

INTELIGENCIA ARTIFICIAL EN MEDICINA

15/03/2016 Máster en Bioderecho

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AIKE

IA

Bioseñales

WASPSS

DAISY

AIKE

Artificial Intelligence and Knowledge Engineering

1.993

20 personas (aprox.):

Ing. informáticos

Físicos

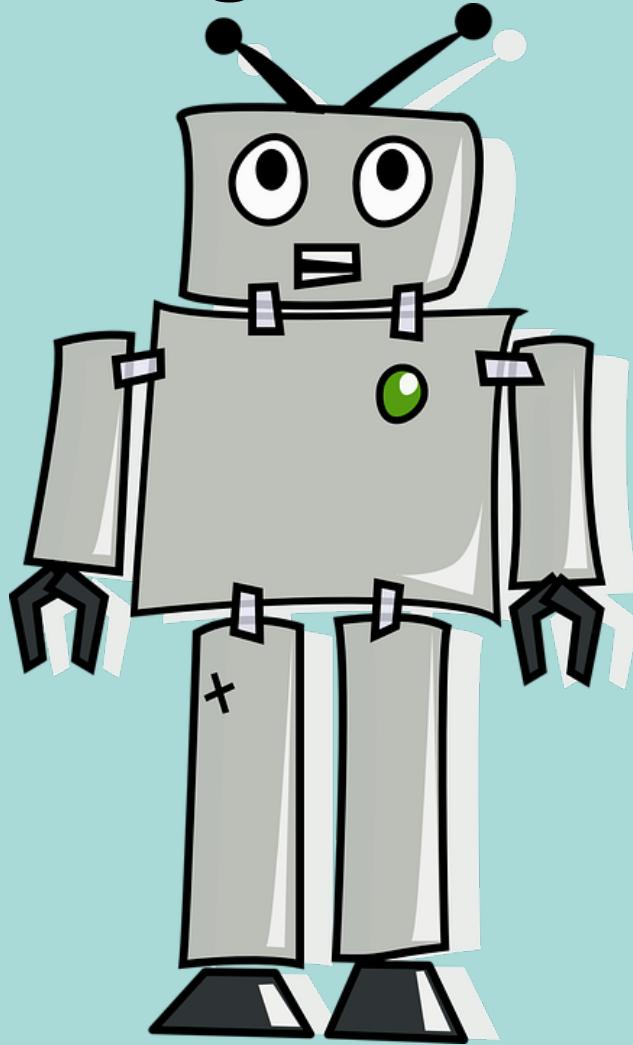
Ing. industriales

Médicos

www.um.es/aike

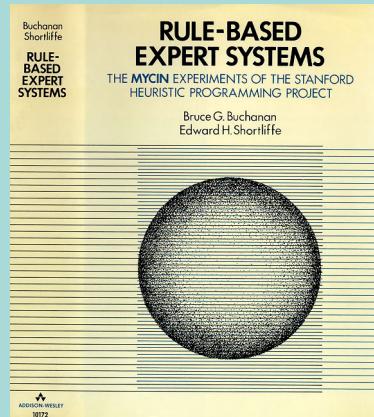
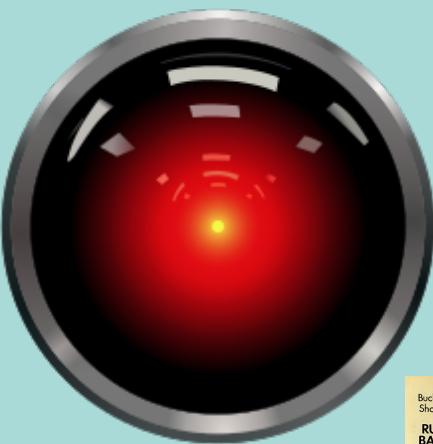


IA: Inteligencia Artificial



IA: Inteligencia Artificial

IA



https://en.wikipedia.org/wiki/Artificial_intelligence_in_fiction#/media/File:HAL9000.svg

