

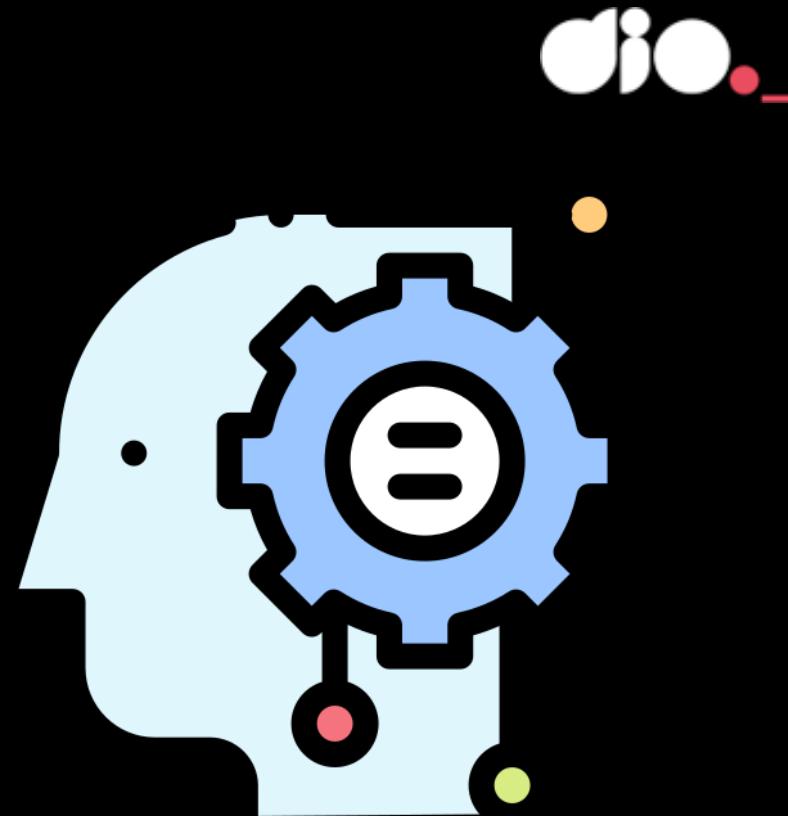
# Machine Learning

X

# Inteligência Artificial

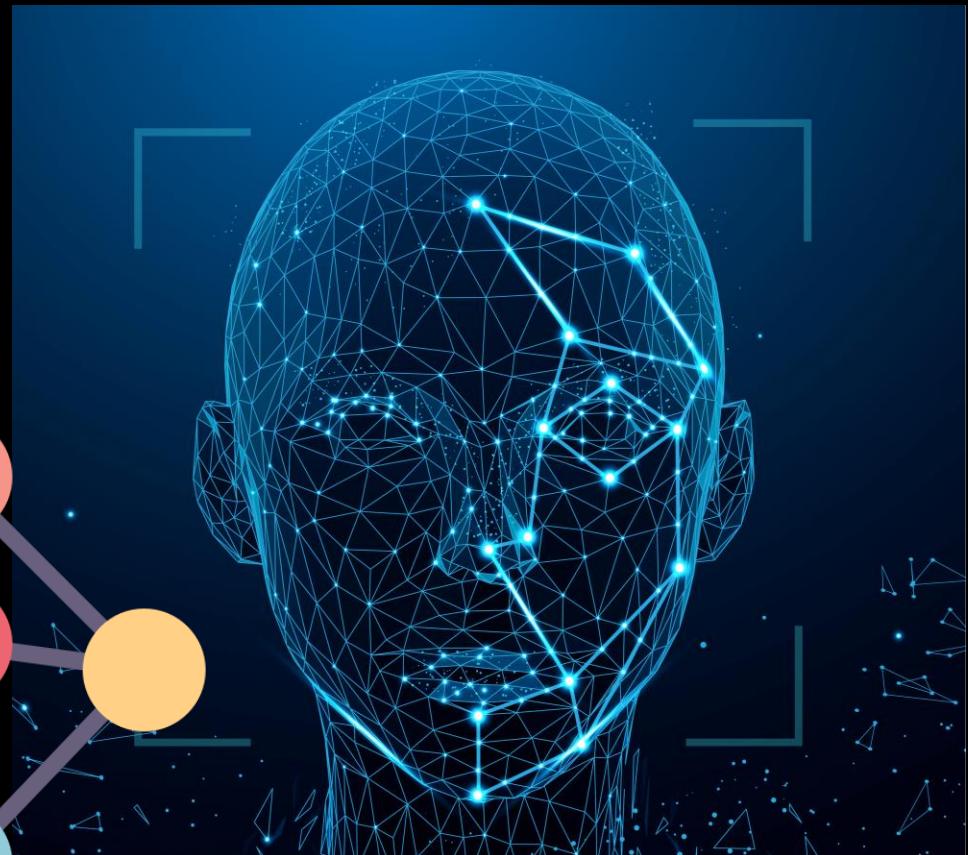
Prof. Dr. Diego Renan Bruno

Education Tech Lead na DIO  
Doutor em Robótica e *Machine Learning* pelo ICMC-USP



# Qual a diferença entre Machine Learning e Inteligência Artificial?

*Inteligência Artificial*



# O mundo da IA...

**IA Geral**



**IA Restrita**



**Machine Learning**

## **INTELIGÊNCIA ARTIFICIAL**

Qualquer técnica que permite o computador a imitar a inteligência humana, usando a lógica, regras matemáticas, árvores de decisão e machine learning(incluindo deep learning)

