

# Who will populate Sensible Home?

Opening new cultural trajectories  
in the design of emotional interactions:  
analyzing bestiary of AI

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**Information & Communication Studies**



Artificial Intelligence and the Human Cross-Cultural  
Perspectives on Science and Fiction  
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Germany



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Repeat the title: we'll speak about artificial creatures that may live tomorrow in our homes, but also that they are currently in our minds, our memories, whatever we are an user or a designer.

And we will try to follow the trajectories between our imaginations and these innovations.

Before we begin, a 1st disclaimer: we come from communication studies, we are analyzing the relationship between discourses, medias, digital devices, professional practitioners, users, and organizations

## CONTEXT

### **sensible home,** a smart home connected with human emotions

- putting emotion + moral economy at risk (from affective computing to dataveillance and nudges)
- a grounded-project research with the innovation team of a French IT provider

→ III : screenshot from BigData3.0 LIZY <https://www.youtube.com/watch?v=RfuM63CAC8g>



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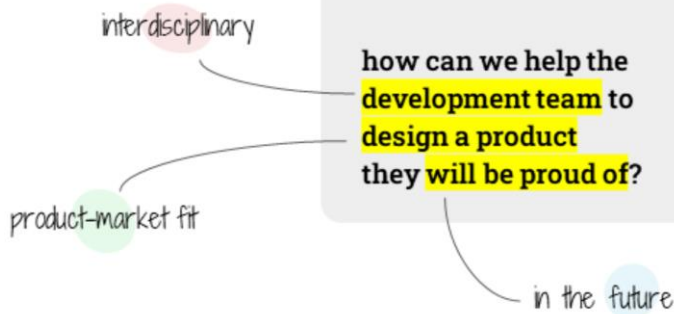
2<sup>nd</sup> disclaimer

We are speaking about AI with emotional abilities, no matter what is the technological readiness level, the feasibility, etc.

When I speak about emotional abilities, I refer to affective computing, and the possibility for a machine to recognize and simulate human emotions.

Our study case is the presence of such an AI in a smart home, and its relationship with family members. Considering what is at stake here (emotional manipulation for instance), we need to forecast what may happen if emotional AI will populate our future homes. The background picture illustrates one scenario, where a family is dominated by its vocal assistant. It's the kind of content we will take into account in our study.

dystopia



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In a partnership with a French IT procter, we tried to avoid dystopian trajectories for Emotional AI and Sensible Home. Then, the purpose of our research is really dedicated to reduce design issues: how can we help the development team to design a more ethical product?

In line with this question, we have 3 creative constraints: we are working with an interdisciplinary team (with different knowledge, practices, expectations), they will have to sell a desirable product, and the brand reputation must be preserved.

# Looking for circulation between cultures

Our perspective

Media: a circulating document to operate mediations

- Cultural trajectories of technology (Gras, 2013)
- Observed via intermediary objects (Vinck, 2011)

**in  
media  
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graph TD; A((in media res)) --- B[Our perspective  
Media: a circulating document to operate mediations  
- Cultural trajectories of technology (Gras, 2013)  
- Observed via intermediary objects (Vinck, 2011)]; A --- C[desirable futures  
from alternative tech  
to preferable futures  
(Vörös, 2017)]; A --- D[popular fictions  
from literature to webseries]; A --- E[imagined affordances  
from professional practitioners  
(Nagi + Neff, 2017)];
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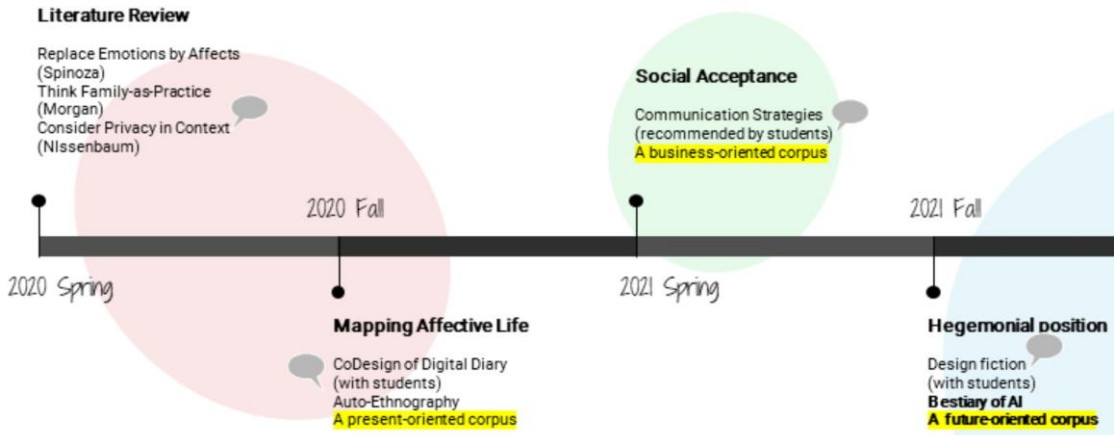
popular fictions  
from literature to webseries

