

# L'impacte de la IA en la societat

*K. Gibert*

*Knowledge Engineering and Machine Learning group at  
Intelligent Data Science and Artificial Intelligence Research Center*

*Universitat Politècnica de Catalunya, (IDEAI-UPC) Barcelona*

*Dean of Illustrious Professional College of Informatics Engineering of Catalonia*

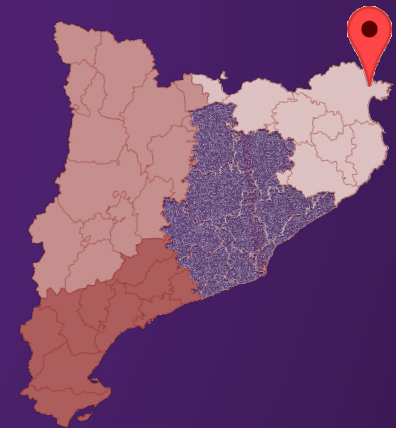
*President and founder of donesCOEINF*

 <https://www.eio.upc.edu/en/homepages/karina>,

 [karina.gibert@upc.edu](mailto:karina.gibert@upc.edu),  [karina.gibert](#),  [@karinagibertk](#)



**Figuerenca**



*Jornades Tributàries, 21 novembre 2024*



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# Guión

- **Overview**
- **Cases**
- **Challenges**
- **Ethics in AI**



# Intelligent Data Science and Artificial Intelligence Research Center

## IDEAI (UPC)

<https://ideai.upc.edu/en>  
SGR-2017-574

72 permanent researchers,  
480 projects in > 30 years  
26.000.000€ 2017-2023

# 13 womenIDEAI



**Comissions Consultives**

Digital Society   Health, Wellness & inclusion   Education   Industry4.0   Economia   Innovation   Efficient Resources   Ethics   Talent

SGR IDEAI2017/S14				SGR GPI 1304	SGR VEU 1660	SGR CBA 1027
GREC Direcció (2/2018-2/2021) <b>Robotics</b>	KEMLG Direcció (2/2021-...) <b>Knowledge Engineering</b>	GPLN tresoreria <b>NLP</b>	SOCO Secretaria (2/2021-...) <b>Soft Comp</b>	GPI <b>Vision</b>	VEU <b>Speech</b>	CBA <b>Cyber</b>

# Eras of Society



MASUDA, Yoneji. *The information society as post-industrial society*. World Future Society, 1981.

(ONU, 2005) Secretary-General's Roadmap for digital cooperation United Nations June 2020 disponible a <https://www.un.org/en/content/digital-cooperation-roadmap/>

HLP-DC (2019). *The Age of Digital Interdependence - Report of the United Nations Secretary-General's High-level Panel on Digital Cooperation*.

# Digital Transformation



IoT



Wearables



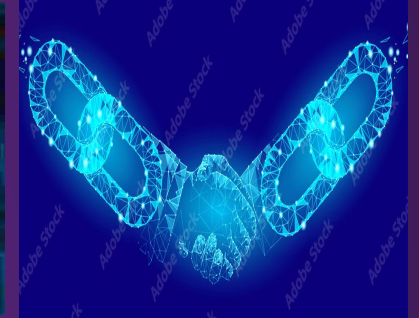
5G



Cloud comp



HPC



Blockchain



AI



Disclosing  
Complexity

# Introduction

## The annals of Artificial Intelligence

- Dartmouth Summer School on AI, McCarthy 1956  
McCarty, Minsky, Shannon, More, Samuel...

### 1956 Dartmouth Conference: The Founding Fathers of AI



John MacCarthy



Marvin Minsky



Claude Shannon



Ray Solomonoff



Alan Newell



Herbert Simon



Arthur Samuel



Oliver Selfridge



Nathaniel Rochester



Trenchard More

## CONJECTURE

*Every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it.*

McCarthy, J., Minsky, M., Rochester, N., Shannon, C.E., (2006) A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence. August 31, 1955. *AI Magazine*, 27(4), 12.  
<https://doi.org/10.1609/aimag.v27i4.1904>

<https://raysolomonoff.com/dartmouth/boxa/dart564props.pdf>;  
<http://jmc.stanford.edu/articles/dartmouth/dartmouth.pdf>

# .... And.... What is it for?



Better understanding

Better deciding



Complex Systems

Sustainability

Health

Education

Business

Industry 4.0

Environment

Digital Transformation

**TRANSVERSALITY**

# SDG/ deadline 2030





# GAVIUS: From Reactive to proactive public administrations



# GAVIUS

Inclusive

Accessibility (digital identity)

Minimal data

Proactivity

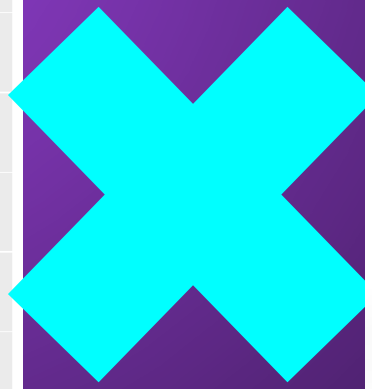
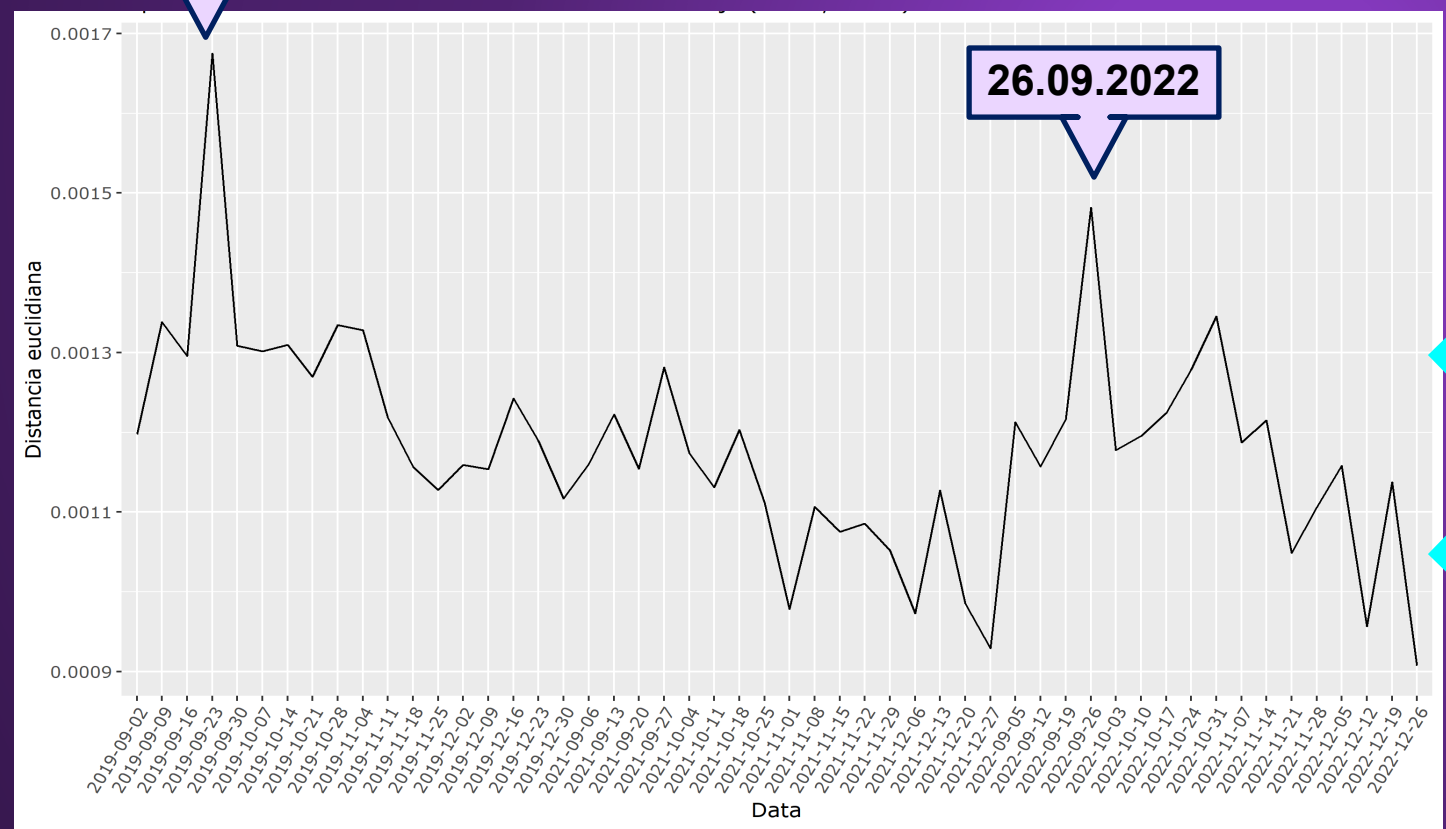


