

# EUA Hot Topic Session: Artificial Intelligence

## The new open science challenge

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Professor Sorbonne University, Team: Affective and social dimensions in spoken interaction with chatbot/robot & ethical issues (CNRS)



Member of CERNA-Allistène (2014-22),

IEEE's Global Ethics Initiative (2016-18)

P7008 : Standard for ethically driven nudging  
for Robotic, Intelligent and Autonomous system  
(2018-2021) (Chair: L. Devillers)



# **Artificial Intelligence**

## **The New open science challenge**

- Demystification of AI for the society
- Human-machine co-evolution
- Imitation of Life, Affective, and Social Interaction
- AI systems reinforce the stereotypes
- New frontiers
- Role of Academics and Sorbonne University

# Demystification of AI and ML

## Narrow AI – Today

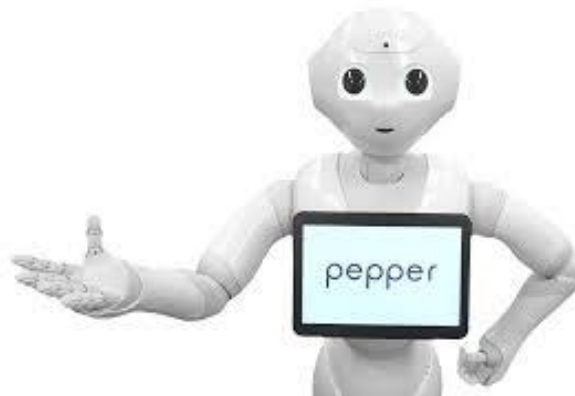
- What can it Do?
  - Can Approach Human/Super-Human functional Performance
  - Super-Human Access to Data
  - Tasks Requiring Judgement & Perception
  - Can Handle Ambiguity
- But:
  - Requires Massive Amounts of Labeled Data
  - World Reasonably Well-Defined
  - Cannot Easily Abstract to New Task, no common sense, no creativity (human sens)
- Anticipation or marketing ?
  - Lot of AI experts and also transhumanists write that conscience will emerge in future AI systems and that the Machines will feel emotions!!!  
The Machine has No body – A. Damasio

## Fiction - AGI





## Human-machine co-evolution







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Laurence Devillers 2019

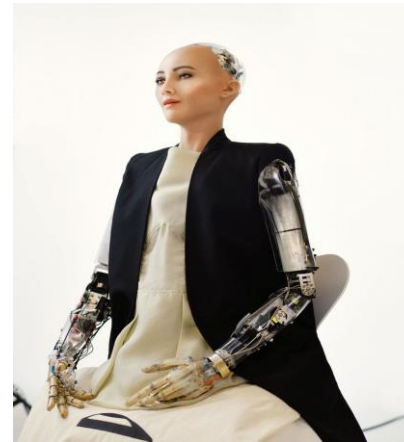
# AI systems reinforce the stereotypes: Women in AI

80% of the coders are men, 80 % of the chatbots and social robots built have women names ALEXA, SAMANTHA, SOFIA, ... or women face or body (Pigmalion myth).

- AI systems reinforce the stereotypes of gender, but also social, racial stereotype
- AI encodes social behaviour from male in robots
- Men create compaign robots with women face or body
- Women characters/robots are **assistants, nurses, sexual robots**

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It is urgent to involve more women on AI and robotics!



<https://geeko.lesoir.be/2017/09/22/samantha-le-robot-sexuel-qui-pourra-discuter-avec-les-enfants/>

# AI – New Frontiers

## Human Learning vs. Current AI

- We learn from Physical, Mental and Multimodal
- We self-Assess and can explain ourselves
- We learn from feedback and errors
- We learn incrementally, continuously, always on
- We learn with little or no Data,
- We forget the “Unimportant”, but retain “Important”
- We learn Interactively, Socially, we Love and Feel

## → Future Research Project “Organic Machine Learning” ...

- Mental and Physical
- Incremental and Interactive computing
- Error Modeling and Feedback (Social)
- Augmented Humans with sensors, virtual reality

# AI is a source of considerable economy prosperity and beneficial for society if we seriously consider the benefits with the risks.

- Sorbonne University (137 research labs)
  - **Interdisciplinary skills:** from fundamental researches (mathematics and humanities) to applied research (health, medicine, climate, environment...)
  - **NEW SCAI institut: Sorbonne Center of AI** ('contact : Gérard Biau for UPMC) with 4 axes
    - **Axe 1: Theory, algorithms, learning, robotics:** Biais of ML, Small data for training, Transparency, Explainability, Fairness
    - **Axe 2: Health and medicine :** decision support system, health data platforms, adoption of AI tools in health practices, Robot-Aided Therapy and Human–Robotic Augmentation
    - **Axe 3: Climat, environment, universe:** Best estimate of climate projections
    - **Axe 4: Digital humanities:** Generation and creativity, AI in Arts



# Towards a AI Partnerships in EUA

- Anticipation of the future of AI
- Push to more creativity and ethics considerations to preserve peace, justice and strong institutions
- AI is useful for the Sustainable Development Goals -> Towards disruptive useful AI projects
- Education and research in AI -> create Ethics by Design systems, dual-skills sectors (sciences & humanities)
- More investments in Research and Education
- **AI Partnerships in EUA: Create the conditions of trust** to collect data in order to enable European companies to meet the challenges of AI and above all to preserve the European market as well as our values and freedom.

# Thanks for your invitation



# **It is important to demystify and disseminate robotics and AI science**

- Imagination of our contemporaries about robotics and more generally AI are mainly founded on science-fiction narratives and myths.
- Expressions used by experts such as "robots are autonomous", "they make decisions", "they learn by themselves" are not understood as metaphors by those outside the technical research community.
- To mitigate ideas originating from science fiction that mainly underline gloomy consequences, it is important to demystify and disseminate robotics and AI science by engaging in public discussion and debate with all citizens.

# 17 Goals to Transform Our World



AI could be useful for all these goals

for a good health and well-being, for a better quality of education, for more gender equality, for reduced inequalities, for climate action ... but also for industry innovation



# Imitation of Life, Affective, and Social Interaction

- Today, emerging interactive and adaptive systems using emotions modify how we will socialize with machines and maybe with humans
- These areas inspire critical questions centering on the ethics, the goals and the deployment of innovative products that can change our lives and society
- Human-machine Co-evolution :  
risks of dependence, isolation, nudge, etc.  
for vulnerable people





# Ethical Principles and AI Industry Leaders

**GAFA\* communicate a lot about ethics & AI - No control on the GAFA systems and ethical principles**

- Violences on social networks (Facebook), cyberviolence against women, racism...
- Data collected by Facebook and vocal assistants: Google Home, Alexa Amazon
- Has Facebook been too lax about the actions of Cambridge Analytica?
- Facebook accused of job ad gender discrimination\* -> « american GDPR »

**China is suspected of possible data recovery maneuvers by wanting to deploy the 5G with the Chinese giant Huawei in other countries.**

- The French National Assembly has just passed a law requiring mobile operators to apply to the Prime Minister for permission to install radio network equipment

**BATX\* are working on the social credit system and are testing different measures**

- The system is considered as a form of mass surveillance which uses big data analysis technology.

**In EU, conditions of trust to collect data in order to enable European companies to meet the challenges of AI and above all to preserve the European market as well as our values and freedom.**

*\*GAFA: Google, Amazon, Facebook, Apple - BATX: Baidu, Alibaba, Tencent, Xiaomi*