## **MACHINE LEARNING**

Subconjunto da IA que inclui técnicas estatísticas que permitem maquinas de melhorar tarefas através da experiência. Está incluso o deep learning

## **DEEP LEARNING**

Subconjunto de machine learning composto por algoritmos que permitem o software treinar a si mesmo para desempenhar tarefas, como reconhecimento de imagem e voz, por meio de múltiplas camadas de redes neurais artificiais

# O mundo da IA...

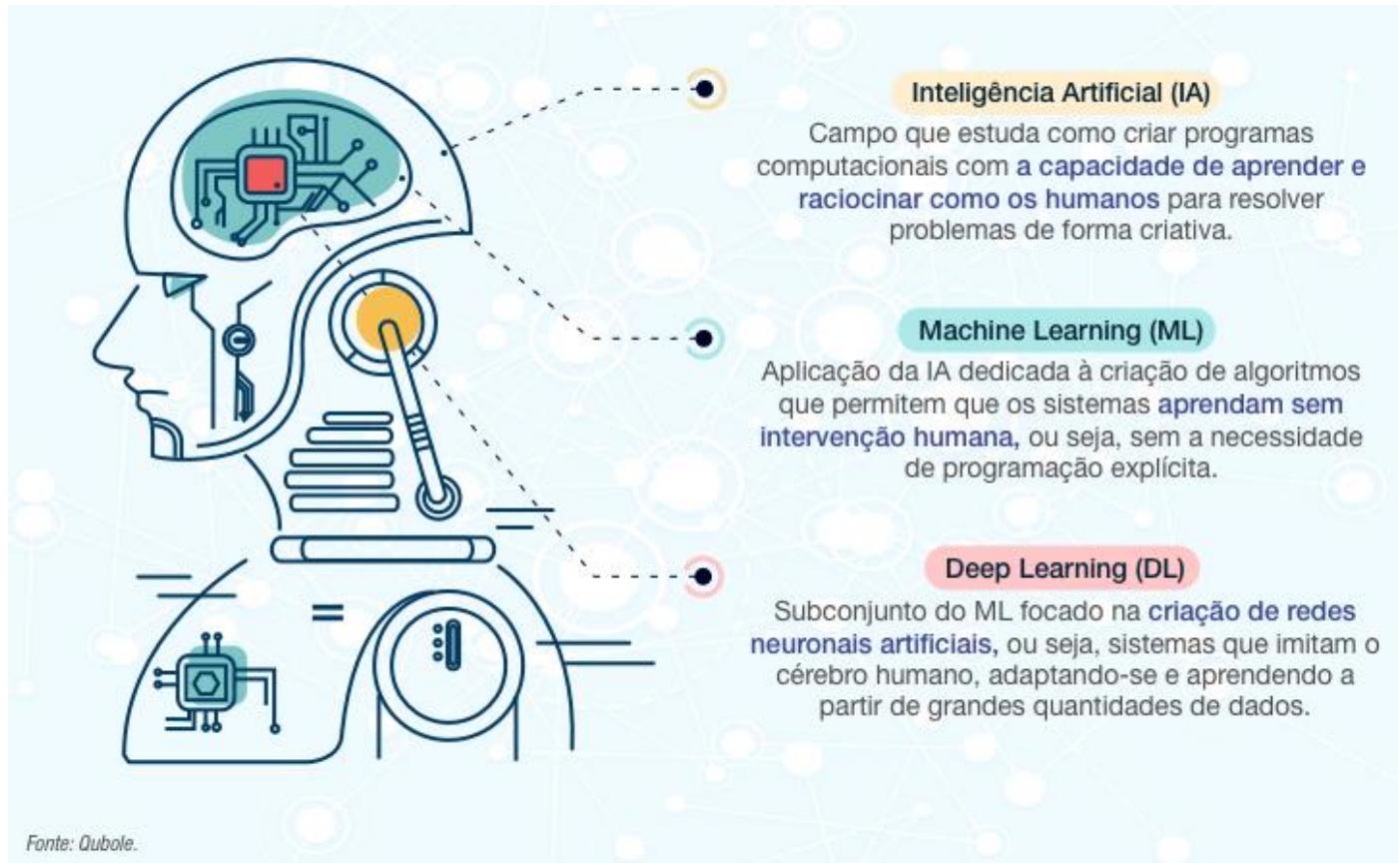
IA Geral



IA Restrita



Machine Learning



Fonte: Qubole.