# Automatic interpretation of events in cities for bycing service management



23.09.2019

26.09.2022



**La Mercè Festival: El Piro tènic**

# Following Whales WIMMSO-DCL-CALIFORNIA

*Detectability of humpback and gray whales in satellite imagery off California*

Funded by The Nature Conservancy (TNC) US\$ 225,372.39

August 1, 2021 - January 31, 2023,

IP: Shared UPC and TNC

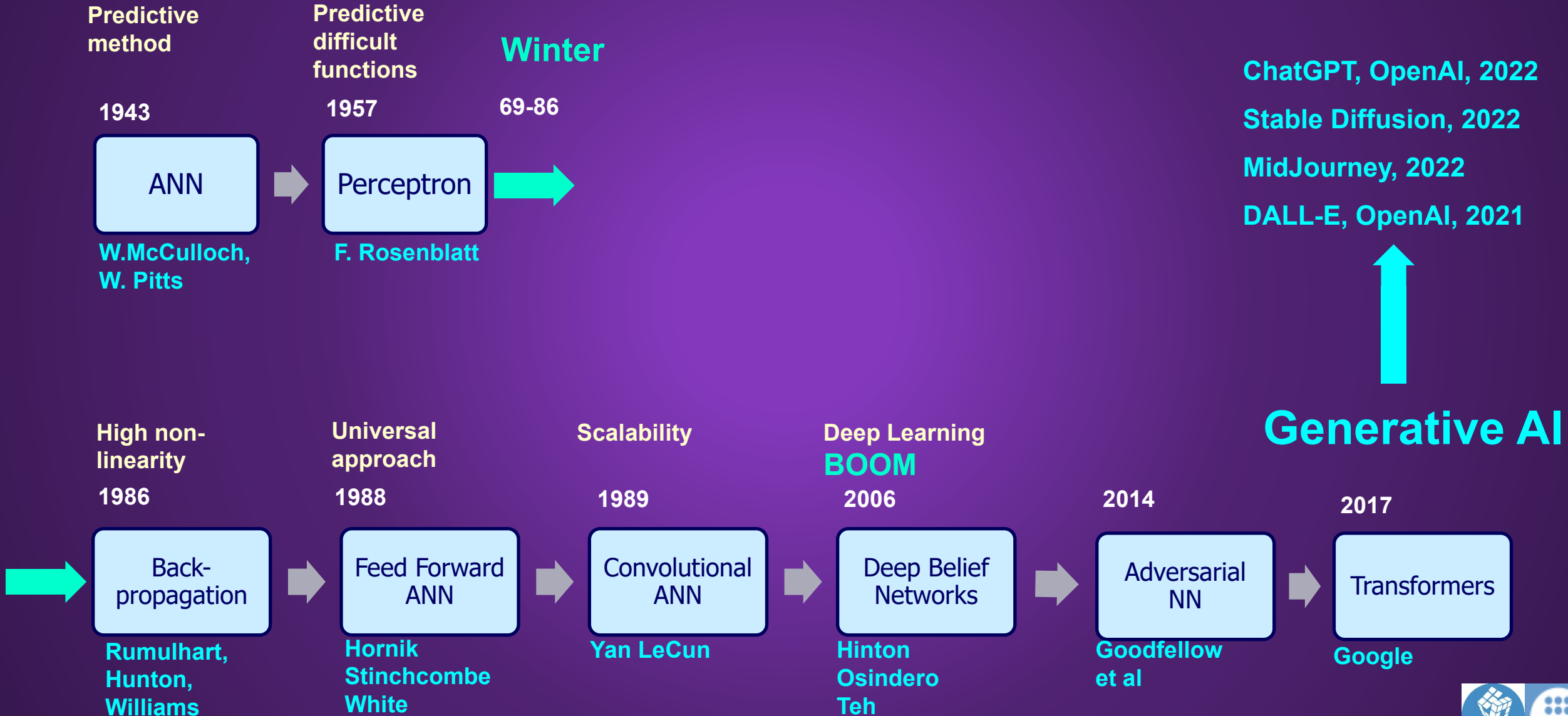
Consortium: UPC, TNC

IDEAI-UPC researchers: C Nadeu (VEU), J Hernando(VEU), L Houegnigan (VEU), E Romero (SOCO), F Moreno-Noguer (CSIC/IRI), K Gibert( KEMLG)



# Generative AI Evolution

Hitoria IA molt detallada  
<https://kwfoundation.org/blog/2023/11/28/cronologia-de-la-ia-generativa-9-decadas-de-hitos-notables/>  
ANN <https://www.aprendemachinelearning.com/breve-historia-de-las-redes-neuronales-artificiales/>  
<https://keepcoding.io/blog/origen-del-deep-learning-y-las-redes-neuronales/>