<http://www.businessinsider.sg/how-ibm-watson-is-transforming-healthcare-2015-7/#.Vtnn6JPhCJA>

<http://www.bbc.com/news/technology-35761246>
En medicina. Master Biomedico

IA: Inteligencia Artificial

IA entre nosotros



Spotify®



<https://pixabay.com/es/iphone-forma-forma-iphone-255853/>

<https://commons.wikimedia.org/wiki/File>No-spam.svg>

<https://commons.wikimedia.org/wiki/File:Spotify.svg>

https://www.flickr.com/photos/www_ukberri_net/6197755378

IA en medicina: Máster Bioderecho

<https://www.google.com/selfdrivingcar/>

IA en Medicina

- Informática Médica
- Soporte a la actividad clínica
 - Diagnóstico, prescripción, tratamiento, etc.
- Soporte a la investigación médica
 - Complementario a estadística
 - Descubrimiento de patrones

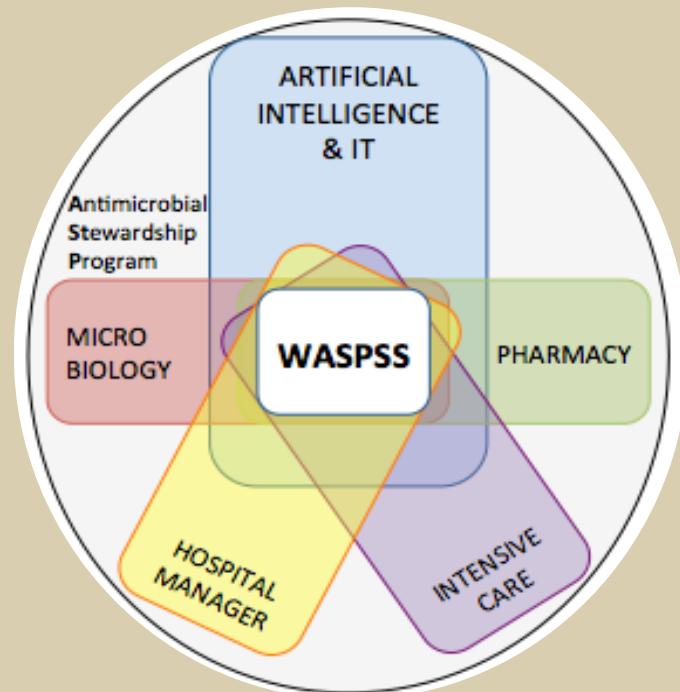
Bioseñales



WASPSS

Wise Antimicrobial Stewardship Program Support System
2013-2016

UMU
HUG



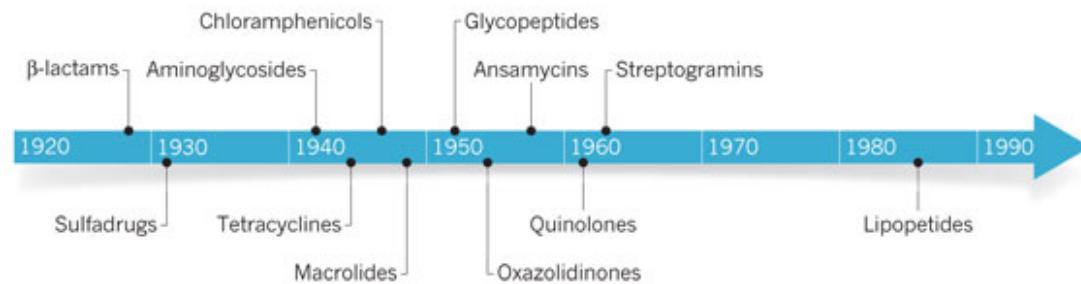
WASPSS

Las resistencias a antibióticos son una preocupación global para la Organización Mundial de la Salud, la Unión Europea y los Estados Unidos European Center for Disease Prevention and Control (ECDC)