# O mundo da IA...

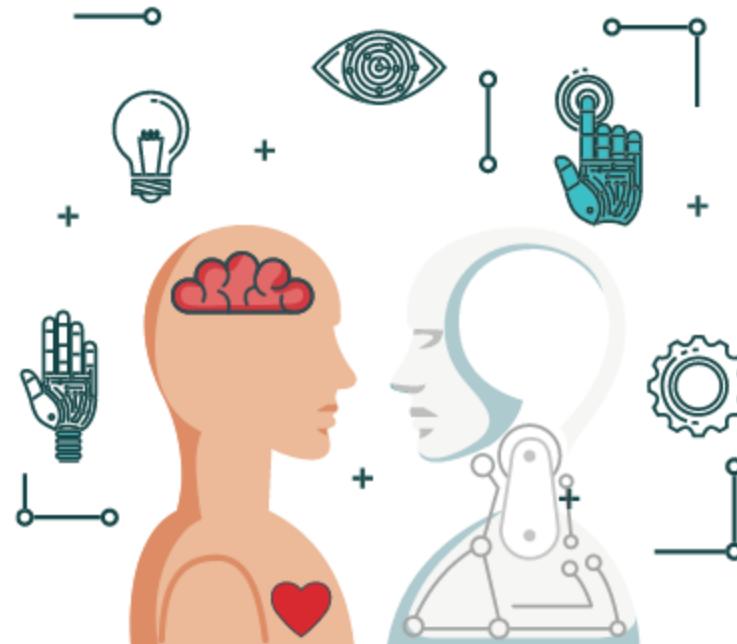
IA Geral



IA Restrita



*Machine Learning*



# O mundo da IA...

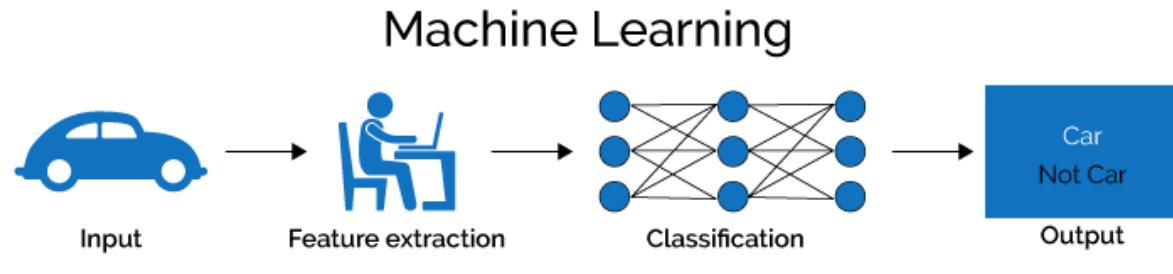
IA Geral



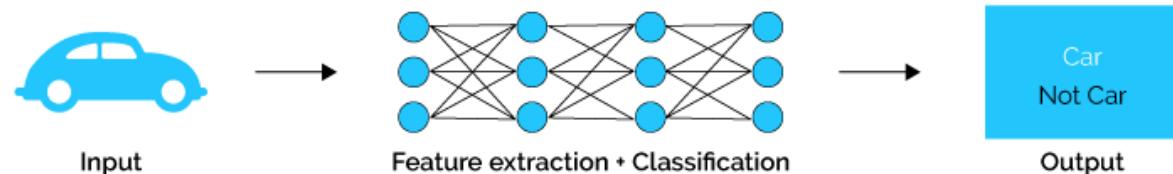
IA Restrita



**Machine Learning**



Deep Learning



# O mundo da IA...

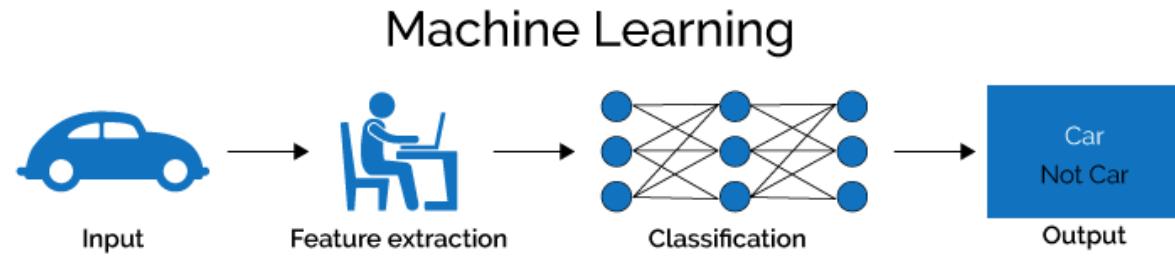
IA Geral



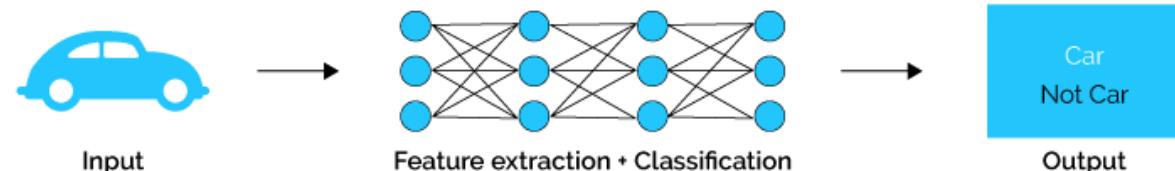
IA Restrita



**Machine Learning**



Deep Learning



# O mundo da IA...

IA Geral



IA Restrita



*Machine Learning*

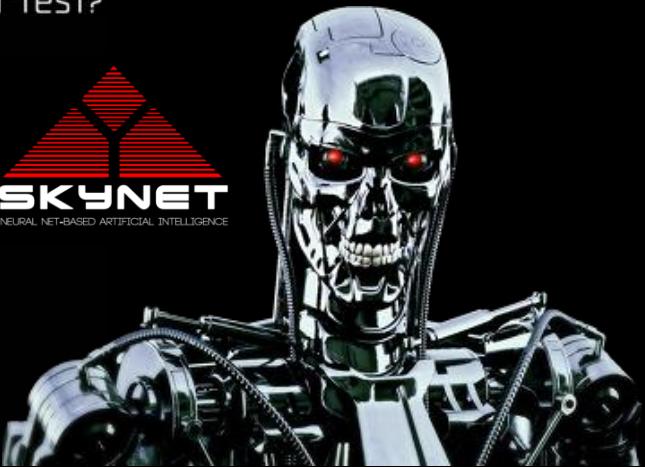
WHAT HAPPENS TO ME IF I FAIL YOUR TEST?



