

COMMUNICATION THEORY & INFORMATION THEORY

Systems Analysis

Author: Eng. Carlos Andrés Sierra, M.Sc.
carlos.andres.sierra.v@gmail.com

Lecturer
Computer Engineer
School of Engineering
Universidad Distrital Francisco José de Caldas

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Outline

1 Communication

2 Information Theory



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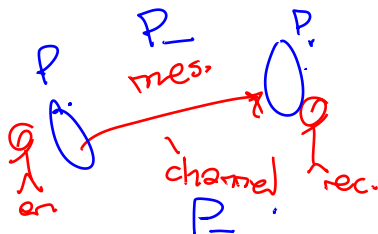


Definition

Communication theory defines the amount of transmitted information in terms of the conditional probabilities.

$$A \longrightarrow B$$

$$P(A) \quad P(B|A) \sim \text{Bayes}$$



Misinformation

The false information is a problem due to the lack of verifications.

Petro \Rightarrow Mikolifa \Rightarrow daughter

Trump \Rightarrow Cambridge Analytica \Rightarrow FB

warm

+ /

- /

* / ref m


Milei

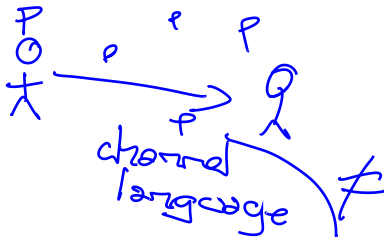


What if ... ?

The probability of failures is pretty tricky.

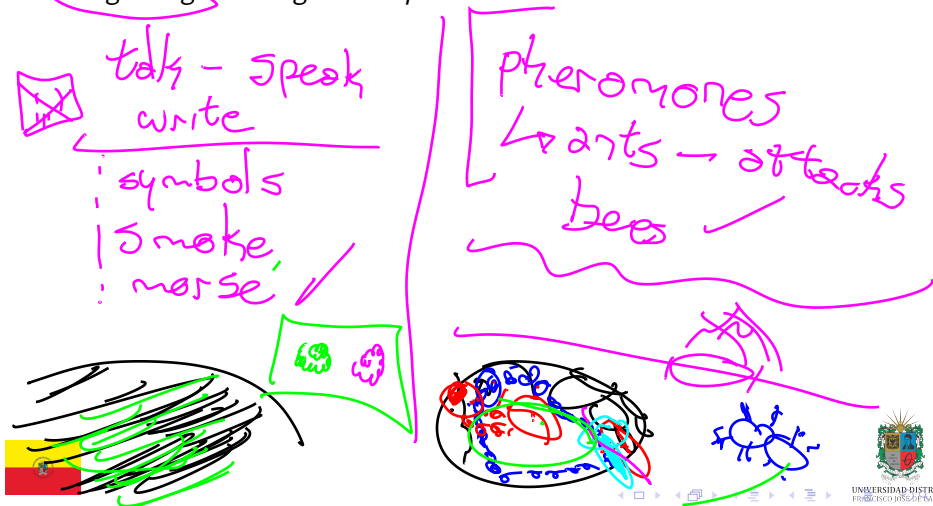
channels \rightarrow internet
cellular phones

data storage \Rightarrow  corrupted



History

S.F. Scudder proposed Communication Theory in 1980. The main idea is: all living beings existing on the planet communicate.



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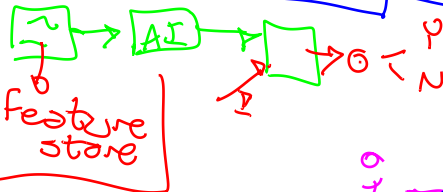
Definition

Information theory is a mathematical point of view related to quantification, storage, and transmission of information.

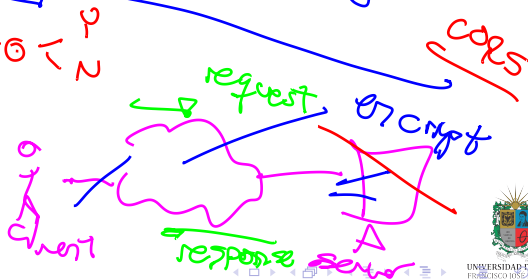
→ Compression

A → 1111
B → 00

11 B A B A 01



Apache
Iceberg



Entropy

Entropy is the amount of uncertainty for the value of a **random variable**.

$a + 3 \Rightarrow d$

$b + 3 \Rightarrow e$

$c + 3 \Rightarrow f$

$1 + 3 \Rightarrow 0$

def $\sqrt{\sqrt{}} = ;$

$12 \Rightarrow 0d$

$e a^2$

A
B
C

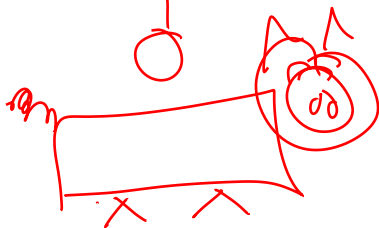
entropy \rightarrow chaos

Random forest



Outline


DNA → Endogeneity $\xrightarrow{\text{entropy } \uparrow}$



Thanks!

Questions?



 www.github.com/engandres/ud-public/courses/systems-analysis

