on Machine Learning
- ACL — Association of Computational Linguistics
- EMNLP — Empirical Methods in Natural Language Processing
- NIPS — Conference on Neural Information Processing Systems
- SIGIR — Conference on Research and Development in Information Retrieval
- PAMI — IEEE Transactions on Pattern Analysis and Machine Intelligence

Academic Ethics

- Distraction :- Students are not allowed to use their mobile phones during class
- Punctuality :- Please come on time, **there are no late submissions**
- Consider yourself **Absent** if you arrive late in class
- Class will start on time and end on time
- Start on your assignments and projects early
- Plagiarizing in assignments, critiques, projects and exams will result in **F** grade
- Feel free to ask questions

Lecture Style

- Lectures will be a mix of theoretical and research concepts
- Most of the lectures will be on the white board