

# Fairness and Ethics with AI

and the future of humanity



Loyanne Repolho

# ABOUT ME



Loyanne, a woman, 31 years old, Brazilian, proudly from Manaus.

- a emergency doctor
- Software Engineer and Data Scientist at Dados e Saude (Data & Health)
- developed a skill for Alexa aimed at patients with Arterial Hypertension
- with a restless and disruptive mind, she is an enthusiast in Artificial Intelligence, Data Science, Machine Learning, Design Thinking, and everything that involves health and technology
- whenever possible, she works in the community with open source contributions
- actively encourages other women to become even more interested in technology

**01**



## **INTRODUCTION**

Background of the Field, AI  
and Robotics

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## **LIMITATIONS OF AI**

Artificial Moral Agents

**03**



## **DATA OWNERSHIP**

Security and privacy

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## **CONCLUSION**

And next steps

As in the case of most disruptive technologies, assessment of and consensus on the possible ethical pitfalls lag. New AI applications and start-up companies seem to emerge daily. At the start of 2019, funding in imaging AI companies exceeded \$1.2 billion. Yet, questions of algorithm validation, interoperability, translation of bias, security, and privacy protections abound.

# INTRODUCTION

1. Bias and the black box effect
2. Dealing with rare cases and generalizability



# **LIMITATIONS OF AI**

The ethical issues of AI in surveillance go beyond the mere accumulation of data and direction of attention: They include the use of information to manipulate behavior, online and offline, in a way that undermines autonomous rational choice.



# DATA OWNERSHIP



# SECURITY AND PRIVACY



# WHAT DO WE DO?



Privacy protections typically concern regulating access to a person or what is known about him/her.



Such access may involve the individual's right to bodily privacy, personal information, property or place of habitation, or control of his/her name, image, or likeness.





# Bias in Decision Systems



# MACHINE ETHICS

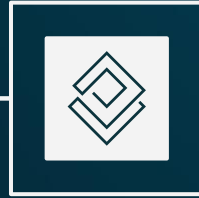
"Machine ethics is ethics for machines, for “ethical machines”, for machines as subjects, rather than for the human use of machines as objects."

*Floridi and Saunders 2004; Moor 2006; Anderson and Anderson 2011; Wallach and Asaro 2017*

“AI is impossible”  
(Dreyfus 1972)



“AI will solve all problems”  
(Kurzweil 1999)



“AI is just automation”  
(Lighthill 1973)



“AI may kill us all”  
(Bostrom 2014)



# CONCLUSION

Robust and secure systems  
that maintain privacy and  
protection of dados

## INFORMATION SECURITY AND PROTECTION



## ALGORITHMIC EQUITY AND JUSTICE

Prevent algorithms from being  
trained with biases that  
replicate and extend inequality  
in the region.



## PREPARED AND INCLUSIVE REGION

Having a prepared and inclusive  
region not only to be a  
consumer, but passive, but also  
to participate in the  
development of AI.



Built with respect for human rights.  
Freedom, dignity, autonomy,  
non-discrimination and equality, diversity,  
equity, social justice and labor rights.

## AI FOCUSED ON MAN



## TRANSPARENCY, EXPLICABILITY AND RESPONSIBILITY

Make sure that those affected by an  
AI system understand the outcome  
and allow those affected by an AI  
system to claim their rights.






**As I said at the outset, AI and robotics have raised fundamental questions about what we should do with these systems, what the systems themselves should do, and what risks they have in the long term. They also challenge the human view of humanity as the intelligent and dominant species on Earth. We have seen issues that have been raised and will have to watch technological and social developments closely to catch the new issues early on, develop a philosophical analysis, and learn for traditional problems of philosophy.**



# REFERENCES



 Stanford Encyclopedia of Philosophy

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## Ethics of Artificial Intelligence and Robotics

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Artificial intelligence (AI) and robotics are digital technologies that will have significant impact on the development of humanity in the near future. They have raised fundamental questions about what we should do with these systems, what the systems themselves should do, what risks they involve, and how we can control these.

After the Introduction to the field (§1), the main themes (§2) of this article are: Ethical issues that arise with AI systems as *objects*, i.e., tools made and used by humans. This includes issues of privacy (§2.1) and manipulation (§2.2), opacity (§2.3) and bias (§2.4), human-robot interaction (§2.5), employment (§2.6), and the effects of autonomy (§2.7). Then AI systems as *subjects*, i.e., ethics for the AI systems themselves in machine ethics (§2.8) and artificial moral agency (§2.9). Finally, the problem of a possible future AI superintelligence leading to a “singularity” (§2.10). We close with a remark on the vision of AI (§3).

For each section within these themes, we provide a general explanation of the *ethical issues*, outline existing *positions and arguments*, then analyse how these play out with current *technologies* and finally, what *policy* consequences may be drawn.



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## Ethical considerations in artificial intelligence

Nabile M. Safdar • John D. Banja • Carolyn C. Meltzer  

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# THANKS!

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