

# THE IMPACT OF HUMAN-AI INTERACTION ON DISCRIMINATION



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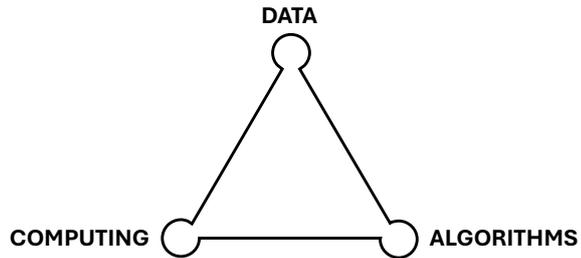
## AI: BASIC TECHNICAL AND REGULATORY CONCEPTS

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# ¿WHAT IS AI AND WHY NOW?

An 'AI system' is a **machine-based system** that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as **predictions, content, recommendations, or decisions** that can influence physical or virtual environments.

AI Act – Art. 3



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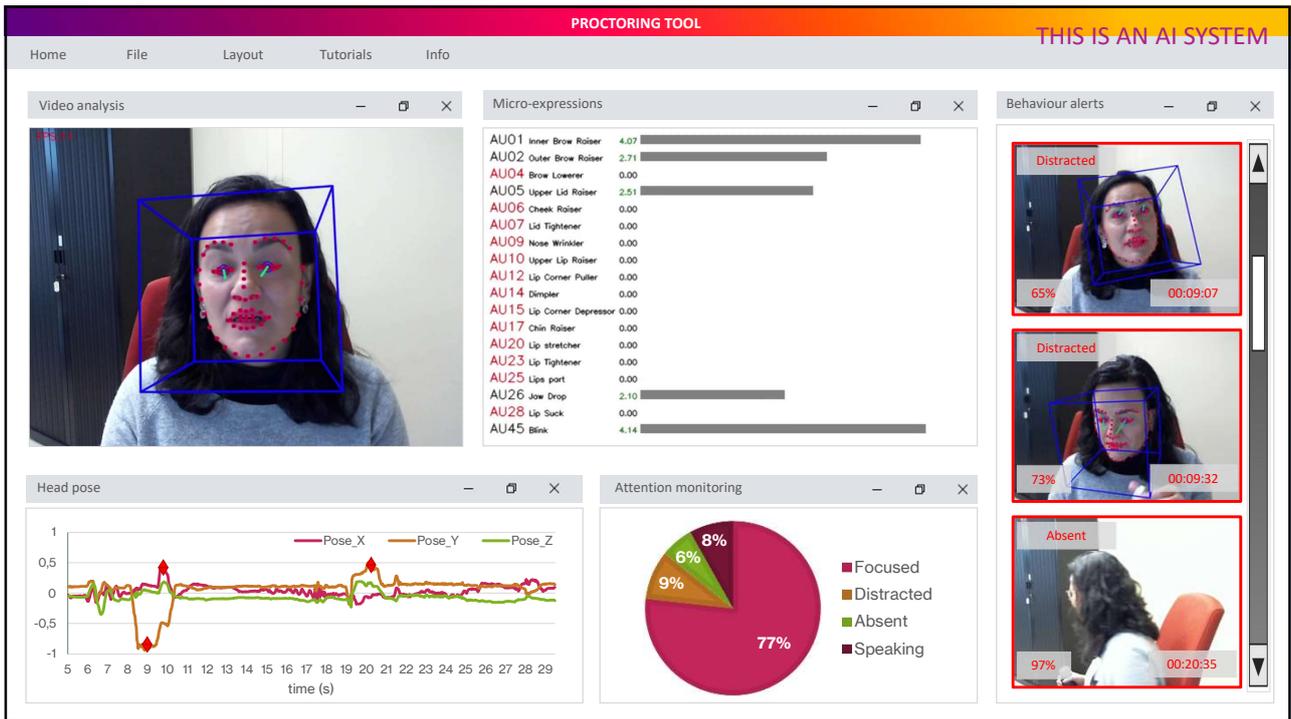
AU01	Inner Brow Raiser	2.01	<div style="width: 20%;"></div>
AU02	Outer Brow Raiser	2.28	<div style="width: 25%;"></div>
AU04	Brow Lowerer	0.00	<div style="width: 0%;"></div>
AU05	Upper Lid Raiser	0.00	<div style="width: 0%;"></div>
AU06	Cheek Raiser	0.00	<div style="width: 0%;"></div>
AU07	Lid Tightener	0.00	<div style="width: 0%;"></div>
AU09	Nose Wrinkler	0.00	<div style="width: 0%;"></div>
AU10	Upper Lip Raiser	0.33	<div style="width: 5%;"></div>
AU12	Lip Corner Puller	0.84	<div style="width: 15%;"></div>
AU14	Dimpler	0.00	<div style="width: 0%;"></div>
AU15	Lip Corner Depressor	0.00	<div style="width: 0%;"></div>
AU17	Chin Raiser	0.00	<div style="width: 0%;"></div>
AU20	Lip stretcher	1.90	<div style="width: 20%;"></div>
AU23	Lip Tightener	0.25	<div style="width: 3%;"></div>
AU25	Lips part	0.00	<div style="width: 0%;"></div>
AU26	Jaw Drop	0.00	<div style="width: 0%;"></div>
AU28	Lip Suck	0.00	<div style="width: 0%;"></div>
AU45	Blink	4.45	<div style="width: 45%;"></div>