CIDAI



# Intelligent assistant for products



ACCIÓ

Catalonia &  
Trade & Investment



Generalitat  
de Catalunya

Specialize a chatGPT with specific documentation about the own products

Build a highly specialized Intelligent assistant  
on your own products

Local Training through OpenAI API for ChatGPT

For customers, for professionals, for your marketing staff



# Artificial Intelligence

Pervasive

Invisible

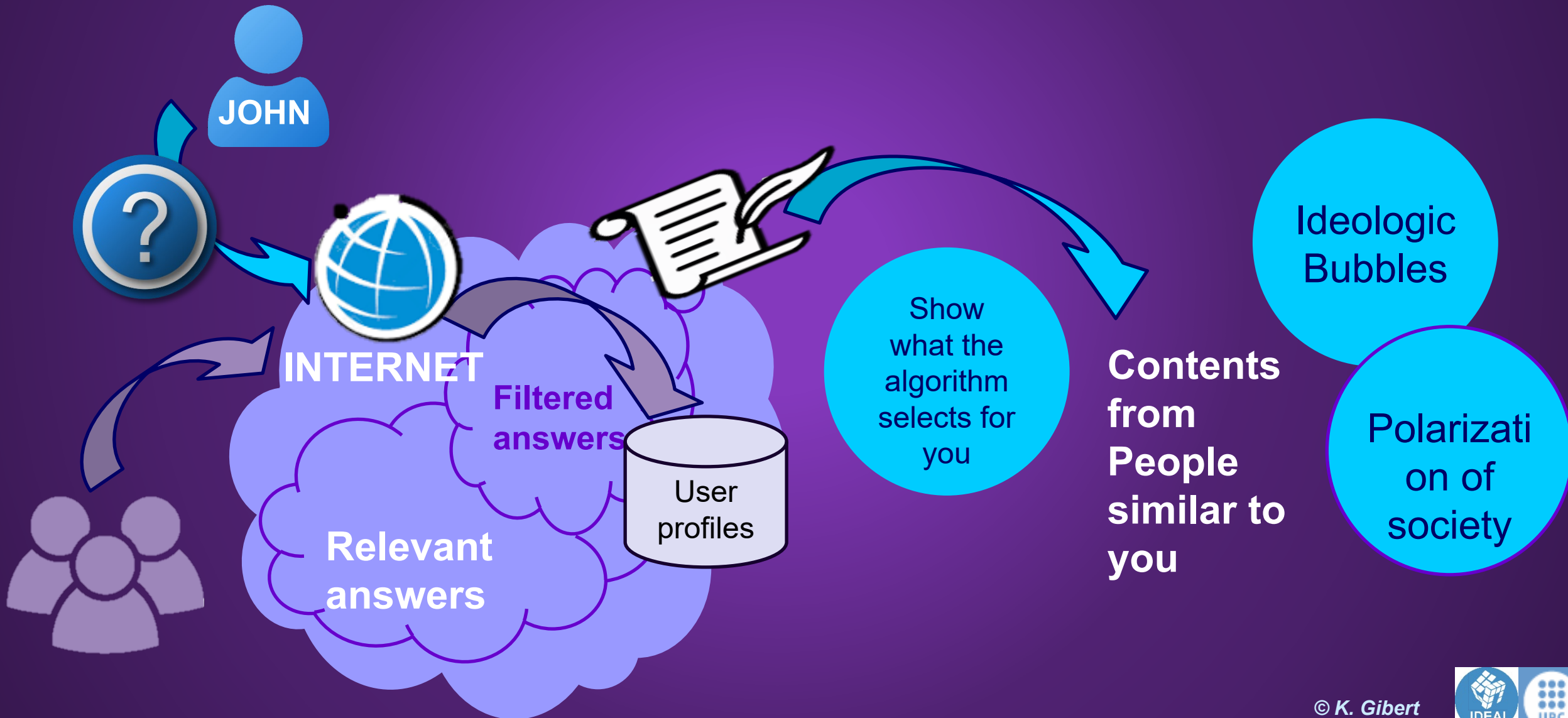
Ethics

Explainability



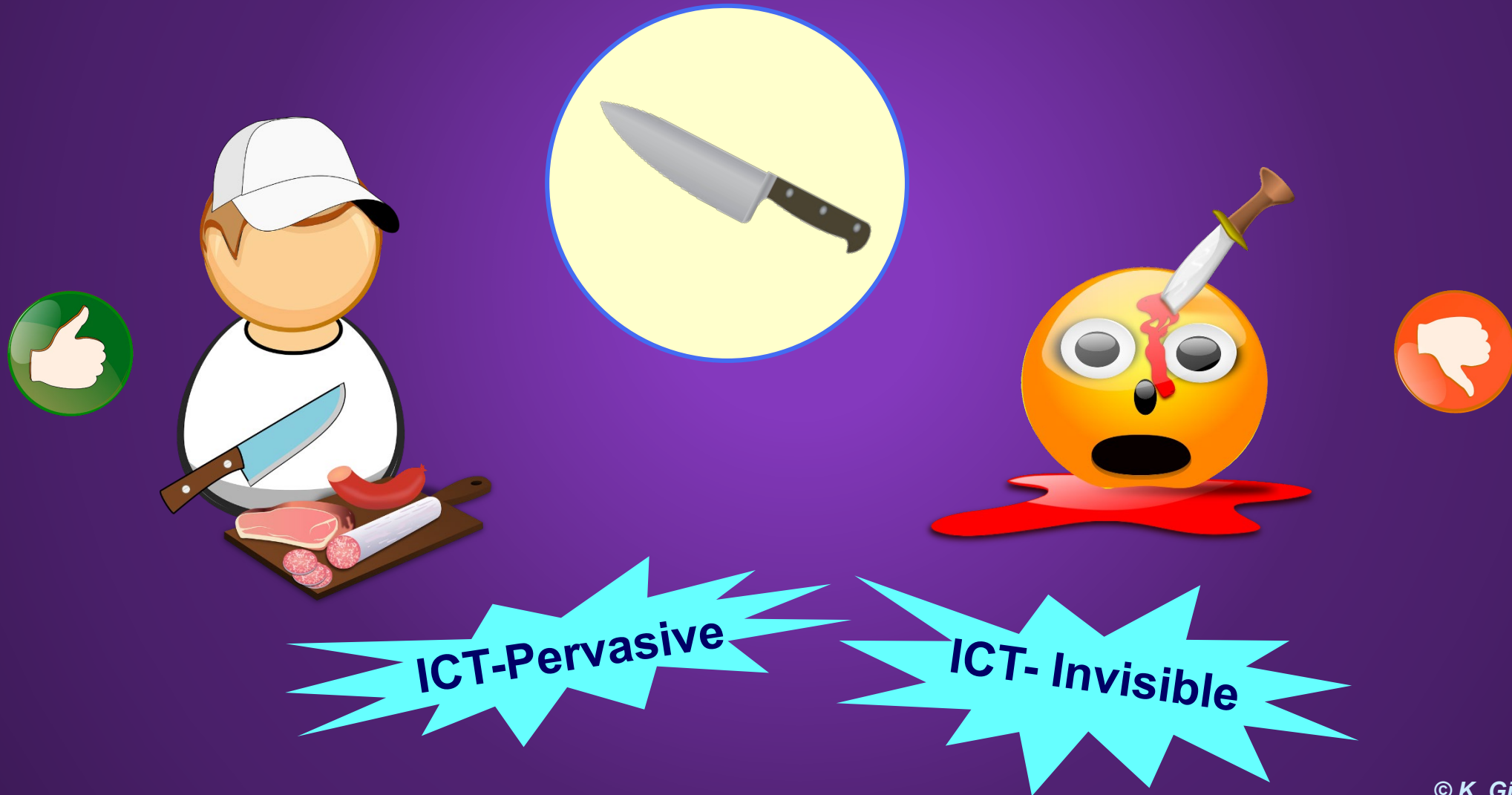
*Recommenders  
Personalization*

# Artificial Intelligence/Recommenders



# Ethics goals

What is a value or a counter-value?





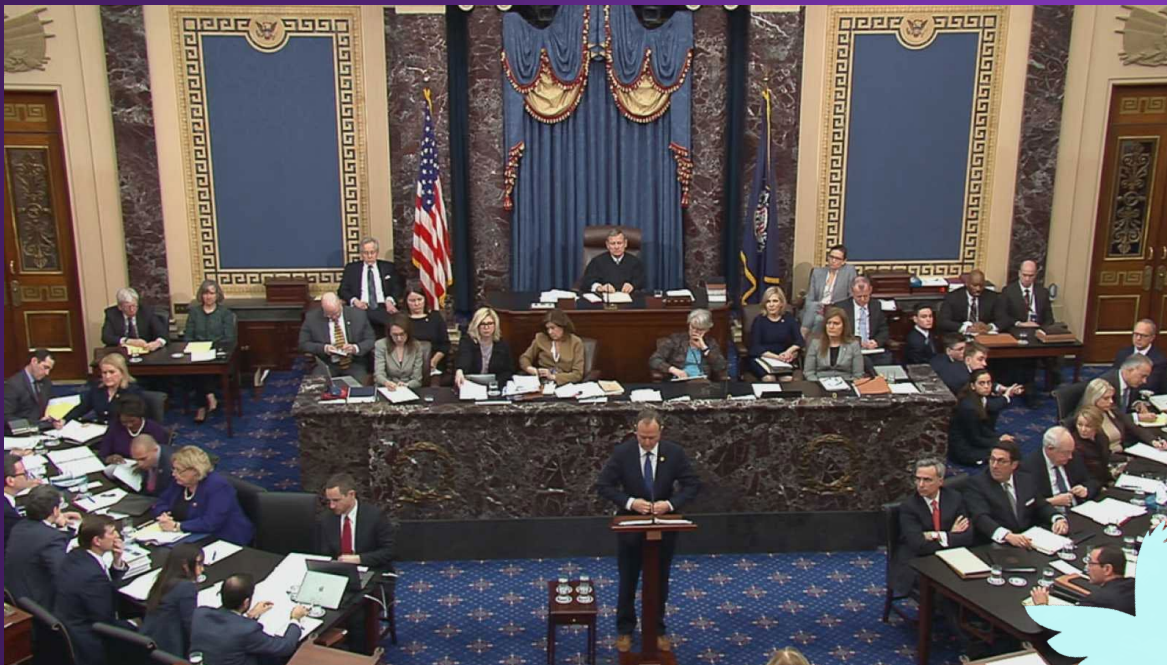
# TrustWorthy AI European Model

## Diversity

## Size $\neq$ Representativeness

Bias  
in data

sentiment analysis on Twitter about TRUMP impeachment feb 2021



Take data on Twitter  
(>300M users, 500M tweets/day)  
Apply sentiment analysis  
See public opinion on  
impeachment

Elderly  
(+women)  
DON'T HAVE  
twitter  
accounts!

Vulnerable  
Antysystem  
Youngs

[https://rua.ua.es/dspace/bitstream/10045/107763/10/ReMedCom\\_11\\_02\\_16\\_eng.pdf](https://rua.ua.es/dspace/bitstream/10045/107763/10/ReMedCom_11_02_16_eng.pdf)

25-49 years old, 70% Men

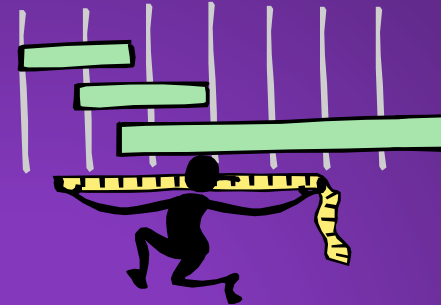
