



Inteligencia Artificial, aplicaciones y startups

Josimar Edinson Chire Saire
18/01/2018



Josimar Chire

4.43 · Master of Science

Overview

Contributions

Info

Stats

Reputation

Research

Introduction

Researching about quantum inspired evolutionary algorithms and improve his convergence and performance using probability density functions.

Skills and expertise (8)

Machine Learning

Computer Vision

Computational Intelligence

Artificial Intelligence



jecs89
jecs89

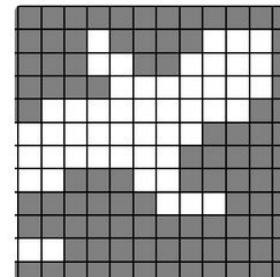


Josimar Edinson Chire Saire

Investigador de Doctorado en BIOCOM

Universidade de São Paulo • Universidade de São Paulo

Perú • 299



Universidade de Sao Paulo



- 7 campus
- Top ranking universidades
- 13.467 de los pos-graduandos están en **Maestría**
- 13.101 de los pos-graduandos están en **Doctorado**
- 5.865 docentes (5.786 son Doctores, 4.469 se dedican en tiempo integral)

ICMC São Carlos

INSTITUTO DE
CIÊNCIAS
MATEMÁTICAS E DE
COMPUTAÇÃO



ICMC Bloco 6



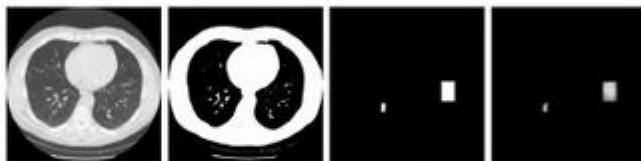
- Laboratorio de Computación Bioinspirada
- Organización de congresos, charlas, workshop, cursos.

Experiencia

Classification

Lung Cancer Detection

D = 171.



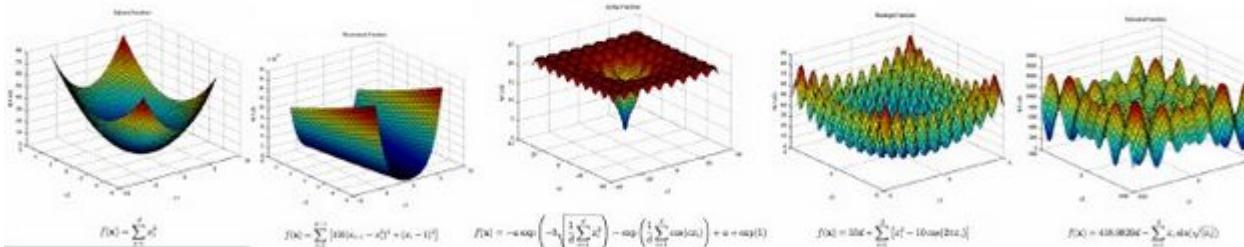
| Parameters | Valor | Lung Cancer | 10 | 50 | 100 |
|---------------|-------|--------------|---------|----------|----------|
| Input nodes | 8 | Lung Cancer | 10 | 50 | 100 |
| Hidden nodes | 17 | Random Init. | 55127.1 | 55239.5 | 56266.12 |
| Output nodes | 1 | FP-AK-QIEAR | 29439.6 | 30663.22 | 30820.72 |
| Training | 0.5 | | | | |
| Minimal error | 0.01 | | | | |

Figure 25: Lung Cancer Detection using MLP

- Procesamiento de Imágenes
- Redes Neuronales Perceptrón Multicapa
- Enjambre de Partículas
- Detección de cáncer pulmonar usando TAC

Experiencia

D=30



Proteing Folding

Experiments with artificial problems[Hsu et al., 2003].

Size, sequence, dimension .

- 13 , ABBABBABABBAB , 21
- 21 , BABABBABABBABABBABABBAB , 37
- 34 , ABBABBABABBABABBABABBABABBABABBAB , 63
- 55 , BABABBABABBABABBABABBABABBABABBABABBABABBAB-BABABBAB ,
105

- Algoritmos Evolutivos
- Optimización
- Redes Perceptrón Multicapa
- Protein Folding
- Knapsack Problem
- MOO

Experiencia

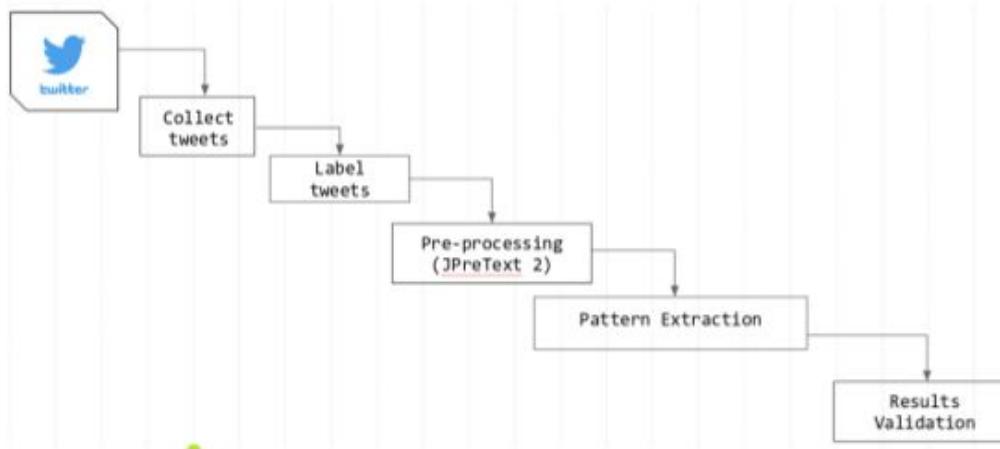
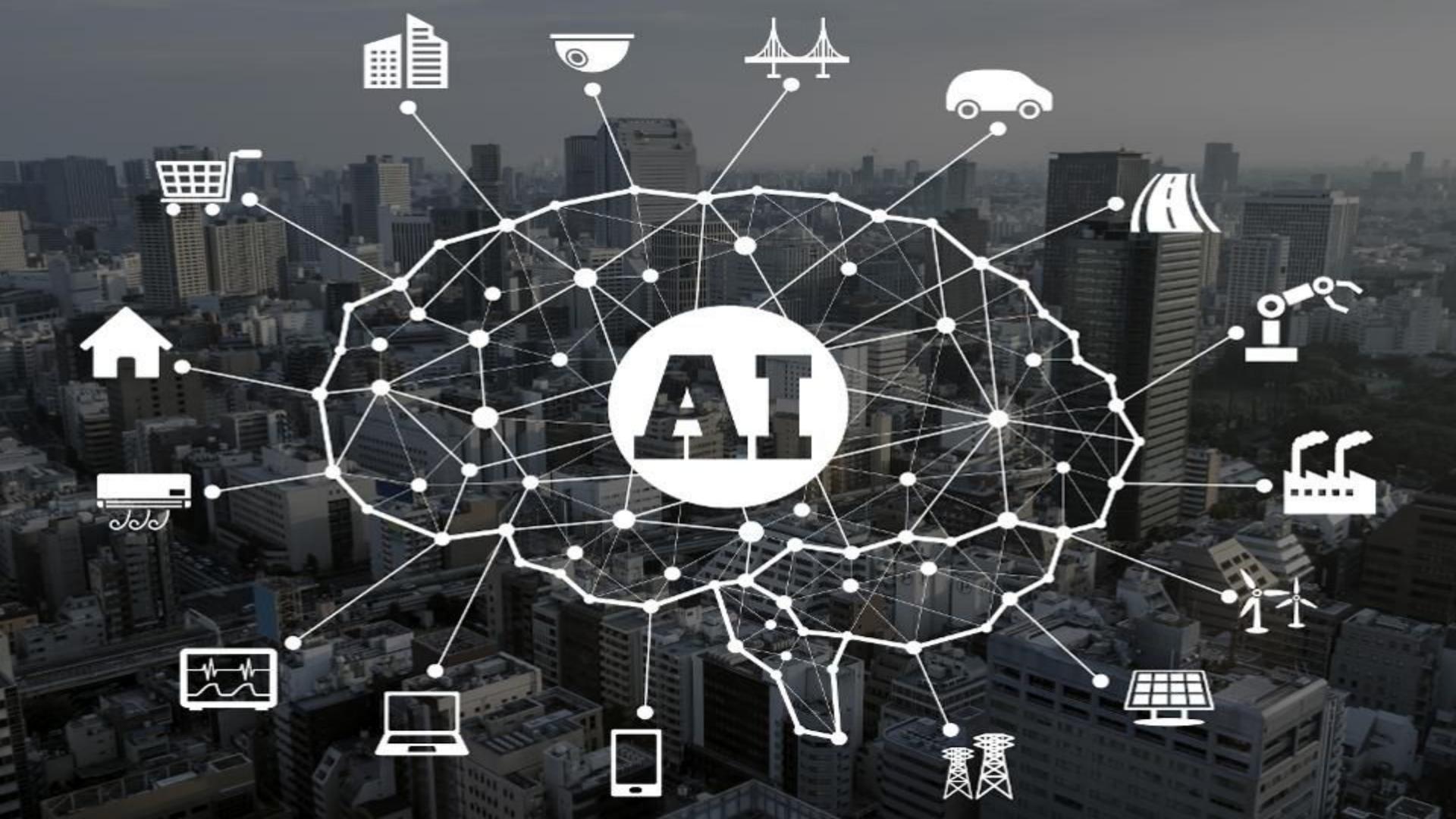