THIS IS A MODEL OF AI

Output.csv

696	695	0	53.7111	0.98	1	0.007767	-0.031718	-0.999467	-0.089738	0.202234	-0.975217	-0.041	0.086	280.5	282.5	287.4	292.4	294.7	293.2	287.8	282.7	275.0	276.
697	696	0	53.813	0.98	1	-0.003949	-0.020094	-0.999790	-0.080314	0.202221	-0.976041	-0.043	0.092	280.9	282.8	287.7	292.6	294.7	293.2	288.0	283.1	275.4	277.
698	697	0	53.901	0.98	1	0.001694	-0.016427	-0.999864	-0.076679	0.233500	-0.969329	-0.038	0.110	281.0	283.0	287.8	292.5	294.5	292.9	287.7	282.9	275.6	277.
699	698	0	54.010	0.98	1	-0.021163	-0.017983	-0.999614	-0.070001	0.227453	-0.971270	-0.046	0.106	280.2	282.0	286.7	291.4	293.5	292.0	287.0	282.2	274.8	276.
700	699	0	54.099	0.98	1	-0.019315	-0.013895	-0.999717	-0.072966	0.226856	-0.971191	-0.047	0.108	279.8	281.6	286.3	291.2	293.3	291.9	286.8	281.9	274.4	276.
701	700	0	54.175	0.98	1	-0.001910	-0.026429	-0.999649	-0.072084	0.214246	-0.974116	-0.037	0.095	279.1	280.9	285.6	290.5	292.7	291.4	286.3	281.3	273.8	275.
702	701	0	54.272	0.98	1	0.137477	0.235229	-0.962168	-0.168731	0.225393	-0.959546	-0.016	0.235	282.0	283.7	288.7	294.0	296.5	295.2	289.9	284.6	274.4	277.3
703	702	0	54.367	0.98	1	0.070163	0.223834	-0.972099	-0.118966	0.143264	-0.982506	-0.025	0.166	280.2	281.7	286.5	291.7	294.3	293.0	287.9	282.7	272.7	276.0
704	703	0	54.464	0.98	1	0.108867	0.178586	-0.977883	-0.104447	0.151209	-0.982968	0.002	0.167	280.2	282.3	287.6	293.1	295.5	293.8	288.0	282.5	273.6	276.1
705	704	0	54.620	0.98	1	0.097738	0.172698	-0.980114	-0.101948	0.187671	-0.976927	-0.002	0.182	280.1	282.2	287.6	293.1	295.6	293.9	288.0	282.5	273.9	276.0
706	705	0	54.717	0.98	1	-0.018694	0.002512	-0.999822	-0.096657	0.218037	-0.971142	-0.058	0.111	279.5	281.2	285.8	290.7	293.0	291.8	286.8	281.9	273.8	275.
707	706	0	54.837	0.98	1	-0.021563	0.011038	-0.999707	-0.103669	0.237881	-0.965746	-0.064	0.126	279.4	281.0	285.5	290.3	292.6	291.5	286.6	281.8	273.8	275.
708	707	0	54.929	0.98	1	-0.009526	-0.002467	-0.999952	-0.098049	0.239413	-0.965954	-0.055	0.120	279.0	280.6	285.1	290.0	292.4	291.2	286.2	281.4	273.5	275.
709	708	0	55.026	0.98	1	-0.013813	0.009528	-0.999859	-0.099284	0.244396	-0.964579	-0.058	0.129	278.7	280.2	284.7	289.6	291.9	290.8	285.9	281.1	273.1	274.
710	709	0	55.149	0.98	1	-0.001768	0.008566	-0.999962	-0.084006	0.240550	-0.966995	-0.044	0.126	279.2	280.8	285.4	290.3	292.7	291.5	286.5	281.6	273.6	275.
711	710	0	55.243	0.98	1	-0.018170	-0.010030	-0.999785	-0.085378	0.222750	-0.971130	-0.052	0.108	279.2	280.7	285.3	290.2	292.6	291.6	286.6	281.7	273.8	275.
712	711	0	55.342	0.98	1	-0.019915	-0.013269	-0.999714	-0.076542	0.217585	-0.973035	-0.049	0.103	279.7	281.3	285.9	290.8	293.2	292.1	287.1	282.1	274.2	275.