© K. Gibert



# Anonymization is sufficient?

Water consumption

Smart metering



Publish consumptions of a district every 30 minuts

Programación TV

Ma.	Mi.	Jueves	Viernes				
00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24
21:00	21:30	22:00	22:30	23:00	23:30	24:00	
1 La 1	20:30 FIFA World Cup 2022: Grecia-España	22:35 HIT	23:40 Españoles en el mundo				
2 La 2	21:10 Mi lugar de retiro	22:00 ¡Cómo nos reimos!	23:00 La matemática del espejo				
Antena 3	21:00 Noticias 2	21:45 El hormiguero 3.0	22:45 El peliçulón: La sonrisa etrusca				
Cuatro	21:05 First Dates	21:40 First Dates	22:50 Horizonte				
5 Telecinco	21:00 Informativos Telecinco	22:00 Secret Story: La casa de los secretos					
La Sexta	20:55 El intermedio	21:30 El caso Lewinsky	23:45 El caso Lewin...				
Unidad de Investigación		22:15 Premonición					

## Aggregated data No violation of law

### ESTADÍSTICAS | En 4 minutos aumentó el consumo de agua un 26% Y al llegar el descanso, todos al baño

■ El mayor repunte del Mundial se produjo en el partido contra Suiza

Roberto Bécares | Madrid

Comentarios 15

Actualizado jueves 08/07/2010 17:30 horas

Fue pitar Viktor Kassai el descanso del España-Alemania y el agua comenzó a salir a borbotones en las cocinas y baños de todo el país.