Fig. 1. Methodology

```
"created_at": "Thu Apr 06 15:24:15 +0000 2017",  
"id": 850006245121695744,  
"id_str": "850006245121695744",  
"text": "eu acho q to com dengue, tem condições nã  
"user": {},  
"entities": {}
```

- NLP
- Machine Learning



https://www.youtube.com/watch?v=MKX_Kzp8hfk



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SELECT A LOGOS TECHNOLOGIES PRODUCT

WHAT IS A.I.?



Machine learning ⊂ artificial intelligence

ARTIFICIAL INTELLIGENCE

Design an intelligent agent that perceives its environment and makes decisions to maximize chances of achieving its goal.

Subfields: vision, robotics, machine learning, natural language processing, planning, ...

MACHINE LEARNING

Gives "computers the ability to learn without being explicitly programmed" (Arthur Samuel, 1959)

SUPERVISED LEARNING

Classification, regression

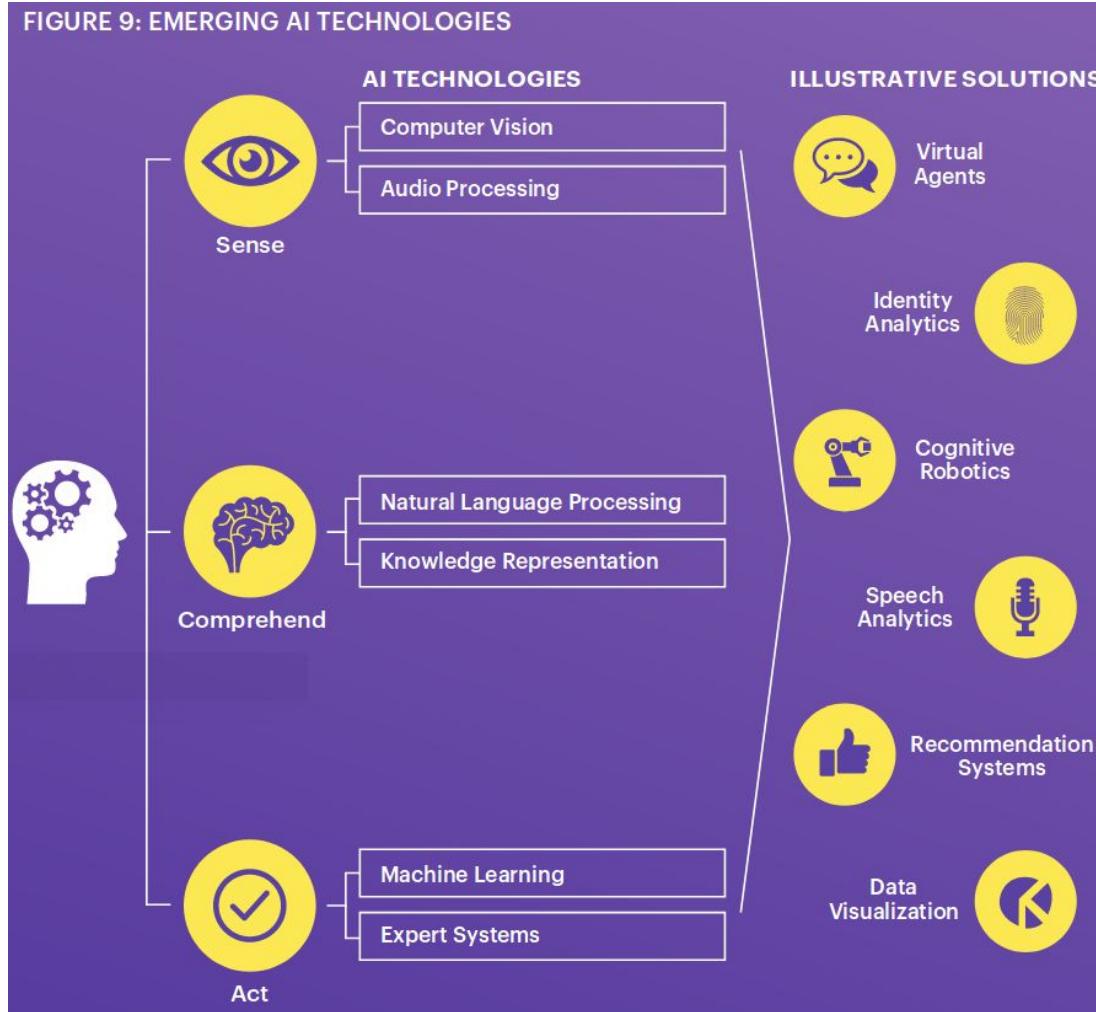
UNSUPERVISED LEARNING

Clustering, dimensionality reduction, recommendation

REINFORCEMENT LEARNING

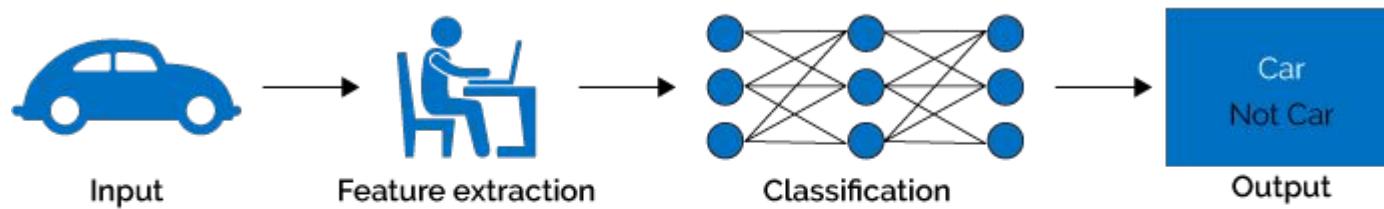
Reward maximization

FIGURE 9: EMERGING AI TECHNOLOGIES

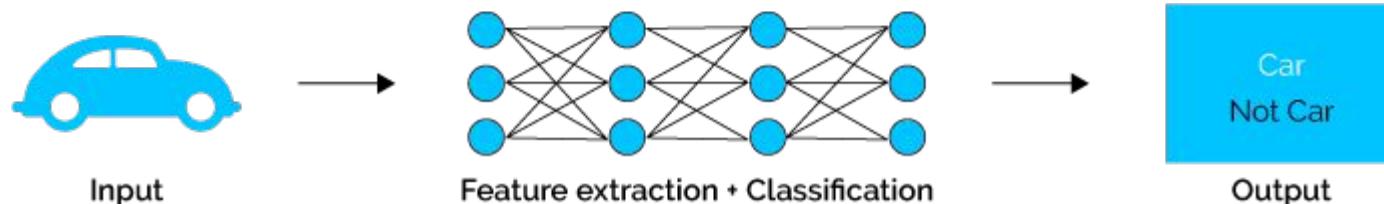


Machine Learning

Machine Learning



Deep Learning



Computer Vision

Vision Lab Demo

Motion Detect Extract Robust Features Hough Circles and Line Segments