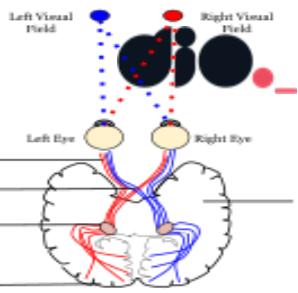
ex machina



SKYNET  
NEURAL NET-BASED ARTIFICIAL INTELLIGENCE



# Deep Learning - TensorFlow



## Extração de features 2D:

- CNN: Aprendem automaticamente a extrair *features* em imagens 2D

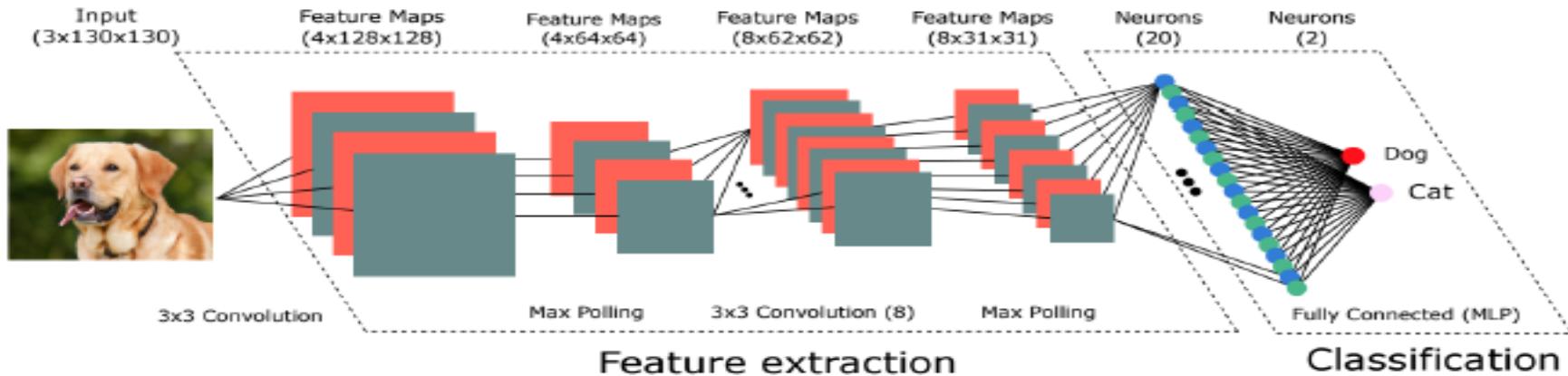
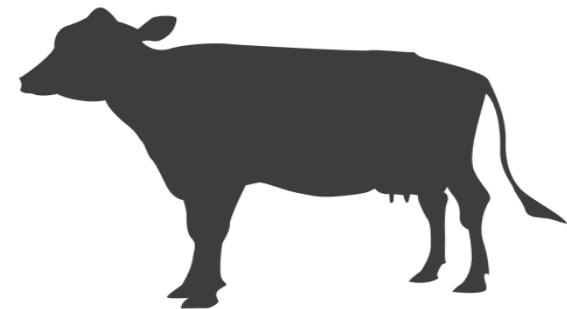


Figura 2: DCNN – [TensorFlow]

# Problemas de IA

Reconhecer o tipo da carne

Grandes valores



# Problemas de IA

Algo parecido já é feito...



# BIG data

Análise de grandes volumes de dados...



Lavoura



Bancos

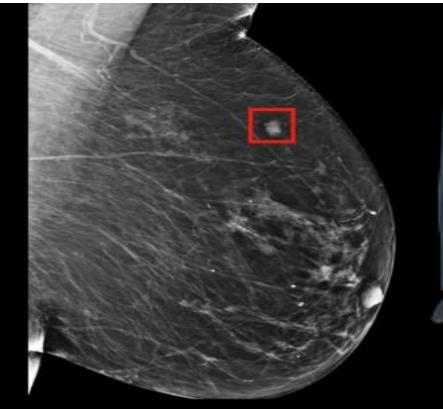
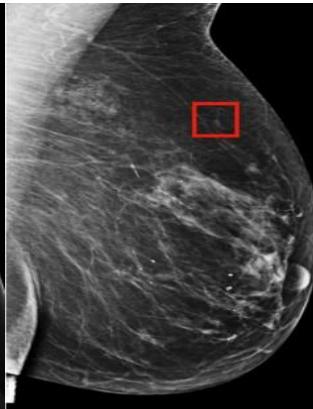
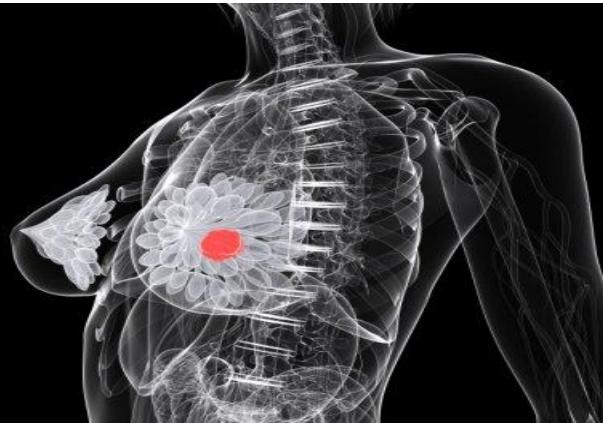
# Sistemas de Recomendação

Como vender produtos relacionados...