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(Nagi + Neff, 2017)

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# Global method

Participants (sch., eng., stud.)  
citing cultural references



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## Focus on the bestiary



### What

**A collection of beasts that populate an area**  
(AI, in the future / smart home)

### Why

**Multiple reference to fictions in our interviews**  
(Big Brother, H.A.L., J.A.R.V.I.S., Black Mirror, A.I., etc.)

### How

#### Rows

(AI, Robots, Prototypes, in fiction, market, design fiction)

#### x

#### Columns

(Criteria from LitReview)

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As a reminder, a bestiary is book defining and illustrating the creatures of a specific area: it can be animals discovered while exploring a new continent, or fantastic creatures living in fairytales. In this study, our territory is familiar: its our home, but our exploration is time-related: future is still unexplored.

As mentioned before, the idea of a bestiary comes from the many references made by our participants (innovation team, students). They talked about scifi movie, mangas, comics, and so on. It is also related to the first purpose to design AI persona: an artifact that developers and designers can discuss with.

But first the lit review highlights so many variables. Second the fictional characters are so complex, even if they come from mainstream production (marvel, netflix) that designing 4 or 5 personas seems to us too oversimplified and shallow.

By adding creatures and variables, little by little the bestiary appeared

# 174 AI x 74 criteria

CODE_CREATURE	Name of the creature	Name of the Universe (BIOG, etc.)	CODE_IA	Name of the author or team	Type of creature (fiction, design fiction, etc.)	Year of publication	Cultural site	Name of the author/designer	Year of publication (when the creature works)	Specific Code of %	Phase/Year of Publication	Key features (Physical, etc.)	Original Content (Autonomous, etc.)	Medium format of the creature	Source	Inspired by	Applicable to %	CM (Creative Medium)	CM (Digital)	CM (Physical)	CM (Mixed)	CM (Other)	CM (AI)	CM (Human)	CM (Hybrid)	CM (Other)	CM (AI)	CM (Human)	CM (Hybrid)	CM (Other)	CM (AI)	CM (Human)	CM (Hybrid)	CM (Other)	Media format of the creature
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
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## Ex.: Pleasure, Productivity, Protection

Stengers et al.  
Occurrences in fiction, design f., prototypes and market

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Currently we have more than 170 artifacts and more than 70 criteria in our table. It's a simple spreadsheet: creatures are documented line by line, and criteria appear in each column. For instance, there is a paper from Yolande Stengers et al. defining three main set of features in smart home: pleasure, productivity and protection. So we checked for each AI how this criteria applied.

We have many more about media format, date, inspiration, cultural location, moral compass, shapes, origin (from the market, the fictions, or the workshops), etc. But what you see is the final version. MJ will now explain more in details the genesis of this intermediary object.

# Clustering the bestiary

## Type of input

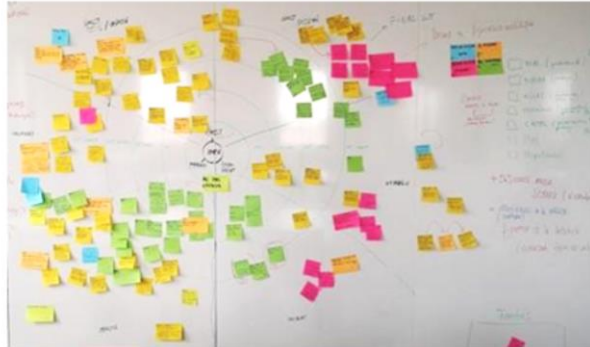
(instructions, haptic, vocal, emotional, mental)

## Type of artefacts

(Robot, uncanny or obvious, houseware/wearable, personal or public infrastructure)