A 10x10 grid of numerical values representing motion detection. The values range from 0 to 26. A yellow box highlights a cluster of values around 9-12 in the upper-middle section.

Detect Haar Objects Find Contours Find and track targets

Face detection results showing a person's face with two yellow circles labeled "Eye" and a red circle labeled "Face".

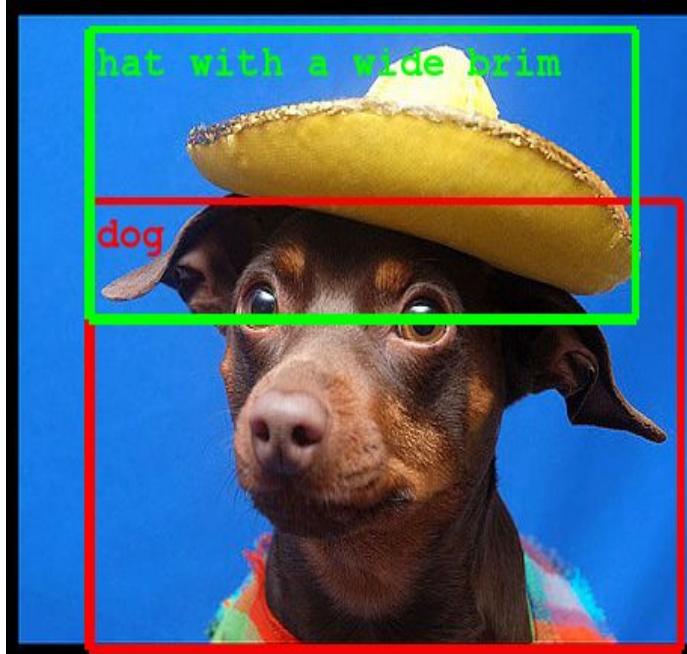
Find Contours visualization showing a green-outlined image with numerous small green circles representing detected contours.

Find and track targets visualization showing a person's face with various tracked points and associated mathematical calculations:

$$164 : 26.96 = 2.41$$
$$113.09 : 42.35 = 196.15$$
$$55.76 : 68.74 = 218.46$$
$$12.93 : 14.89 = 1.98$$
$$12.34 : 13.99 = 235.85$$
$$10.73 : 9.99 = 205.47$$
$$99.38 : 1 = 99.38$$
$$136.34 : 113.26 = 32$$
$$125.35 : 127.13 = 143.3$$
$$132.99 : 139.46 = 180$$
$$97.21 : 160.76 = 244.18$$
$$109.07 : 167.95 = 136.25$$

Brithish

Computer Vision



What color are her eyes?
What is the mustache made of?



Is this person expecting company?
What is just under the tree?

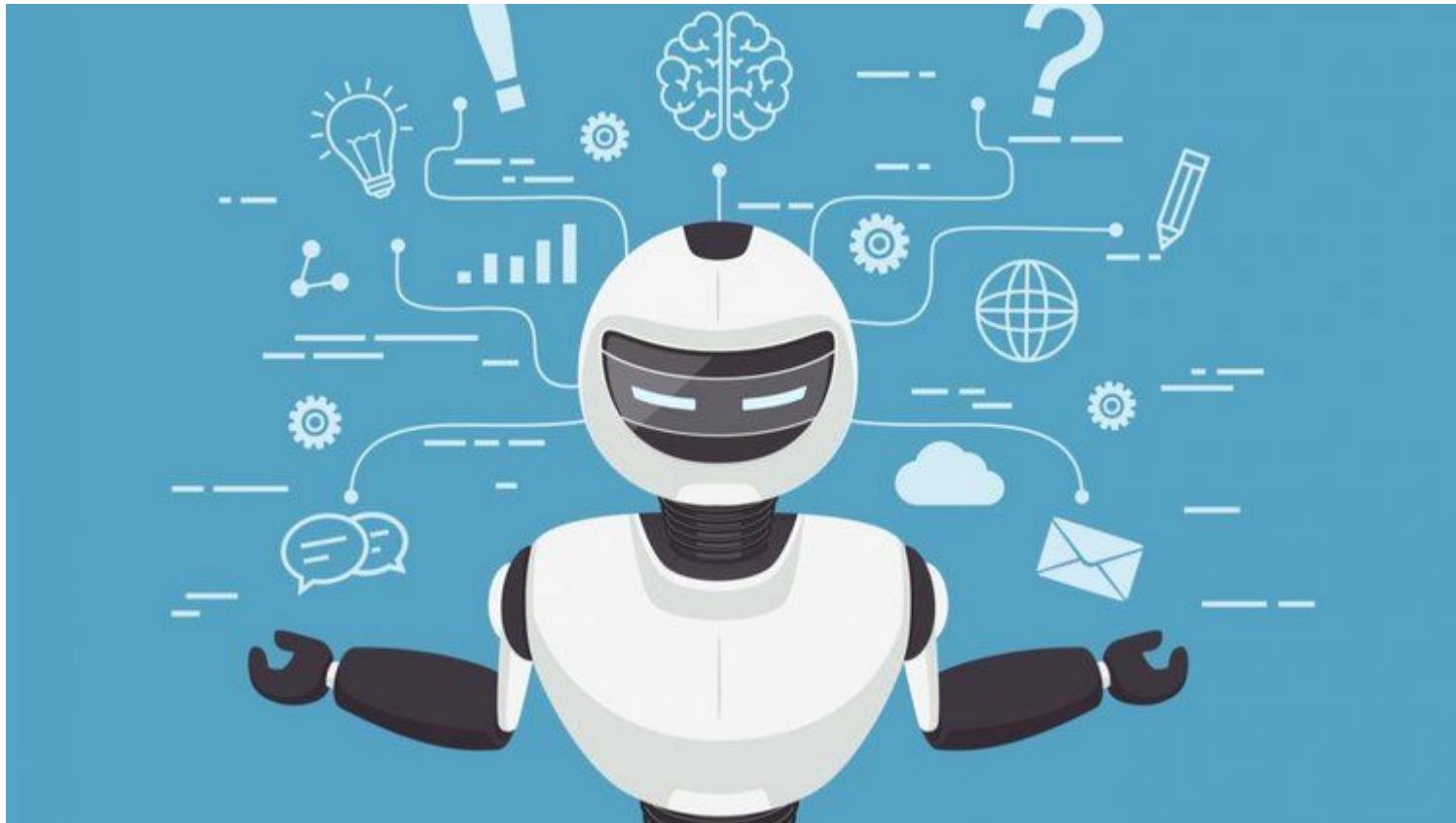


How many slices of pizza are there?
Is this a vegetarian pizza?