# Suporte para a Medicina

Dar suporte para um médico...



## 20 SEGREDOS QUE OS MÉDICOS NÃO CONTAM

BIZARRO

*Cirurgias desnecessárias, remédios que não funcionam, conflitos de interesse: a medicina está doente. Para superar essa crise, é preciso enfrentar algumas verdades inconvenientes.*

# Alguém gostaria de vida eterna?

## 2045 AVATAR PROJECT MILESTONES

STRATEGIC SOCIAL INITIATIVE



### Avatar D 2040 - 2045

Um avatar semelhante a um holograma

**BIZARRO**

### Avatar C 2030 - 2035

Um avatar com um cérebro artificial no qual uma personalidade humana é transferida no final da vida

### Avatar B 2020 - 2025

Um avatar em que um cérebro humano é transplantado no final da vida

### Avatar A 2015 - 2020

uma cópia robótica de um corpo humano controlada remotamente via BCI



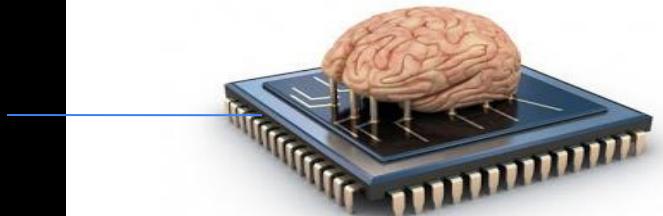
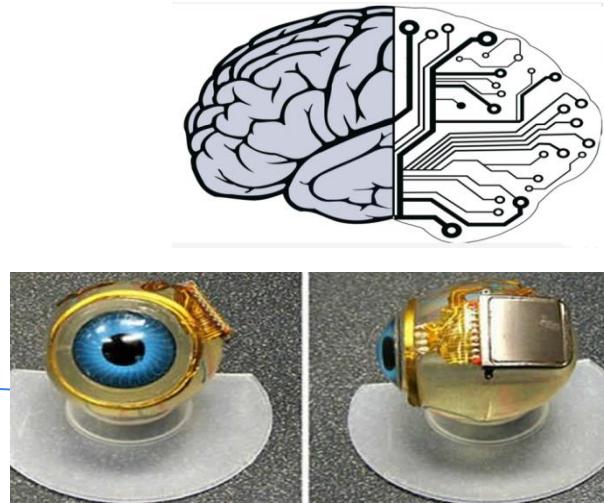
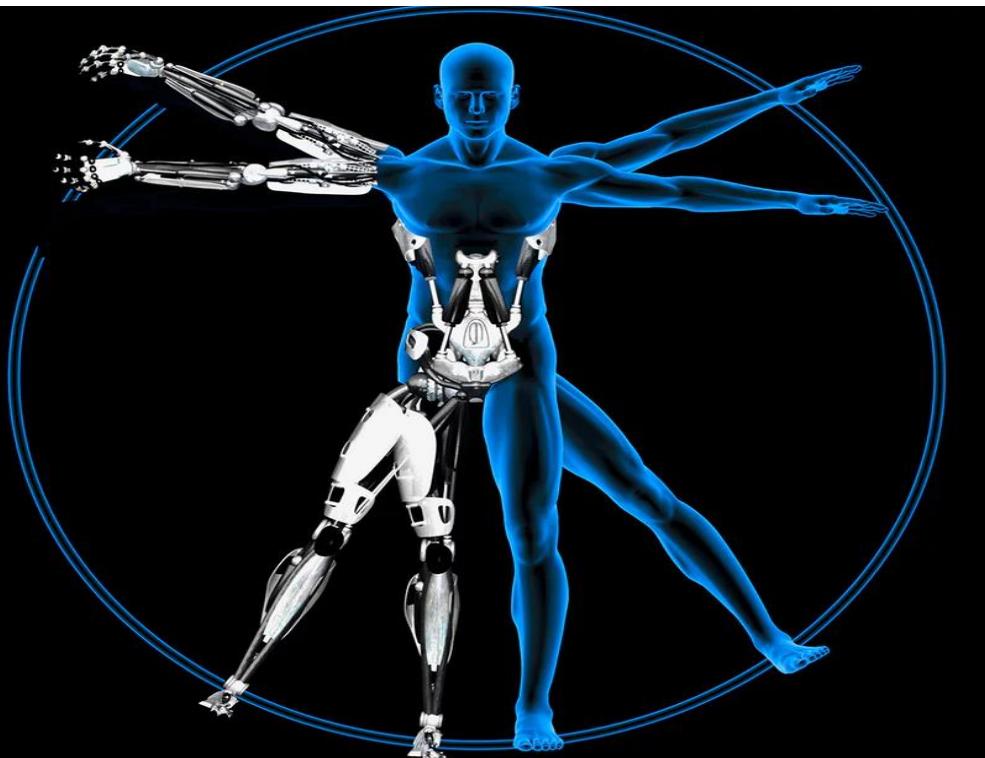
**EVOLUTION**