El consumo aumentó un 26% en cuatro minutos en la Comunidad de

Reveals  
which TV  
program see  
the family

© K. Gibert



fakes

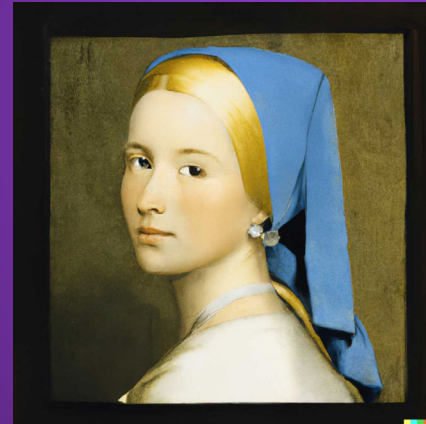
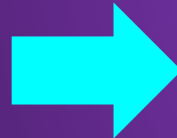
disinformation

# AI in painting

DALL-E

ETHICS

*La joven de la perla*  
*Het meisje met de parel*  
Johannes Vermeer 1665-1667



A young Man uses an IA to create a “Digital girlfriend” and convince their parents he has a couple

*Joven utiliza una IA para crearse una ‘novia digital’ y convencer a su familia que tiene pareja*



<https://larepublica.pe/tecnologia/actualidad/2022/10/17/dall-e-joven-usa-ia-para-crearse-una-novia-digital-y-convencer-a-su-familia-que-tiene-pareja/>

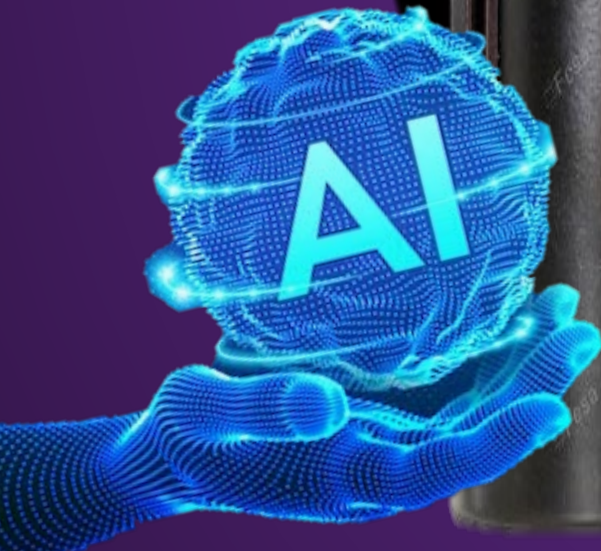
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# European vision of AI



## Human rights



# Ethics guidelines of TrustWorthy AI

(April 8th, 2018)

<https://ec.europa.eu/futurium/en/ai-alliance-consultation>

<https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai>



Tensions between

Ethics from design

Beyond the law

ELSEC



# Catalonia.AI Strategy in CAT



**GENERACIÓ DE  
CONEIXEMENT**

**TRANSFERÈNCIA  
I INNOVACIÓ**

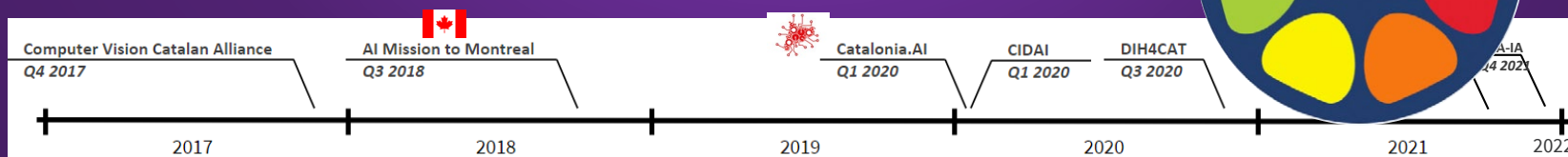
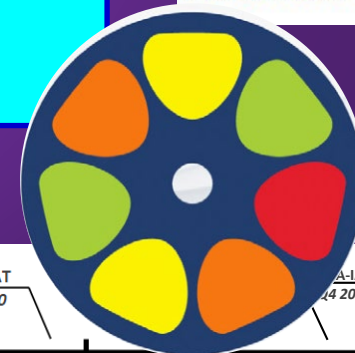


**CATALONIA.AI**



**START-UPS I  
PROMOCIÓ**

**ÈTICA I  
SOCIETAT**



# Carta de derechos digitales

(14 juliol 2021)



DERECHOS  
DIGITALES

 Plan de Recuperación,  
Transformación y Resiliencia

CARTA  
DERECHOS  
DIGITALES



 Generalitat de Catalunya  
Government of Catalonia

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# TrustWorthy AI European Model

Diversity, non-discrimination and fairness

Avoidance of unfair bias, accessibility and universal design, and stakeholder participation

## Bias sources

- Bias in data
- Bias in design/learning
- Bias in algorithm
- Bias in interpretation
- Bias in usability
- Bias in interface
- Bias in access

## Risks: Vulnerate rights/increase inequalities

- Declare training data profile (validity scope)
- Sampling theory
- Multidisciplinary teams
- Effects confusion
- Digital gap
- Minorities (def, blind,...)

Developer:

\* **Man, white, digital, without**

**disability**





# TrustWorthy AI European Model

Diversity

Gender biased interpretation

Bias  
in  
interpretat  
ion

INSESS-COVID19: Women less ERTO in pandemics  
less vulnerable?

Women → More irregular work

Precary contract → No ERTO

Causality  
vs  
Association

Effects  
Confusion

# INSESS- COVID19

Identificació de necessitats  
socials emergents com a  
conseqüència del COVID-19 i  
efecte sobre els Serveis Socials  
del territori **inseSS-  
covid19.upc.edu**





# TrustWorthy AI European Model

## Gender biased design



20 times more liquidity and longer payment deadlines to Men [Telford 2019]

Credit for female entrepreneurs [Montoya 2020],  
Turquia [Brock 2021] Itàlia [Alesina 2013]



[TELFORD 2019] TELFORD, Taylor. Apple Card algorithm sparks gender bias allegations against Goldman Sachs. The Washington Post, 2019.

[Montoya 2020] MONTOYA, A. M., PARRADO, E., SOLIS, A., & UNDURRAGA, R. (2020). De mal gusto: Discriminación de género en el mercado de créditos de consumo (No. IDB-WP-1053). IDB Working Paper Series.

[Brock 2021] BROCK, J. Michelle; DE HAAS, Ralph. Discriminatory lending: Evidence from bankers in the lab. 2021.

[Alesina 2013] ALESINA, Alberto F.; LOTTI, Francesca; MISTRULLI, Paolo Emilio. Do women pay more for credit? Evidence from Italy. Journal of the European Economic Association, 2013, vol. 11, no suppl\_1, p. 45-66.

# TrustWorthy AI European Model

## Diversity

Gender biased training data. Data badly chosen

**Biometrics**

Good performance with caucasian and young people

Joy Buolamwini (CCCB, 2024)  
Facial recognition of cellphone  
ignores black Women



# Artificial Intelligence

- Needs for a successful deployment
  - No bias (gender, race, age, socioeconomics...)

Publish training data composition



Publish target population

Identify target population to apply the algorithm

Training data is representative of target population?



The algorithm was created for a population similar to mine?