Does it appear to be rainy?
Does this person have 20/20 vision?

Natural Language Processing



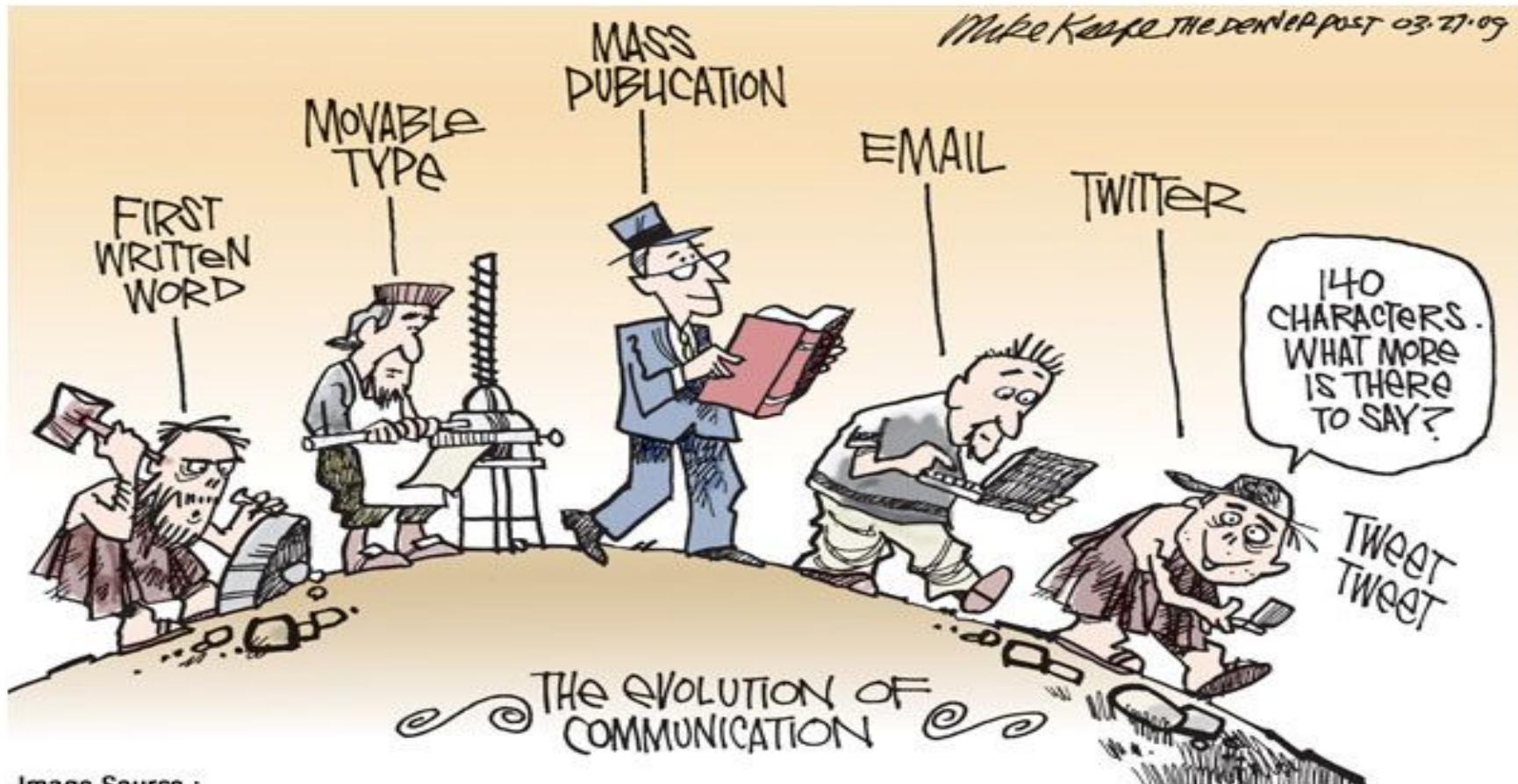
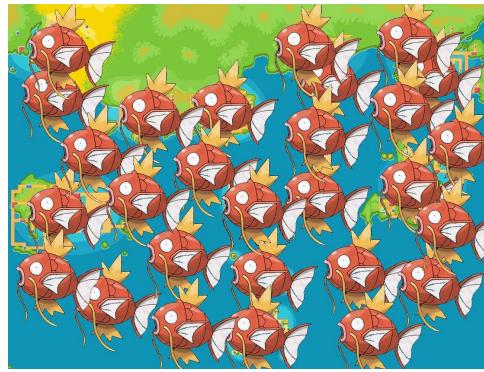
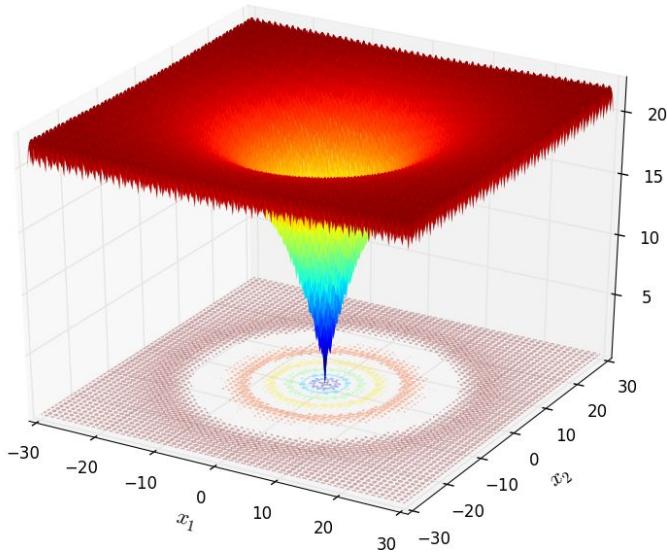


Image Source :

http://zenashapter.com/blog/wp-content/uploads/2014/05/20090326_085025_OP27keefedpo.jpg

Evolutionary Algorithms, Bio-inspired Algorithms





minimize
 n, k, τ, w

$$F(n, k, \tau, w) = \sum_{\epsilon=1}^{n_e} \sum_{o=1}^{n_O} \sum_{s=1}^{n_S^{\epsilon,o}} (\bar{y}_S^{\epsilon,o} - y_S^{\epsilon,o})^2$$

subject to

$$\mathcal{E}_{\text{sub}} = \{e_i | w_i = 1\}, i = 1, \dots, n_{\text{hyperedges}}$$

$$\mathcal{H}_{\text{sub}} = (V, \mathcal{E}_{\text{sub}})$$

$$\text{LB}_n \leq n \leq \text{UB}_n$$

$$\text{LB}_k \leq k \leq \text{UB}_k$$

$$\text{LB}_\tau \leq \tau \leq \text{UB}_\tau$$

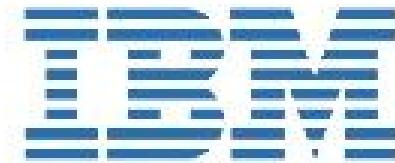
$$\dot{\bar{x}} = f(\mathcal{H}_{\text{sub}}, \bar{x}, n, k, \tau, t)$$

$$\bar{x}(t_0) = \bar{x}_0$$

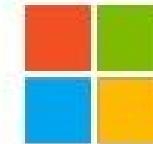
$$y = g(\mathcal{H}_{\text{sub}}, \bar{x}, n, k, \tau, t)$$