2045

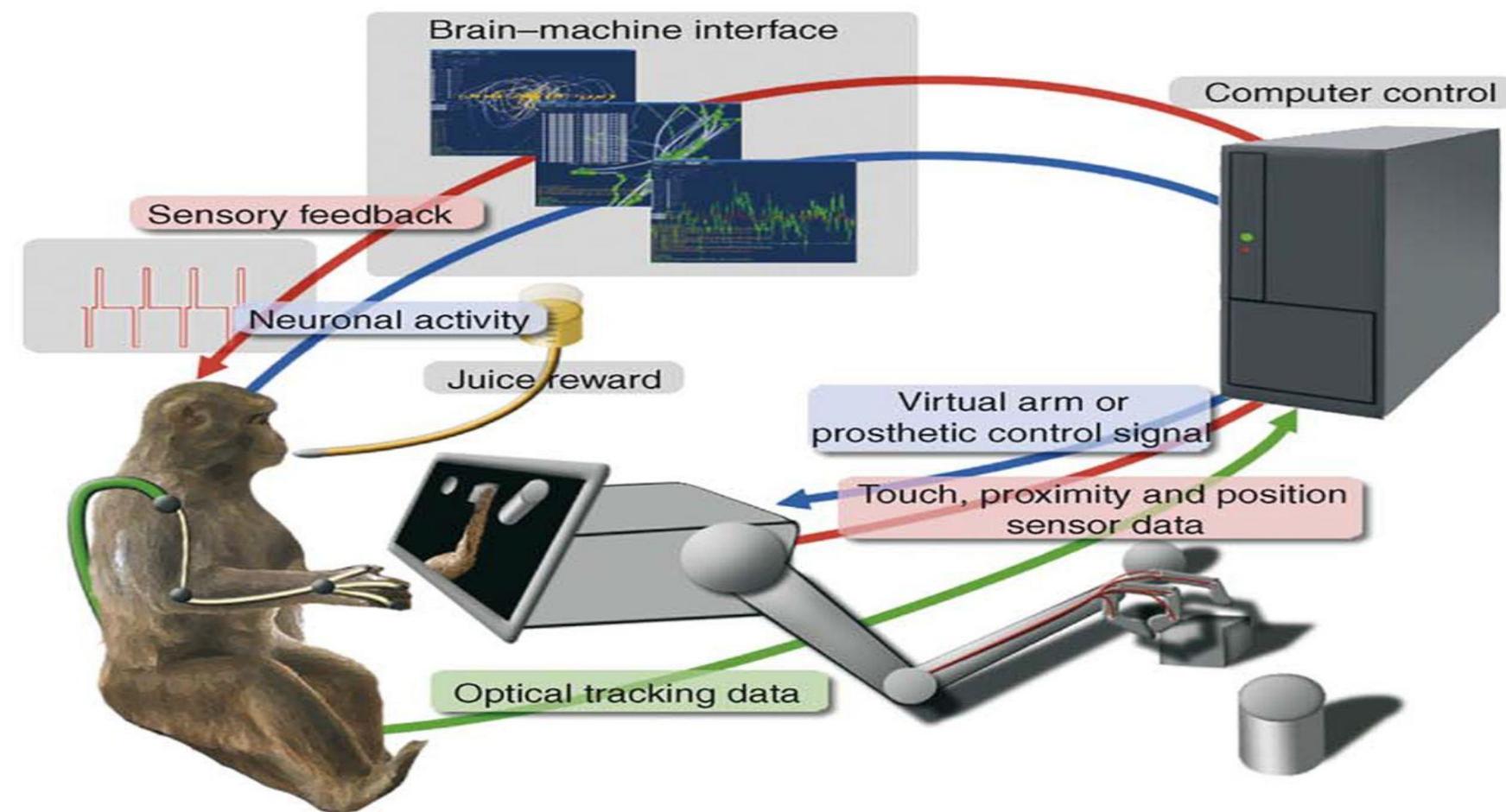
POLITICAL  
PARTY

# Tranhumanismo

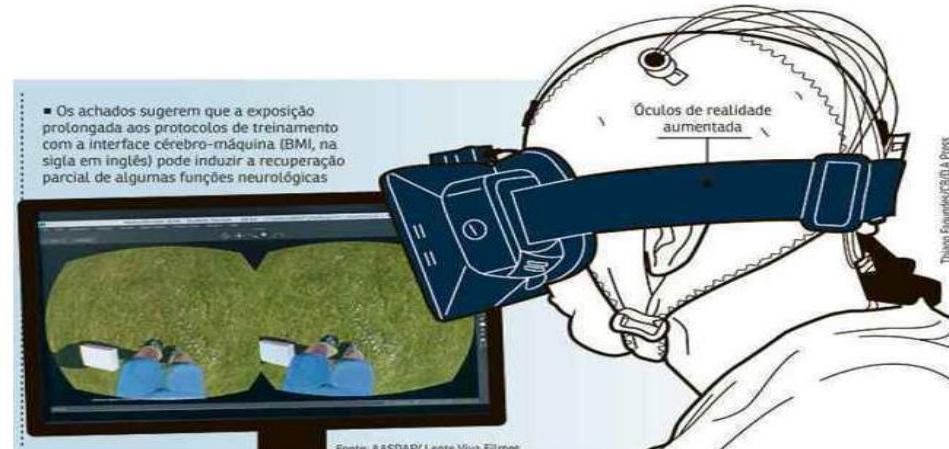
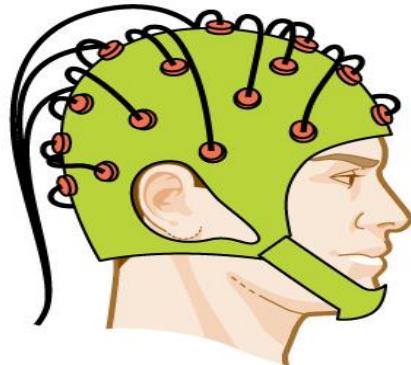
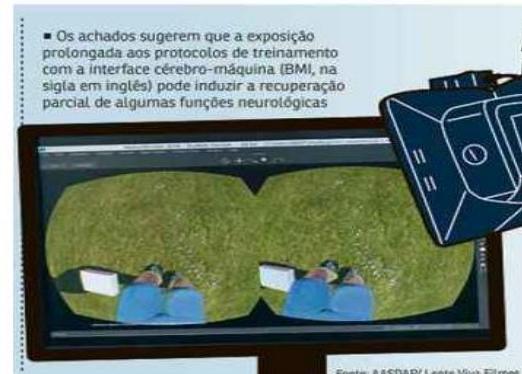
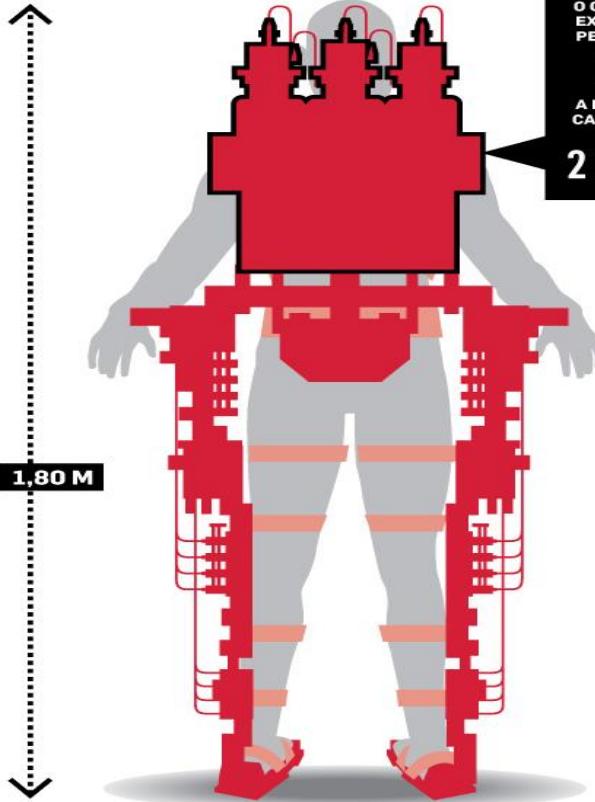
Melhoramento cerebral e corporal



# Máquina que pensam como humanos

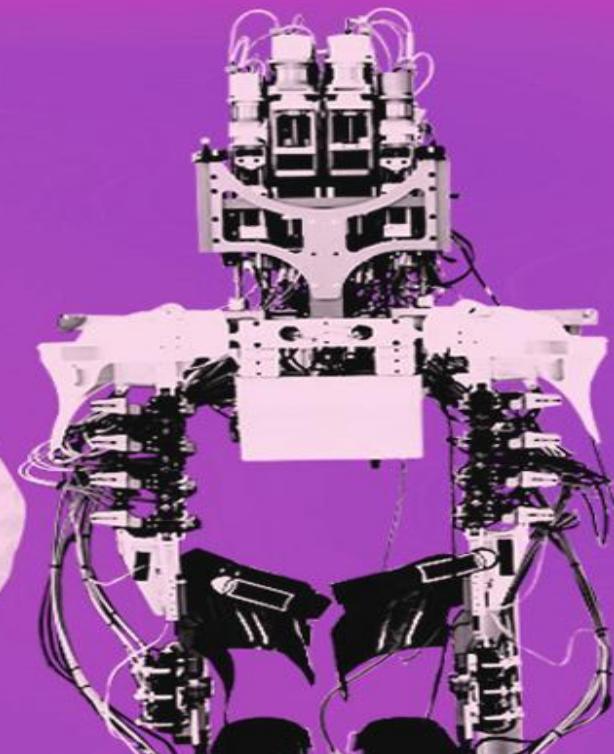
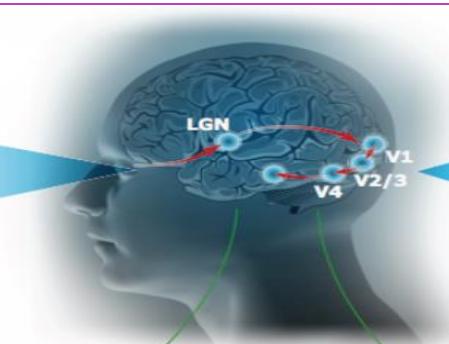


# Máquina que pensam...



# Máquinas que pensam...

Neurocientista brasileiro Miguel Nicolelis



# Máquinas que pensam como seres humanos

dio.

Aplicações de reabilitação humana – sistemas cognitivos

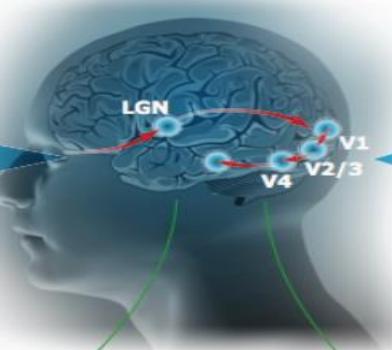
a.



encoding



b.