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## FOCUS: AI systems

**RISKS FOR:**

- Fundamental rights
- Health
- Security

**UNACCEPTABLE RISK**  
Social scoring, facial recognition, dark pattern AI, manipulation

**HIGH RISK**  
Transportation systems, safety, employment, education access, border control, justice systems

**LIMITED RISK**  
AI systems with specific transparency requirements such as chatbots, emotion recognition systems

**MINIMAL RISK**  
AI enabled videogames, spam filters

# EUROPEAN AI REGULATION

**Legal requirements for high-risk AI systems:**

- Robustness, accuracy and Cybersecurity.**
- Human Oversight** (measures built into the system and/or to be implemented by users).
- Sufficiently **transparent** to provide deployers with information on the **capabilities and limitations of the system** and how to use it appropriately.
- Technical Documentation** and logging capabilities for **Record-Keeping**
- Data and Data Governance**
- Risk Management**

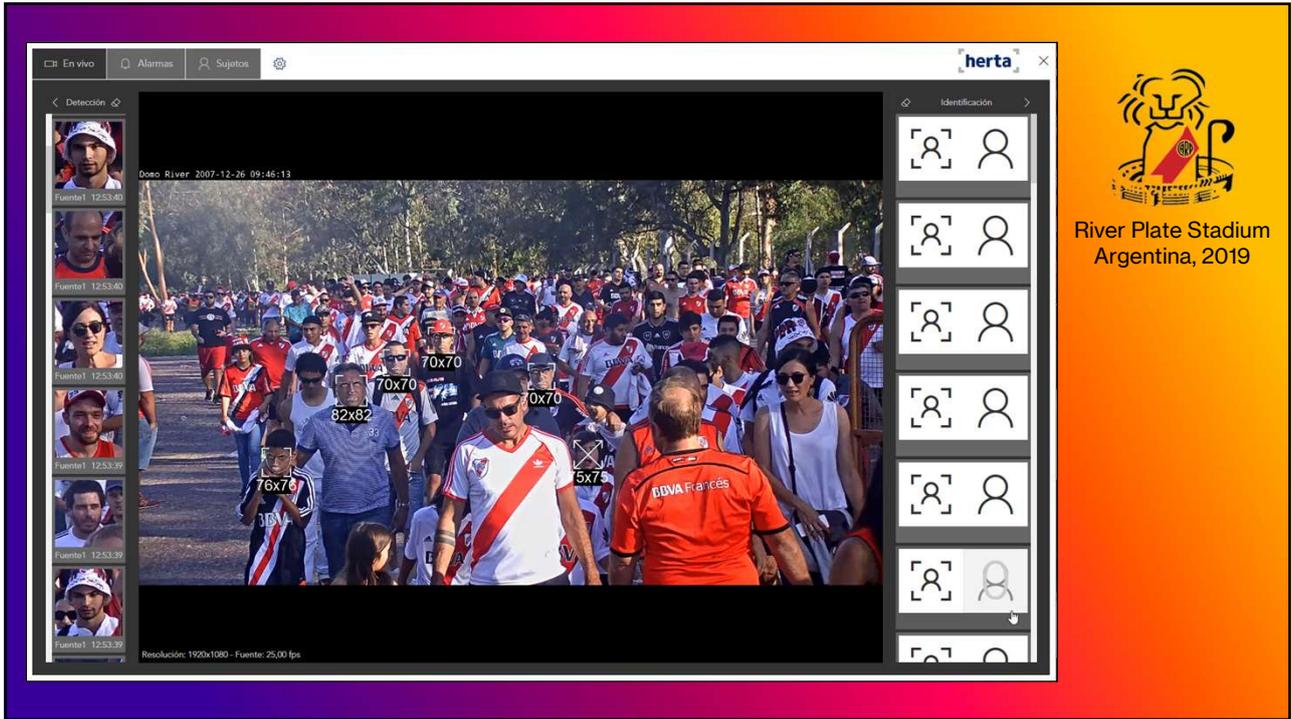
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# EXAMPLES OF DISCRIMINATION IN AI SYSTEMS [NON-GENERATIVE].