Hot Companies In AI: Click To Explore



Google

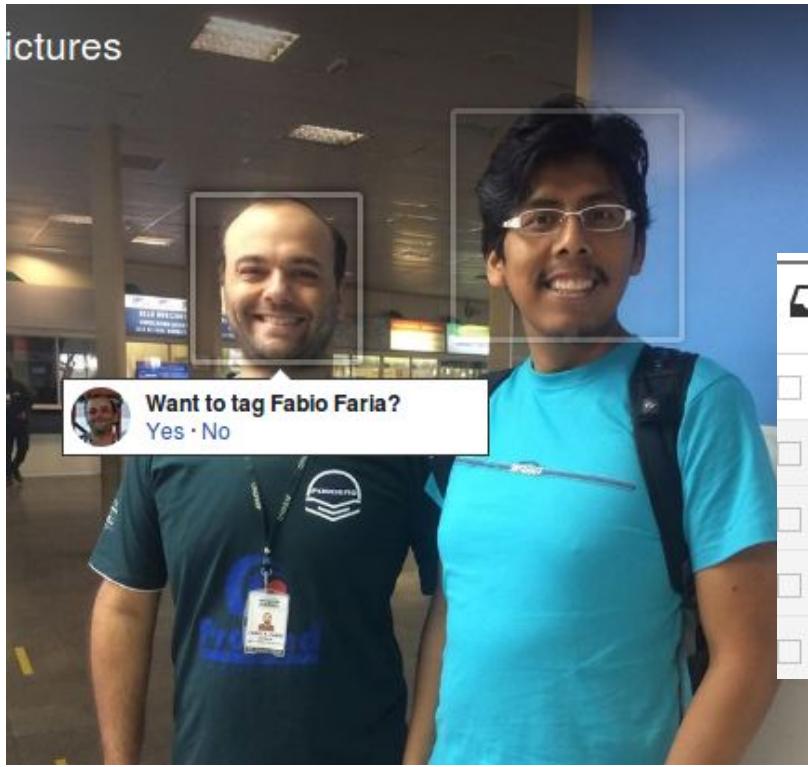


Microsoft



Dropbox

ictures



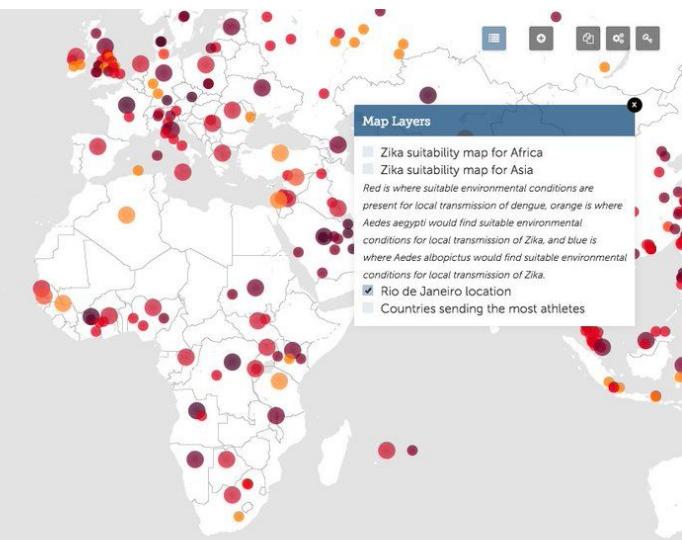
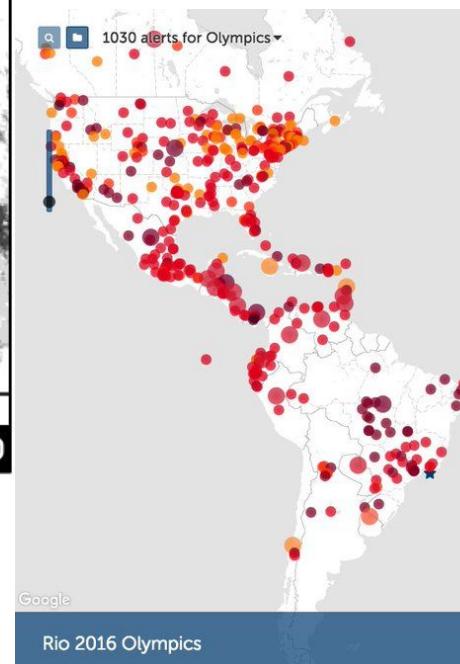
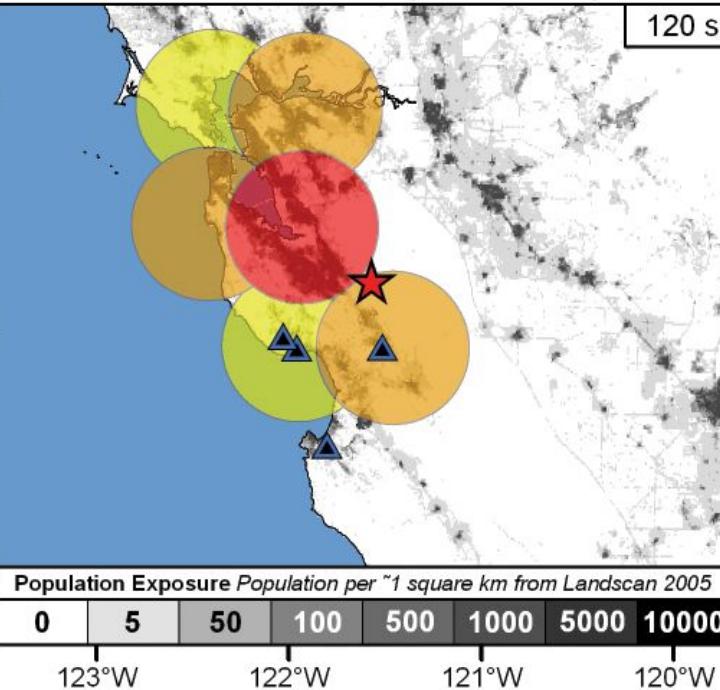
| <input type="checkbox"/> | | | I Workshop de Intelli. (33) [I Workshop de Inteligencia Artificial -- Artificial |
|--------------------------|--|--|--|
| <input type="checkbox"/> | | | yo Comienzo de I WIA - I Workshop de Inteligencia Arl |
| <input type="checkbox"/> | | | I, yo, Victoria (3) [I Workshop de Inteligencia Artificial -- Artificial Inte |
| <input type="checkbox"/> | | | T&D LA 2018 T&D LA 2018 - Dear Josimar Edinson Chire Saire, I |
| <input type="checkbox"/> | | | yo, ESPG (6) Contacto - No tengo un formato especial. Y gracias |