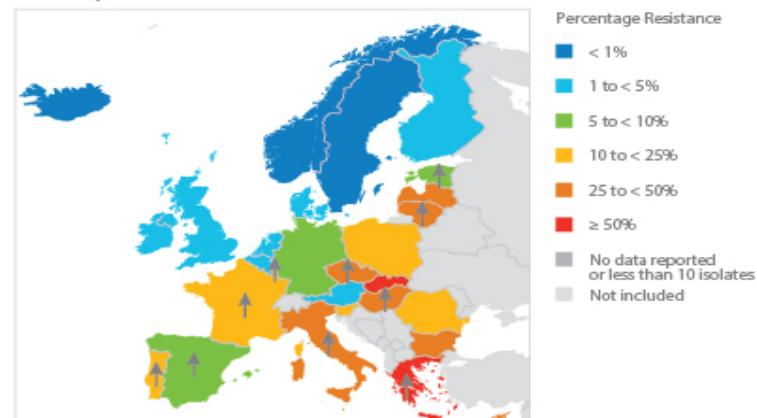
Impacto: 25.000 fallecidos/año

ANTIBIOTIC DISCOVERY TIMELINE

Decades without identifying antibiotics that go on to be used for the treatment of patients has put our defence against bacteria at risk. This timeline pinpoints the year that the antibiotics were first discovered.



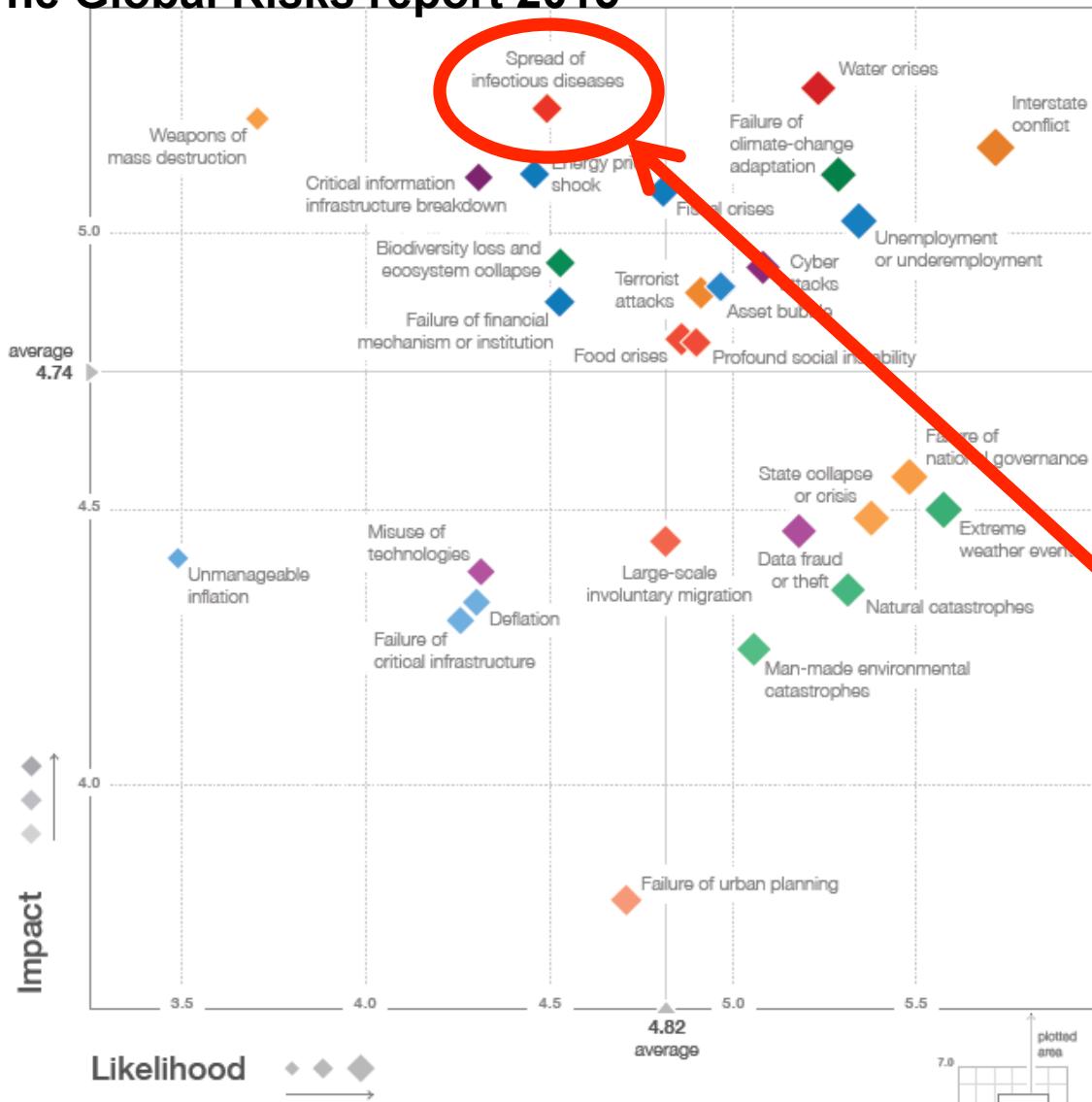
B. *Klebsiella pneumoniae*, combined resistance to three classes of antibiotics (3rd generation cephalosporins, fluoroquinolones and aminoglycosides)