9% mujeres  
en TIC 2023



**Models**

Biased design  
Perpetuate  
Stereotypes

5 GENDER EQUALITY



© K. Gibert



# ReDivIAcat



UNIVERSITAT POLITÈCNICA DE CATALUNYA  
BARCELONATECH

Intelligent Data Science and  
Artificial Intelligence Research Center



Generalitat de Catalunya  
**Departament d'Igualtat  
i Feminismes**



# Over simple comparisons

## Evaluating Women vs Men

By results-> Cristal Roof

**Confirmed  
customers  
?**

**Projects  
accepted  
?**

**Events  
organized  
?**

**Publicatio  
ns**

**Relativization by nr of  
working days!!!**



# Over simple comparisons

## Problems of Women

- Salary Gap
- Gender Violence
- Double working-day
- Cristal Roof
- Suelopegajoso
- Elección dirigida

No  $\exists$   
data

Find  
the  
formul  
a

# ALL involved Systemic issue

Develo  
p  
ethical  
AI

Transfe  
r

Innovati  
on

Deploy  
ment

Adoptio  
n

Rispons  
ible  
USE

Worldwi  
de  
govern  
ance

General  
culture  
on AI  
and DT

Ethics,  
Deontol  
ogy,  
Respon  
sability

## K. Gibert's AI dodecalog, 2023

1. AI has 70 years. Open mind also to all approaches
2. Consider AI as a source of WELLNESS in all verticals (brings data to decisions).
3. Think of AI as a crucial piece for the digital transformation of any sector
4. AI developers: keep domain expert in the loop in all AI cycle. Design: cocreate with all involved actors
5. Train AI with representative, balanced, high quality data (sometimes BIG+HPC) + Knowledge+hybrid AI
6. Preclude invalid uses, risks and biases (expert in AI and diverse teams needed)
7. Align with European ethical values for AI Deployment (ethics is over Law)
8. Adopt AI together with a qualified expert
9. Provide explainability to AI (visual or conceptual) and ethics seal (PIO model, Z-inspection, ALTAI...)
10. Learn how to interpret AI results and associated uncertainty (AI fails a known % of times)
11. Don't use machine decisions. Use AI assistant (tension proactivity/surveillance). Inform AI is used
12. Measure the impact of innovations (care with digital gap, bias, Access rights, inequalities)

# Some successful actions

# First Official Bachelor Degree on Artificial Intelligence from Catalonia



<https://fib.upc.edu>

☐ Aproved by Ministry 17 sept 2020. Started Sept 2021

Agreement with PDA Gencat-UPC.

240 ECTS (180 mandatory; 42 optative; 18 TFG)

4 years, 50 places

First promotion: 45,7% women; top students (mark >12,8)



<https://www.fib.upc.edu/es/noticias/la-fib-presenta-el-primero-grado-en-inteligencia-artificial-de-catalun>

**UPC**  
Pioneer  
Unique

**AI**  
**Bachelor + Máster + PhD**

**Impulsed by**  
KEMLG -> IDEAI  
**FIB**



© K. Gibert





# Top Rosies Talent

Inicia el Top Rosies Talent

[Inscriu-te](#)

Generació de talent femení en IA



Calendari:

Dones en darrers cursos de carrera STEM o recent graduades



Formació online en IA  
Disseñada per donesIDEAI

Reptes reals, proposats per les empreses PARTNER

Master UPC-UB-URV  
Beques per a les guanyadores dels reptes

Event de networking del sector

Interacció amb role models de la IA



© K. Gibert



# ciutadanIA

<https://ciutadanIA.cat>

 #ciutadanIAcat

1285 participants

154 egressats

26 certificats

>5800 visites

1.6.2023

ciutadanIA   
Formació en Intel·ligència Artificial  
per a tothom!



 UNIVERSITAT POLITÈCNICA DE CATALUNYA  
BARCELONATECH  
Intelligent Data Science and  
Artificial Intelligence Research Center



Amb el suport de:

 Generalitat de Catalunya  
Departament de la Vicepresidència  
i de Polítiques Digitals i Territori



Catalonia.ai

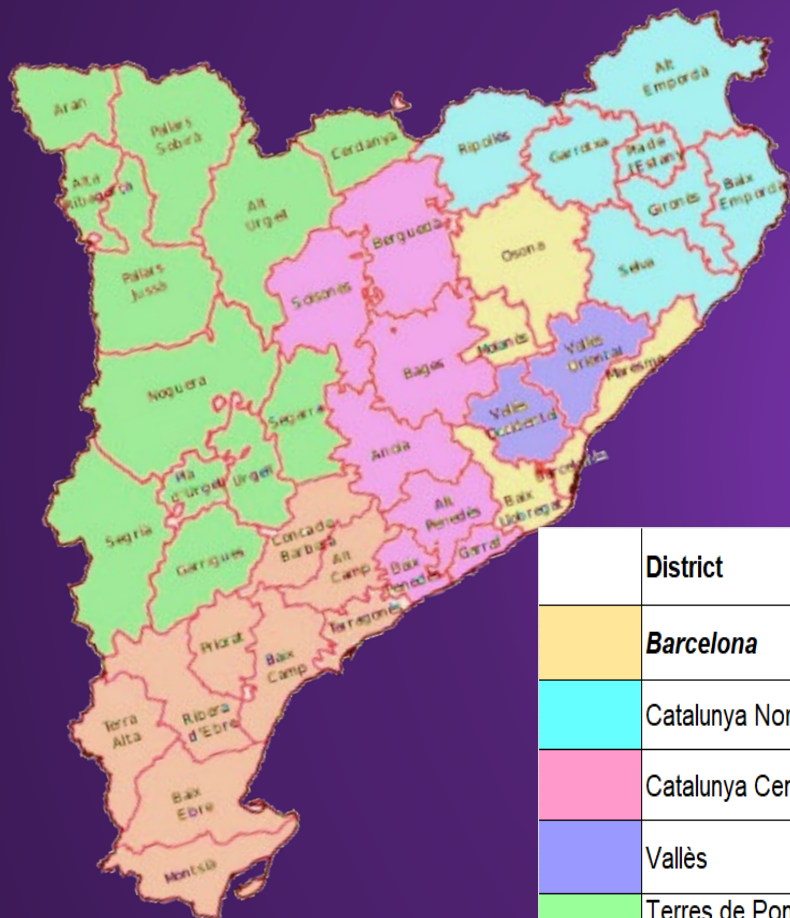


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# donesCOEINF




<https://dones.COEINF.cat>



## Integrants i estructura 2018-

- 5 vicedeganes del col·legi
- 3 col·legiades
- 6 delegades territorials

	District	donesCOEINF representative	2018	2023
	<b>Barcelona</b>	<b>Karina Gibert</b>	Ass Prof. UPC	Full Prof. UPC/Head Research Center
	Catalunya Nord	Beatriz López	Ass Prof UdG	Full Prof UdG
	Catalunya Central	Conxi Pérez	Enterpreneur, InMovement	Enterpreneur, InMovement, Rolldbox games
	Vallès	Anna Benavent	CIO Parc Tauli Health Corp	CIO Parc Tauli Health Corp
	Terres de Ponent i Pirineus Occidentals	Juliana Rodrigues	Junior professional Indra/ last year master student	IT project management Group Vall Companys
	Sud de Catalunya	Aïda Valls	PhD prog Head URV	Certified for Full Professor URV
	Exterior	Núria Carretero	Manager Swis Re	Manager Swis Re