10-20

21-60

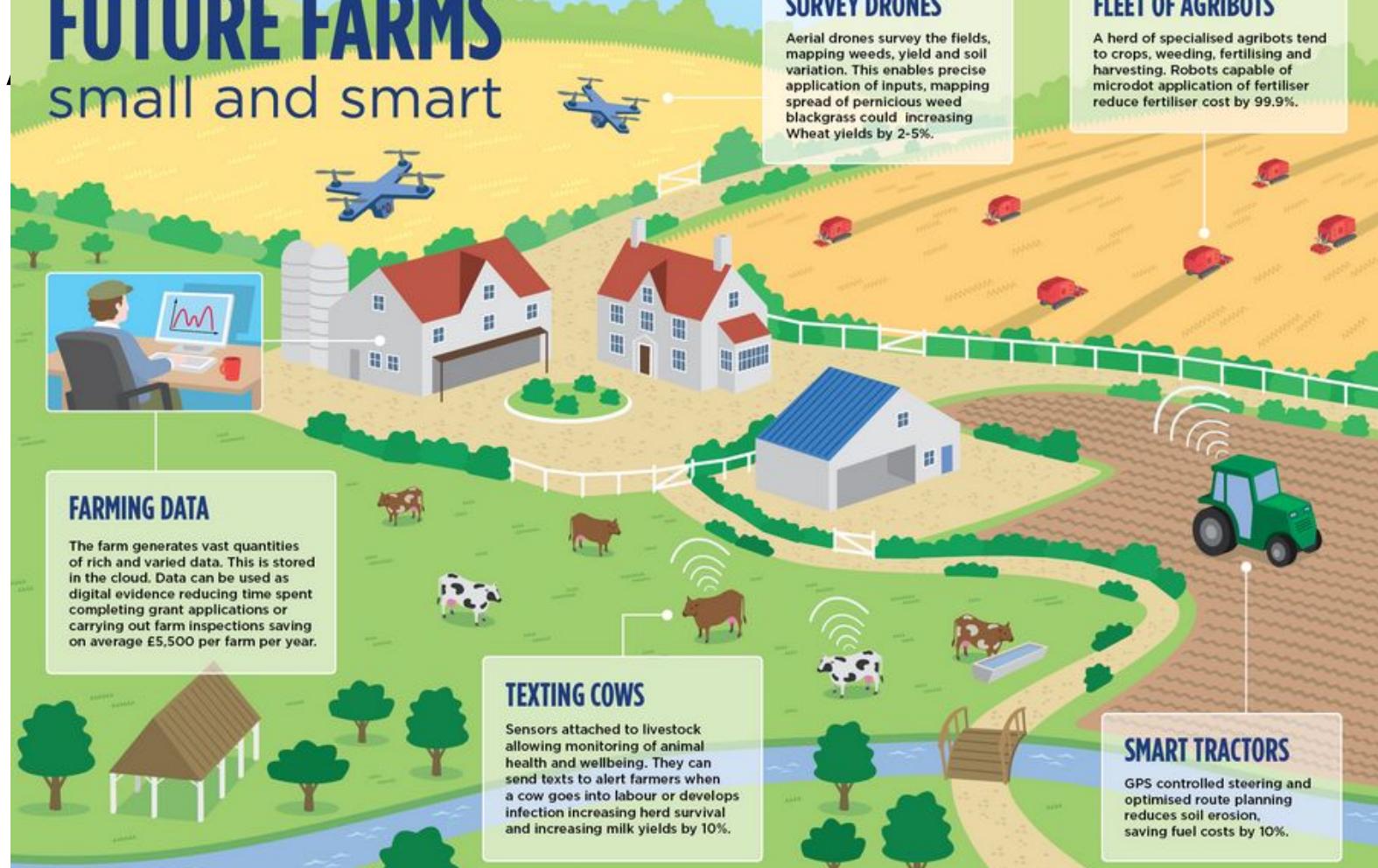
61-227

Twitter Comments With Keyword "Earthquake"



FUTURE FARMS

small and smart







PERSON
99.3%

OUTDOORS
83.1%

CREST
83.0%

MOUNTAIN BIKE
99.1%

ROCK
82.8%

Facial Analysis

Get full analysis of facial attributes, including confidence scores.



Select A Sample Image



Use Your Own Image

Upload

or

Provide an image URL here

Go

Next Steps: [Developer Guide >](#)

▼ Faces | Confidence



| | |
|--------------------------|-------|
| looks like a face | 99.9% |
| appears to be female | 100% |
| smiling | 92.8% |
| appears to be happy | 99.0% |
| notwearing eyeglasses | 99.8% |
| notwearing sunglasses | 94.4% |
| eyes are open | 94.8% |
| mouth is closed | 81.6% |
| does not have a mustache | 99.9% |
| does not have a beard | 99.2% |

[Show Less](#)

► Request

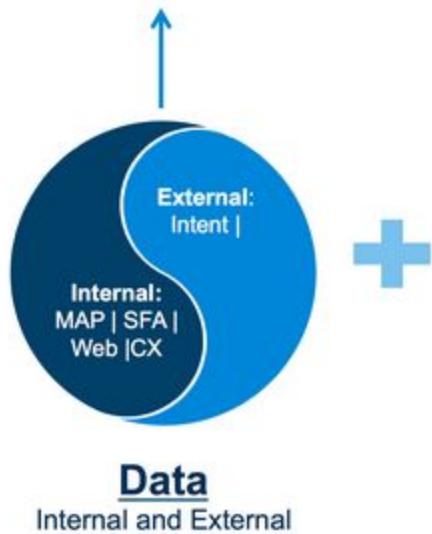
► Response

AI Impact in E-commerce

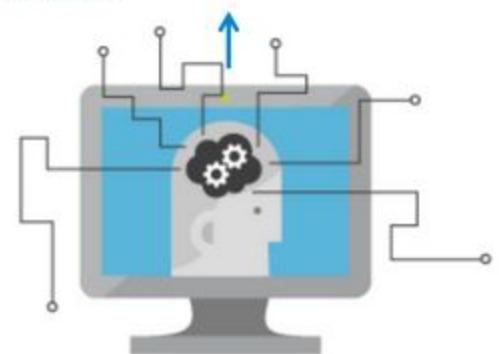


What is Predictive Analytics for B-to-B marketing?

Predictive Providers provide **external data, which creates a much more complete view of who the prospects are and whether they are in the market for solutions