Lewis, R. Antibiotics: Recover the lost art of drug discovery. Nature 485, pp. 439-440. 2012

WASPSS

The Global Risks report 2015



COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

Top 10 risks in terms of Impact

- 1 Water crises
- 2 Spread of infectious diseases
- 3 Weapons of mass destruction
- 4 Interstate conflict
- 5 Failure of climate-change adaptation
- 6 Energy price shock
- 7 Critical information infrastructure breakdown
- 8 Fiscal crises
- 9 Unemployment or underemployment
- 10 Biodiversity loss and ecosystem collapse

DAISY Project

Driven Ambient Intelligence SYstem using Case-Based Reasoning

Antecedentes: AI-SENIOR project (UMU, USC, UPCT)

2010-2014

UMU

UD HUVA

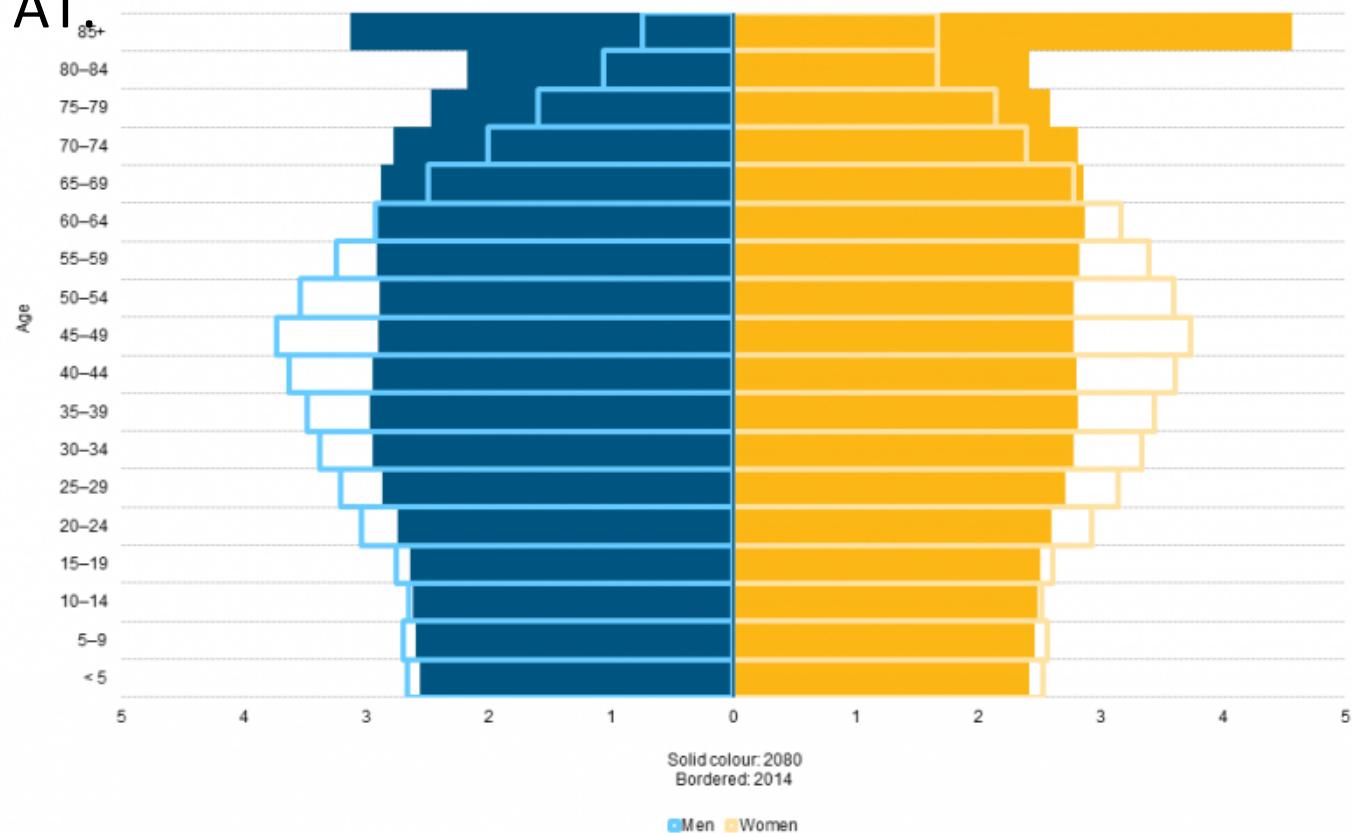
UNIVR



DAISY Project

- EU Population Pyramid 2014 vs. 2080

Source: EUROSTAT.



DAISY Project

Pro-DIA system:
Ami2 + AIKE, i@-GSI (UMU), UPCT
~100 houses in Región de Murcia

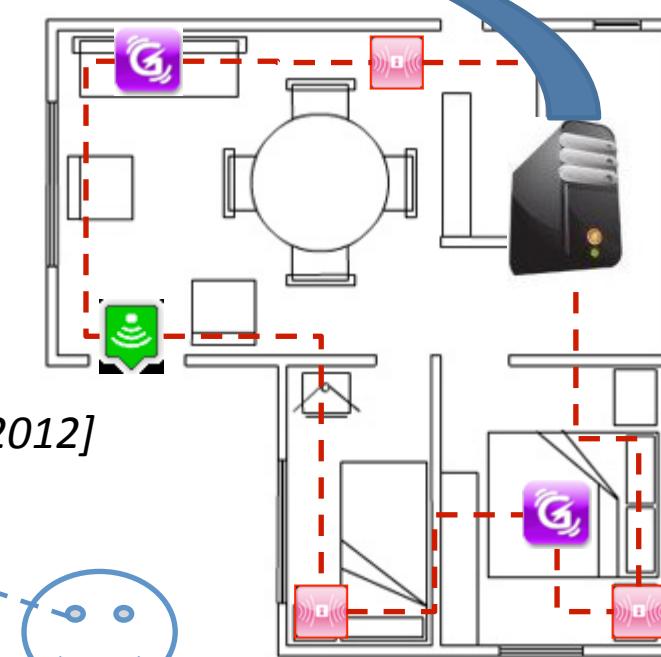
company



LOG:
13:45 Kitchen
13:50 Toilet
13:57 Kitchen
...