 [dones.coeinf.cat](https://dones.coeinf.cat)  
 [@Dcoeinf](https://twitter.com/Dcoeinf)  
 [donesCOEINF](https://www.linkedin.com/company/donesCOEINF)  
[#mesdonesEInf](https://twitter.com/hashtag/mesdonesEInf)  
[#fetXdonaTIC](https://twitter.com/hashtag/fetXdonaTIC)



expressar el més profund agraïment.

# Enginyeriainformatica.cat/donesCoeinf/fetXdonaTIC

La campanya Enginyeriainformatica.cat/donesCoeinf/fetXdonaTIC ha anat conformant un

llarguïssim fil de twitter que podeu veure aquí, i que a data 6 de març de 2022 en que s'ha tancat la campanya, compta amb **més de 14mil visualitzacions!!!**

donesCOEINF estem convençudes que el portal que avui neix incorporant tot el fil de 80 professionals de la campanya iniciada a twitter, contribueix de forma clara i diàfana a trencar l'estereotip associat al professional de l'enginyeria informàtica, sovint associat a homes poc socials, desmanegats, que es passen el dia programant en un bunker i sense sortir-ne ni tant sols per menjar.

**Per descomptat que el sector masculí de la professió TAMPOC reprodueix l'estereotip.**

**Broke Stereotypes**



Però avui, en el dia internacional de la dona treballadora de 2022, (8 de març 2022)

**Les dones del FetXdonaTIC 2022**

**Karina Gilbert**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @CarlaRivas
- Co-fundadora i Consellera delegada en TI (Ideogames)
- TransformadorDigital i TIC10
- Co-fundadora i directora de @FetXdoname para experiencias innovadoras en los cooperativas
- @coeinf @tic.fdonas @mexdonesDif

**Núria Castell Arño**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @NuriaCastell\_A
- Professora Titular d'ENI
- De les primeres titulades en Informàtica de Catalunya
- Dirigida de la @E\_LUPC
- @coeinf @tic.fdonas @mexdonesDif

**Anna Pineda**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @annadacama
- Enginyera en Informàtica llicenciada en Màster de TI
- Delegada de recerca adjunta al Vicecanonier de Transformació Digital de la Universitat de Barcelona per a la Innovació tecnològica
- @coeinf @tic.fdonas @mexdonesDif

**Pilar Oller**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @PilarOller
- ViceDegana d'Informàtica al COEINF
- Dirigida a Projectes de desenvolupament de Software Gestió a l'empresa @InnaSoft/Intra.
- @coeinf @tic.fdonas @mexdonesDif

**Aida Vallis Matsu**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @a\_vallm
- Professora Investigadora a la URV
- Llicenciada en Informàtica per millorar el diagnòstic de Retinopatia Diabètica @uni.urv @mexdonesDif
- @coeinf @tic.fdonas @mexdonesDif

**Conxil Pérez Andreu**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @ConxilPerez
- Co-fundadora i Consellera delegada en TI (Ideogames)
- TransformadorDigital i TIC10
- Co-fundadora i directora de @FetXdoname para experiencias innovadoras en los cooperativas
- @coeinf @tic.fdonas @mexdonesDif

**Alba Lamas**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @albalamas\_
- Big Data Engineer a Busto IT
- Consultadora de @donasDif de la @hackage, primera hackeada de Llatina amb més de 100 participants.
- @coeinf @tic.fdonas @mexdonesDif

**Allota Coca**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @AllotaCoca
- Cap de Tecnologia de Negoci
- Responsable de la tecnologia i els sistemes informàtics que suporten la explotació ferroviària al centre de comandament a @RCC
- @coeinf @tic.fdonas @mexdonesDif

**Magda Vallis**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @magdavallis
- Directora de @DPS\_LUD
- Professora de la @UdL\_HUB
- Investigadora del grup de recerca en @Cognitive\_Ideas
- @coeinf @tic.fdonas @mexdonesDif

**Carlot Cortot**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @carlot\_cortot
- Software engineer a l'Indústria
- Actual codificadora de @hackage, professora a la @E\_LUPC i apassionada de la dona
- @coeinf @tic.fdonas @mexdonesDif

**Emma Frxanet**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @emmatfrxanet
- Física i investigador@redond
- Trabaja en proyectos de Ciencias

**Ana M. Sánchez Granados**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @ana\_m\_sanchez
- CEO de Times Adverts
- Jobo crear i ajudar a organitzar polítiques i planes a crear i gestionar processos continus d'innovació
- @coeinf @tic.fdonas @mexdonesDif

**Susana Prado**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @SusanaPrado
- Dir. de @anum, unitat catalana i @gesonada de l'aplicació postiva de la Tecnologia als negocis
- estratega empresarial, professora associada de la URV, Treball per veu i l'ètica al @TeleFemini
- @coeinf @tic.fdonas @mexdonesDif