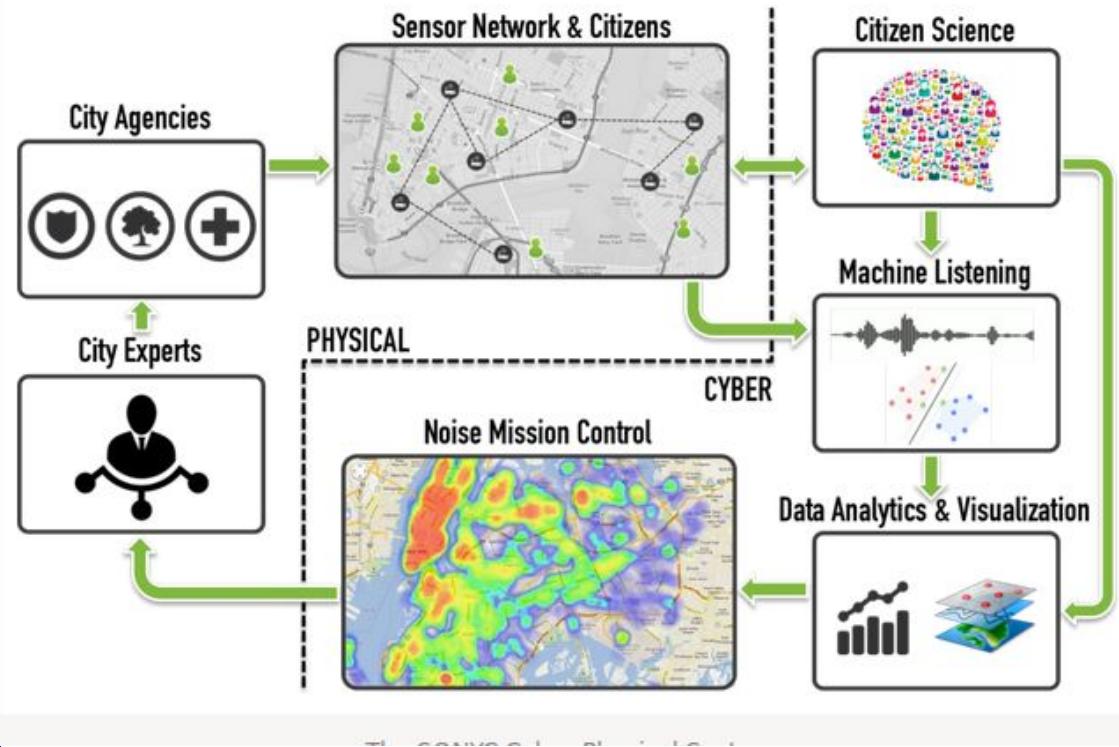
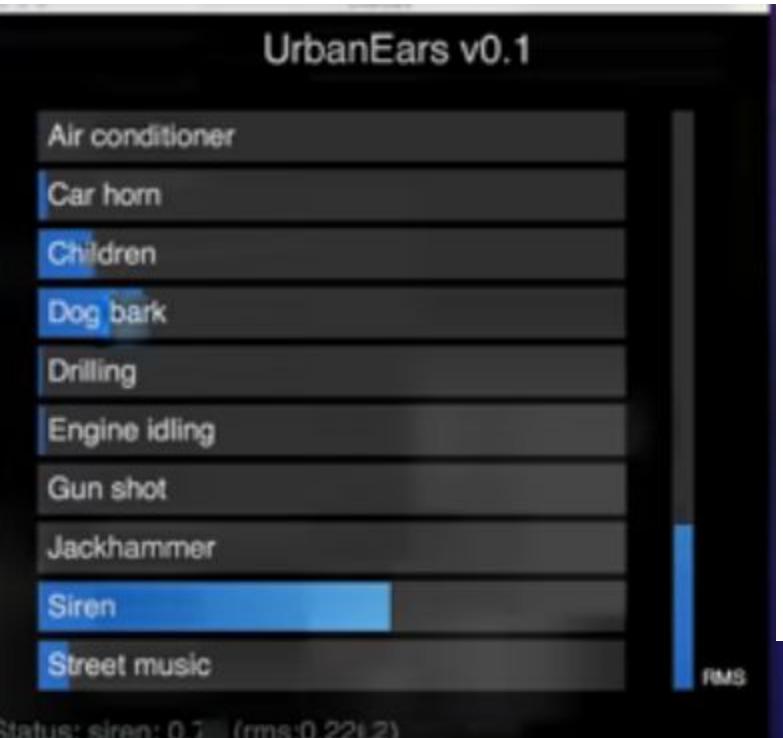
Statistics and advanced algorithms allow marketers to identify patterns that identify buyers that would be otherwise invisible; **Machine Learning involves feedback loops embedded within statistical modeling processes to enable continuous model refinement



Statistics
To find patterns

Some vendors also add in additional services like **data enrichment to enable more effective marketing and sales tactics





AI Startups in Brazil

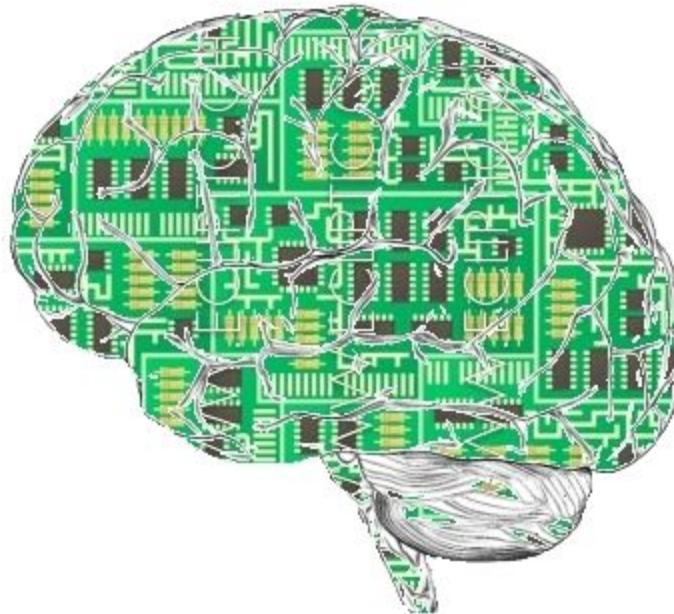
Researchers in Brazil and Germany to optimize artificial intelligence techniques

March 29, 2017



By Elton Alisson | Agência FAPESP – Researchers at São Paulo State University (UNESP) in Bauru (São Paulo State, Brazil), in collaboration with colleagues at Friedrich-Alexander University of Erlangen-Nuremberg (FAU) in Germany, are planning to optimize advanced artificial intelligence (AI) techniques that enable computer algorithms to collect and interpret big data as a basis for making predictions and generalizations.

The project, involving André Carlos Ponce de Leon Ferreira de Carvalho, a professor at the University of São Paulo's Mathematics & Computer Science Institute (ICMC-USP) in São Carlos (São Paulo State, Brazil), and André



A new project has been launched with funding from FAPESP's SPRINT program, which promotes collaboration between researchers in São Paulo State and abroad. The call for new proposals will remain open until April 24 (image: Wikimedia Commons)