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River Plate Stadium  
Argentina, 2019

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## Social consequences

**The New York Times**

### Another Arrest, and Jail Time, Due to a Bad Facial Recognition Match

A New Jersey man was accused of shoplifting and trying to hit an officer with a car. He is the third known Black man to be wrongfully arrested based on face recognition.

By Kashmir Hill

Published Dec. 28, 2020 Updated Jan. 6, 2021

**Wired** MIEDOS CULTURA GADGETS IDEAS CIENCIA MEDIO AMBIENTE SEGURIDAD POLITICA INTELIGENCIA ARTIFICIAL

MIGRAN MEXICO MEXICO 5 DE ABRIL DE 2023

### El software de reconocimiento facial no ve a esta estudiante negra

Las herramientas obligatorias de reconocimiento facial han fallado repetidamente al identificar a personas con tonos de piel más oscuros. Una estudiante neerlandesa lucha por acabar con su uso.

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**The Guardian** Eur US immigration

This article is more than 2 years old

### Facial recognition bias frustrates Black asylum applicants to US, advocates say

Migrants from Africa and Haiti reportedly cannot utilize app to accept their photos, which is now required to apply for asylum

Melissa del Bosque in Tlaxcote

Wed 9 Feb 2023 12:00 CET

Share

A migrant from Venezuela seeking asylum in the US uses his phone to access the CBP One application. Photograph: José Luis González/Reuters

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## FRAUDULENT BEHAVIOUR IN REQUIRING SOCIAL ASSISTANCE

FROM POLITICO PRO

### Dutch scandal serves as a warning for Europe over risks of using algorithms

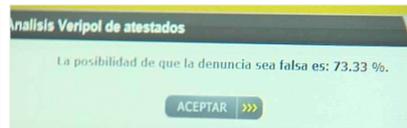
The Dutch tax authority ruined thousands of lives after using an algorithm to spot suspected benefits fraud – and critics say there is little stopping it from happening again.

In 2019 it was revealed that the Dutch tax authorities had used a self-learning algorithm to create risk profiles in an effort to spot child care benefits fraud.

Authorities penalized families over a mere suspicion of fraud based on the system's risk indicators. Tens of thousands of families — often with lower incomes or belonging to ethnic minorities — were pushed into poverty because of exorbitant debts to the tax agency. Some victims committed suicide. More than a thousand children were taken into foster care.



## VERIPOL - DETECTION OF FALSE POLICE REPORTS



Liberatore, F., Quijano-Sánchez, L., & Camacho-Collados, M. (2019). Applications of data science in policing: VeriPol as an investigation support tool. *Special Issue 4 Eur. L. Enft Rsch. Bull.*, 89.

- **Decision Support System** based on a combination of NLP and ML classification algorithms, capable of estimating the **probability** of false police reports with significant accuracy.
- Enables **insights** into the differences between false and true police reports.
- The system is **integrated** into the existing Spanish National Police information system.
- **Final decisions remain in the hands of the agents** and are their responsibility.