**Pilar Conesa**

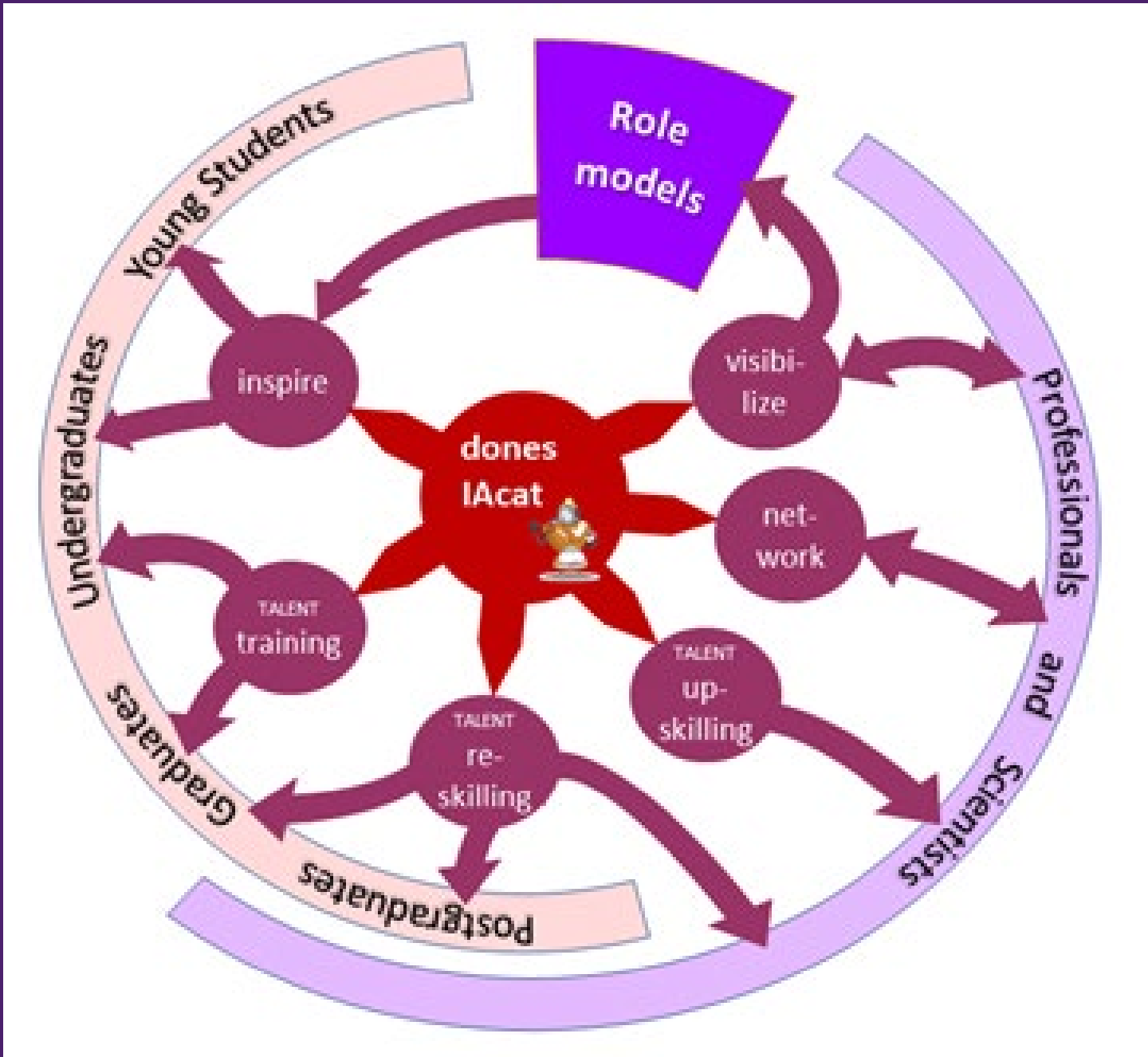
- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @PilarConesa
- 17 anys ella ja ten 50 dones!
- CEO i directora i Consellera i codificadora de @mexdonesDif
- World Computer, referència mundial en Innovació urbana
- Pionera de les @mexdonesDif, la dona gran! @mexdonesDif
- @coeinf @tic.fdonas @mexdonesDif

**Andrea Valenzuela**

- 11 Campaña #FetXdonaTIC de @COEINF #170222
- @andrea\_valenzuela
- Investigant
- Big Data Engineer a la @Baymohrson
- Desarrollo de software y análisis de datos para la física de altas energías
- @COEINF @LUPC
- @DonaInf @mexdonesDif

K. Gibert

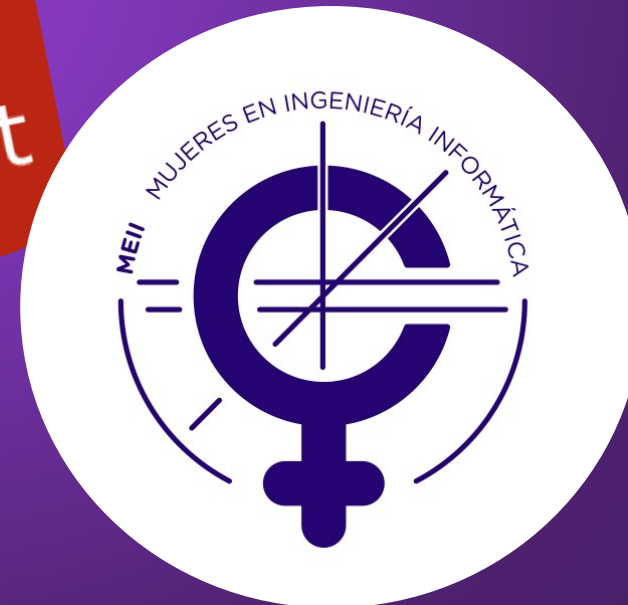




VALLS, Aida; GIBERT, Karina.  
Women in Artificial Intelligence.  
*Applied Sciences*, 2022, vol.  
12, no 19, p. 9639.

# What can we do? NETWORKS

[Dones.coeinf.cat](http://Dones.coeinf.cat)



  
[@KarinagibertK](https://twitter.com/KarinagibertK)

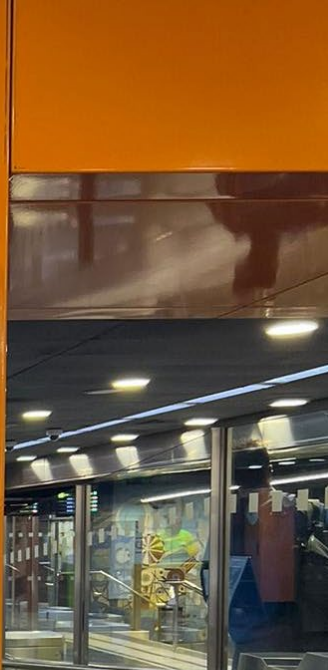
# Campanya donesCOEINF dia de la dona i la nena a la ciència 2023

<https://enginyeriainformatica.cat/ei-puja-al-tren-del-futur>

Cartells: 50 dins els trens FGC TOT el FEBRER

Panells a Catalunya, Espanya, Provença i Europa Fira

A tots els kiosks digitals de la xarxa



# Technology and Women rights Declaration

National Council of Catalan Women



United Nations (CSW67)



Declaració  
per la  
CSW67



Side Event  
CSW67



<https://press.un.org/en/2022/gashc437>

<https://dones.gencat.cat/web/.content/0>

<https://press.un.org/en/2023/wom2228>

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# Parlament de les dones

24 nov 2023




Col·legi Oficial d'Enginyeria Informàtica de Catalunya



*Any question?...*

**K. Gibert**

<https://www.eio.upc.edu/en/homepages/karina>  
[karina.gibert@upc.edu](mailto:karina.gibert@upc.edu)  [@Karinagibertk](https://twitter.com/Karinagibertk)

*KEMLG-@-IDEAI: Knowledge Engineering and Machine Learning group at  
Intelligent Data Science and Artificial Intelligence Research Center*

*Universitat Politècnica de Catalunya, Barcelona*

*Dean of Illustrious Professional College of Informatics Engineering  
of Cataloonia (COEINF)*

*Founder and president of donesCOEINF*