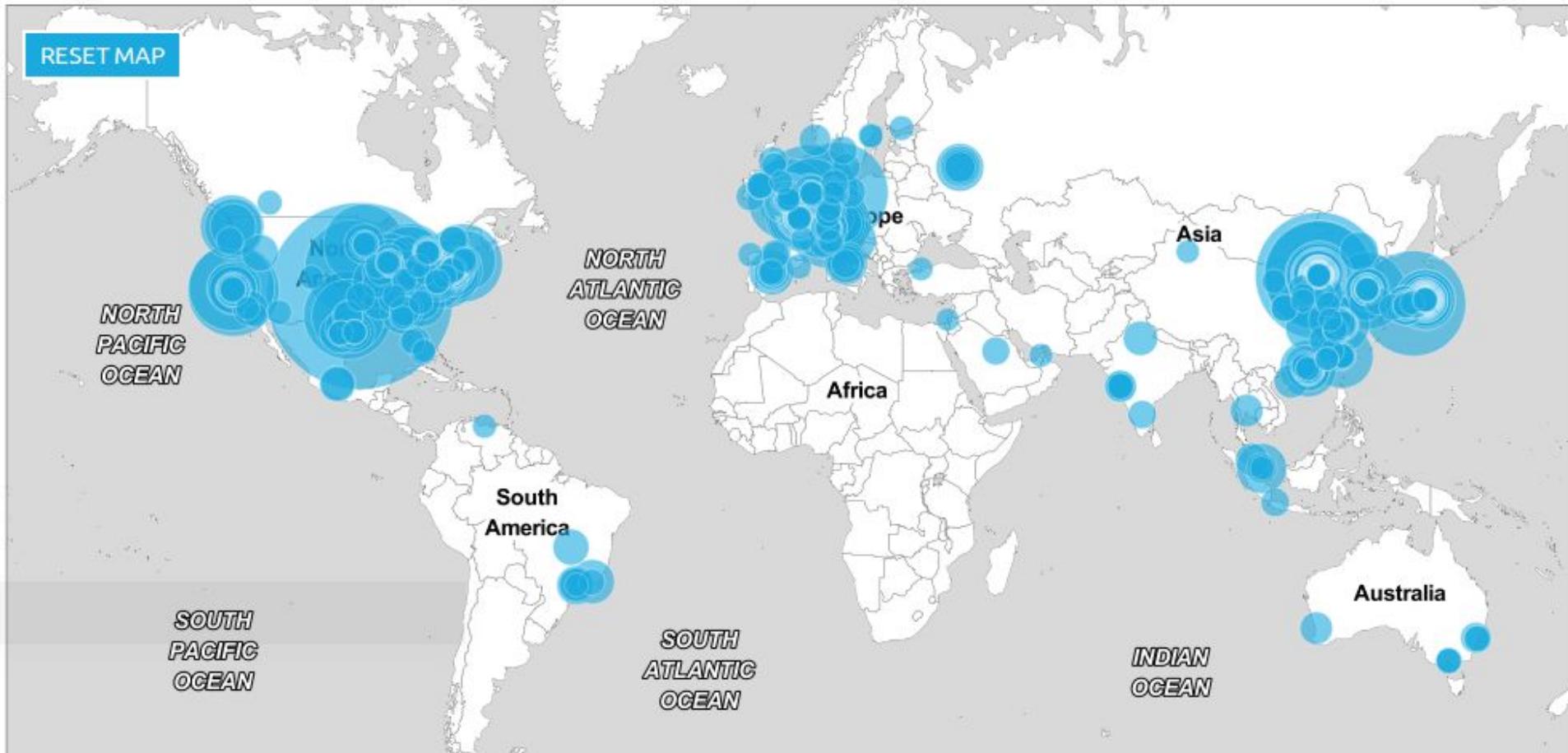
★ PESQUISA CIENTÍFICA x MERCADO IMOBILIÁRIO ★

Somos a **EnterUp**, uma startup que cria tecnologia a partir de **pesquisa científica** para impulsionar os negócios no **mercado imobiliário**.

O QUE FAZEMOS



RESET MAP



\$27.7 trillion in revenues and \$1.5 trillion in
profits in 2016.

500 COMPANIES DISPLAYED

Map tiles by Stamen - Design by Nicolas Rapp for Fortune

Kapputo

KAPPUTO

CHEGA DE PALPITES!

A **Kapputo** coleta dados de várias fontes para entender melhor os **preços de imóveis em Belo Horizonte**.

Dessa forma você verifica se aquele imóvel é ou não um **bom negócio** ou se ele **vale o aluguel** que o mercado pede.

Pesquise, analise, entenda e tome a decisão correta!

Quer saber mais, tem uma sugestão ou crítica? Envie um email para:
sppin@sppin.com.br Ficaremos felizes em te responder!



uses Big Data and Machine Learning in order to allow real estate investors and construction companies to make better decisions

Dataholics



PRESUMED INCOME

We have the best Presumed Income indicator of the market, to discover the average of the earnings of your customers. This analysis works very well because is made in individual level based on job, job position, enterprise, education and education level, public data mined from web and social media



DIGITAL LEVEL

Big and medium enterprises spend millions of dollars to send bills on paper, and as we know this issue DATAHOLICS created the score Social Level. We discover how digital are your customers and based on this information you can offer online bills via Email, SMS and for so many different uses



ID SCORE

Solution to confirm the identity of your customers, checking the authenticity of the Name, Email, Cell phone, if the social media profiles are real and a face matching comparing selfies or documents with photos with public images from web and social media, keeping this registers in a incorruptible way recorded on Blockchain

provides a **solution** to **detect** the products and services that fit a given **consumer** profile based on his/her **social media** and **demographic information**.

500 STARTUPS INVESTS R\$500K IN IDWALL (EM PORTUGUÊS)

November 18, 2016



(ITForum 365) 500 Startups has invested in Brazilian startup Idwall, an artificial intelligence software that detects fraudulent documents and verifies identity.

A startup brasileira **Idwall** é a nova aposta do **Vale do Silício**. A empresa, fundada em 2016 por três engenheiros de softwares, acaba de receber o carimbo de uma das maiores aceleradoras do mundo: a **500Startups**. O fundo focado em startups early stage anunciou o investimento de R\$500 mil e, de quebra, levou os empreendedores para um mergulho na cultura do Vale do Silício.

Konduto

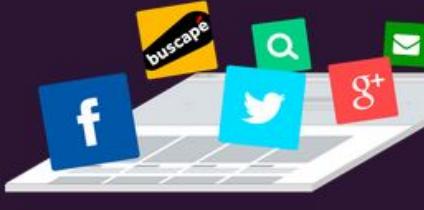
Smart technology to
stop e-commerce fraud

Leverage Machine Learning to approve more orders automatically.

GET IN TOUCH

We see where your clients come from

As soon as your client enters we know where they came from and we start following them throughout the visit.



We crunch the numbers for you

This is where the magic happens. We analyze the customer's browsing behavior and employ technologies such as Device Fingerprinting, IP Geolocation, Social Graph, Proxy Detection and Velocities.



Monitor Regulatório

Coleta



Coleta automatizada de normativos

Filtro



Uso de Inteligência Artificial para identificação, classificação, ordenamento e priorização dos normativos

Distribuição



Uso de Algoritmo de recomendação com aprendizagem dinâmica para personalizar a distribuição dos documentos

Análise



User Experience: interface amigável com o usuário visando a simplificação, praticidade e engajamento
Retroalimentação do algoritmo

Monitoramento



Dashboard Regulatório para controle e gestão de todos os normativos, responsáveis e respectivas ações



Peru

AI could add US\$43 billion to Peru's 2035 GVA. The majority of these gains (US\$28 billion) will come from the augmentation channel, with intelligent automation and innovation diffusion contributing US\$7 billion each.

The country's wholesale and retail sectors, which account for some 17 percent of added value¹⁵, present valuable opportunities for AI-driven growth and efficiency. For example, Chazki, the Peruvian "Uber of Logistics" is using AI to develop new postal maps of hard-to-reach locations, opening new distribution opportunities for e-commerce retailers. Chazki's founder and CEO, Gonzalo Begazo, sees similar opportunities across South America, especially in the outskirts of large cities. His company has just expanded into Buenos Aires. Peru is urbanizing fast and per-capita incomes are expected to grow, opening yet further AI opportunities to overcome the country's structural deficiencies and better serve customers.

Peru's manufacturing industry also offers a ripe target for AI to stimulate dynamism and a much-needed recovery. Production has been in contraction for the past three years, and almost 1,700 manufacturing

NÚMEROS ESPERTOS

Algumas estatísticas do setor:



O mercado global de inteligência artificial deve movimentar
US\$ 152,7 BILHÕES em 2020



Quase metade desse valor,
US\$ 70 BILHÕES, será gasto em softwares analíticos



Até **2020**,
85% dos centros de atendimento ao cliente irão ser virtuais



No Brasil, há **80 STARTUPS** que estão desenvolvendo produtos na área de inteligência artificial

Fonte: Bank of America Merrill Lynch, Gartner Group, 100 Opens Startups



ACTIVIDADES QUE DESARROLLAMOS

Startup GRIND
Google for Entrepreneurs

Meetups con el cofundador de una startup

www.startupgrind.com/
Arequipa

#MistiUp

Meetups mensuales de aprendizaje y networking

INTERNATIONAL
BusinessModel
COMPETITION

06 Universidades (2015)
08 Universidades (2016)

E|100™ los Emprendedores

E|100 Arequipa - 49 emprendedores

Arequipa y Lima

HORA DEL CÓDIGO

Taller de inducción al mundo de la Ciencia de la Computación



Preguntas?

Yo preguntaré???

Contacto

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+51941445426