OCP System [Botia et al 2012]

ALARMS:
Rule-Based
System



TODOS LOS RIESGOS DESCRITOS

Wen mediendo. MÁS BIODERECHO

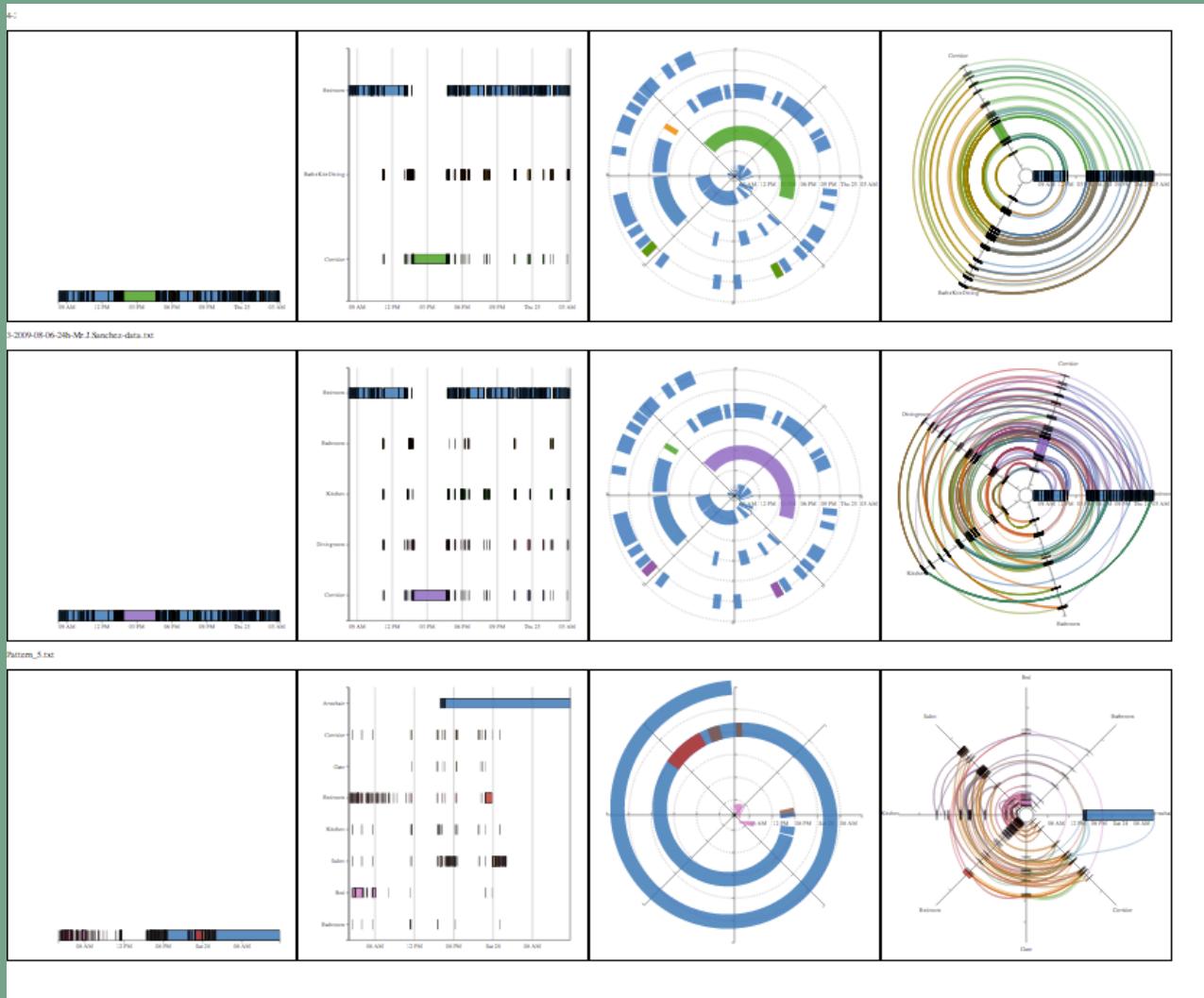
DAISY Project

- Mejorar las alarmas de manera inteligente
 - Nueva Hipótesis 1:
cualquier situación anormal es un riesgo

DAISY Project

- Mejorar las alarmas de manera inteligente
 - Nueva Hipótesis 2:
minería visual: ayudar a ver patrones

DAISY Project





**ANY
QUESTIONS?**

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webs.um.es/jmjuarez