# EXAMPLES OF DISCRIMINATION IN AI SYSTEMS [GENERATIVE].

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## GENERATIVE AI <BOOM>

TEXTO	IMAGEN	AUDIO	VIDEO
 ChatGPT	 Midjourney	 Eleven Labs	 synthesia
 DeepL	 DALL-E	 moises	 runway
 deepseek	 Canva	 udio Make your music	 PICTORY
 Claude	 Leonardo.Ai	 LOVO	 Deep Nostalgia AI
 Gemini			

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# GENERATIVE IA: text-to-image



A conference will be held in the hall of the Complutense University whose photo I am enclosing. The participants are professors of law and justice. An eminent person is going to give a lecture on AI. Represent the scene of the lecture on AI in a 2D realistic style image, 16:9 format.



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# GENERATIVE IA: text-to-image



The talk is about the impact of the interaction between humans and artificial intelligence on discrimination. Attendees are dressed in street clothes, business casual. Regenerate the image with that in mind.



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# GENERATIVE IA: text-to-image



The eminent lecturer is a woman. Remember that eminences can also be women. Also make sure that the attendees are diverse: of different ethnicities, builds (fat, thin, tall, short), abilities and ages.



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# GENERATIVE AI: LLMs

Invent a short narrative about Emily, an attendee at a talk on AI and discrimination at the Complutense University of Madrid.

Emily, who works for an NGO dedicated to the defence of digital rights, attended a lecture at the Universidad Complutense de Madrid on artificial intelligence and discrimination. As he listened he understood how algorithms can perpetuate prejudice and affect vulnerable communities. In the end he asked what actions civil society could take to avoid such biases. She was motivated to redouble efforts to ensure that technology is developed ethically and with inclusion.

Invent a short narrative about Francois, an attendee at a talk on AI and discrimination at the Complutense University of Madrid.

Francois, CEO of a technology company, attended a lecture at the Universidad Complutense de Madrid on artificial intelligence and discrimination. During the talk he became aware of how algorithms could reproduce biases and affect different social groups. At the end, he raised a question about the role of business in preventing these inequalities. The experience reinforced his commitment to push for a more ethical and inclusive approach to AI in his company.



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# FINAL NOTES

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## KEY MESSAGES

- AI has not come 'overnight'.
- Not all AI is generative AI.
- AI presents many, many opportunities, but we need to be aware of its biases and the challenges it poses.
- Discrimination is not in the algorithm but in the use made of the algorithm.
- Europe is a pioneer in regulating AI, with a focus on fundamental human rights.

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# REFERENCES

- **On discrimination in facial recognition systems:**

- Buolamwini, J., & Gebru, T. (2018, January). Gender shades: Intersectional accuracy disparities in commercial gender classification. In Conference on fairness, accountability and transparency (pp. 77-91). FMLR.
- Hupont, Isabelle, and Carles Fernández. "Demogpairs: Quantifying the impact of demographic imbalance in deep face recognition." 2019 14th IEEE International Conference on Automatic Face & Gesture Recognition.

- **On the application of the AI Act to various use cases:**

- Hupont, I., Tolan, S., Gunes, H., & Gómez, E. (2022). The landscape of facial processing applications in the context of the European AI Act and the development of trustworthy systems. *Scientific Reports*, 12(1), 10688.
- Panigutti, C., Hamon, R., Hupont, I., Fernandez Llorca, D., Fano Yela, D., Junklewitz, H., ... & Gomez, E. (2023, June). The role of explainable AI in the context of the AI Act. In Proceedings of the 2023 ACM conference on fairness, accountability, and transparency (pp. 1139-1150).

- **On automation bias in decision-making:**

- Gaudeul, A., Arrigoni, O., Charisi, V., Escobar-Planas, M., & Hupont, I. (2024). Understanding the Impact of Human Oversight on Discriminatory Outcomes in AI-Supported Decision-Making. In ECAI 2024 (pp. 1067-1074). IOS Press.

# THANK YOU!

ISABELLE HUPONT TORRES  
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