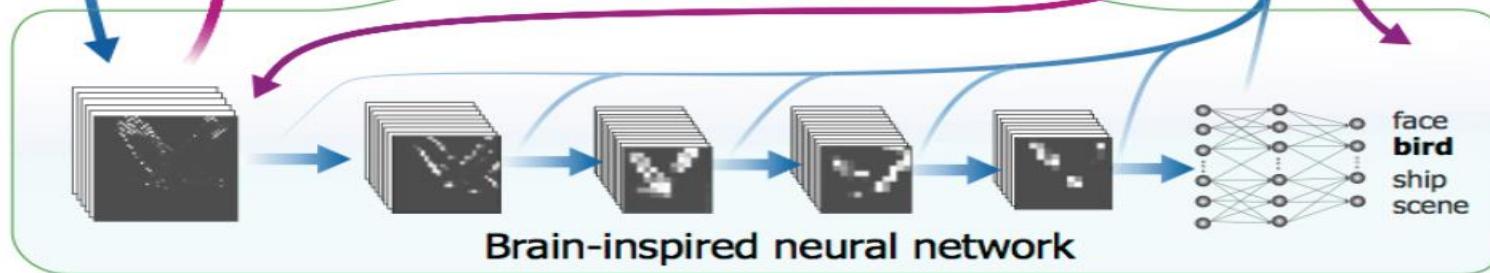
Imaging

c.



categorization

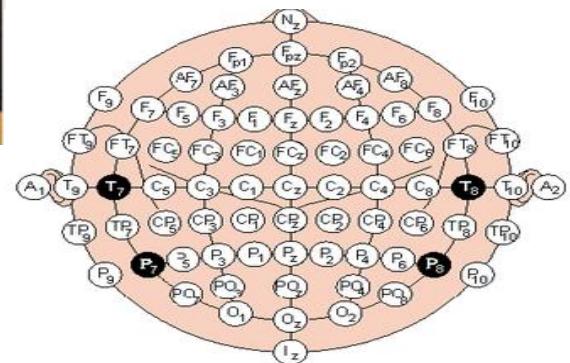
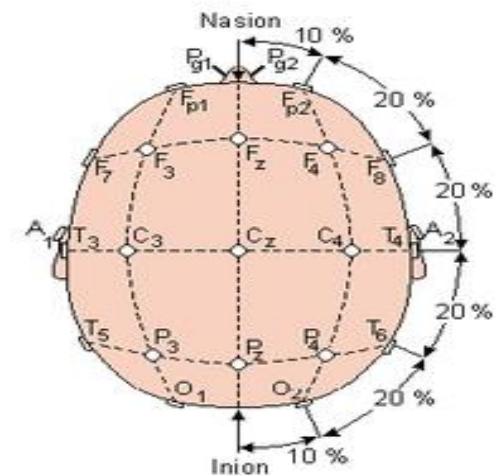
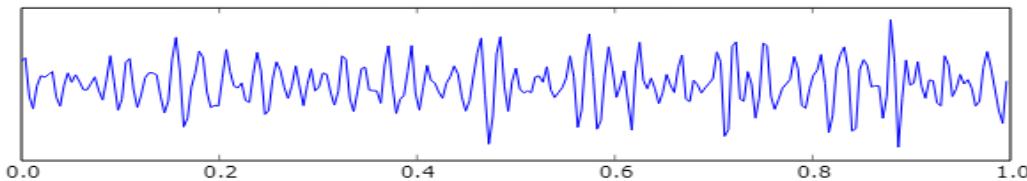
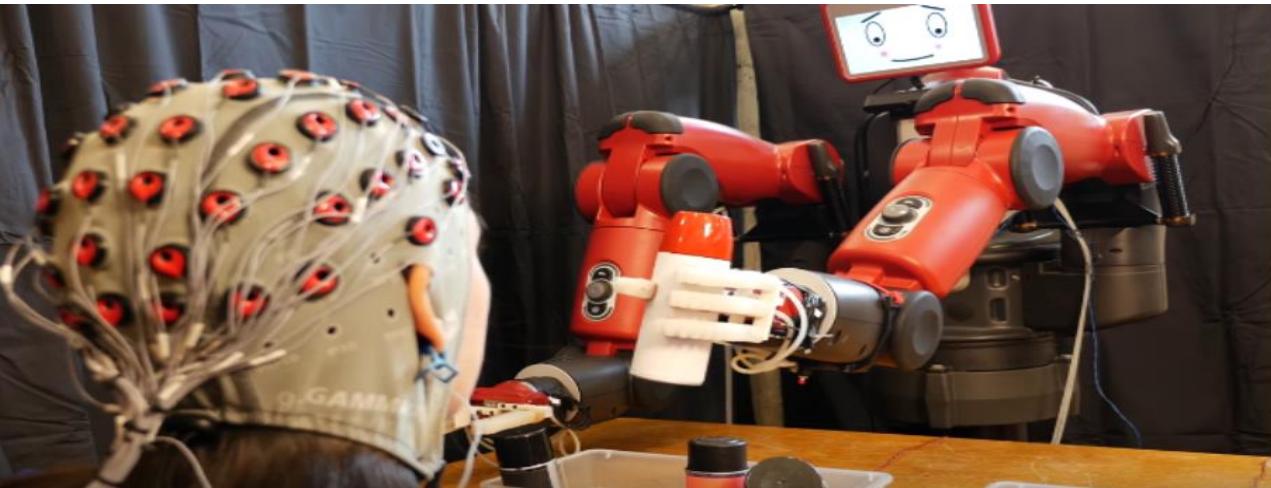
d.



brainn.org.br

# Máquinas que pensam...

ndia



# Obrigado!

*Inteligência Artificial*

Prof. Dr. Diego Bruno