## Type of contents

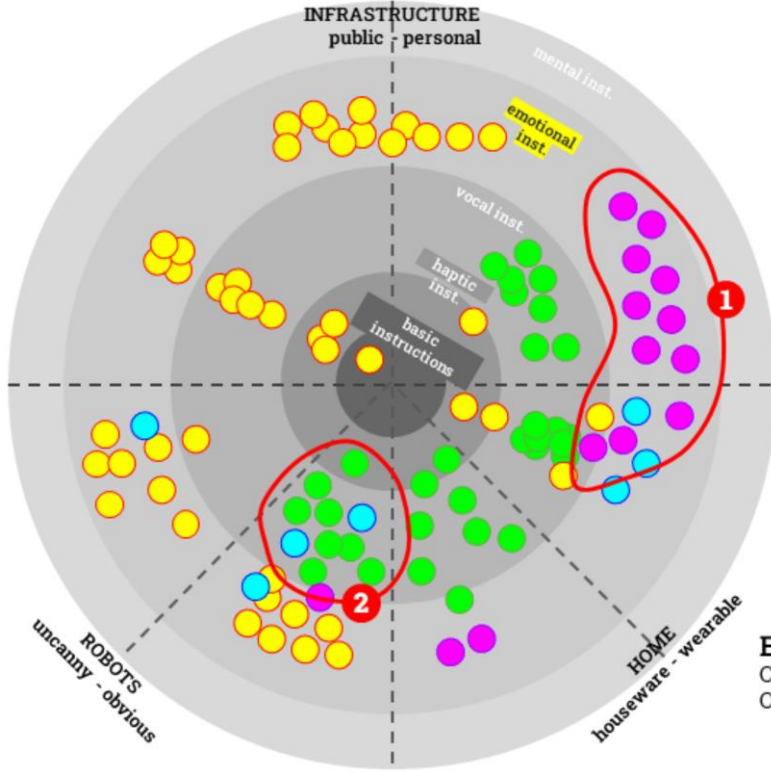
(fiction, market, design fiction, d.f. made by students)



Bestiary, v1

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- market
- fiction
- design fiction
- d.f. by students



**Examples:**  
 Cluster 1, AI made by students  
 Cluster 2, AI made in Japan

Bestiary, v2

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# cultural differences?

a need to think beyond interculturality:

**how intermediality helps to develop a more ethical AI ?**

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So, is there any cultural differences between a western and an eastern representation of Emotional AI?

Spoiler alert: there is not. And we will explain why. Actually, we 've chosen to give up the lens of cross-cultural comparison. The way in which contents circulate today in our media reveals the new forms of inspiration, of influences, whatever the cultural zone from which these contents come. That's why we prefer talking about intermediality.

# Trajectories

- **Through Imaginaries: a cultural blend**
  - General Trends
  - New trends

- JP

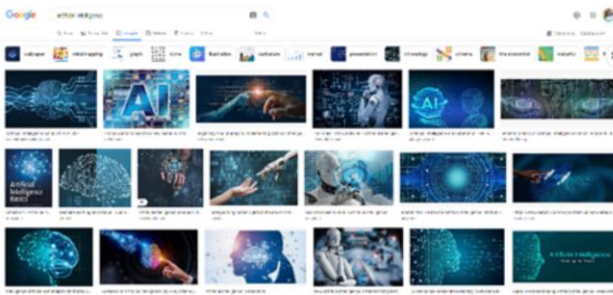
With digitalization and globalization, Media are now shaping a cultural blend. In this cultural broth, we identified general trends and new trends.

# Trajectories

- **Through Imaginaries: a cultural blend**

- General Trends
- 1, In contents: The circulation of meme (Tarde)
  - What are the meme about AI? Are they desirable?
  - « The Big Blue Brain », DataDada (a French dadaist collective)

« Artificial intelligence », a query on Google Images FR



« Artificial intelligence », a query on Google Images JP



- JP

The most obvious representation of AI in our bestiary, and then in content circulating online, is the Big Blue Brain. We used the same query in Google Images « Artificial Images », here is what we found in France – on the left- and in Japan –on the right. We have exactly the same pictures.

The concept of memetic, coined by the french sociologist Gabriel tarde, is helpful here. Even if AI is a new invention, there is a strong mimesis between visual representation.

And it is precisely because it is an invention that we need to find a common ground to explain it, and facilitate its circulation. This is what is communication.

# Trajectories

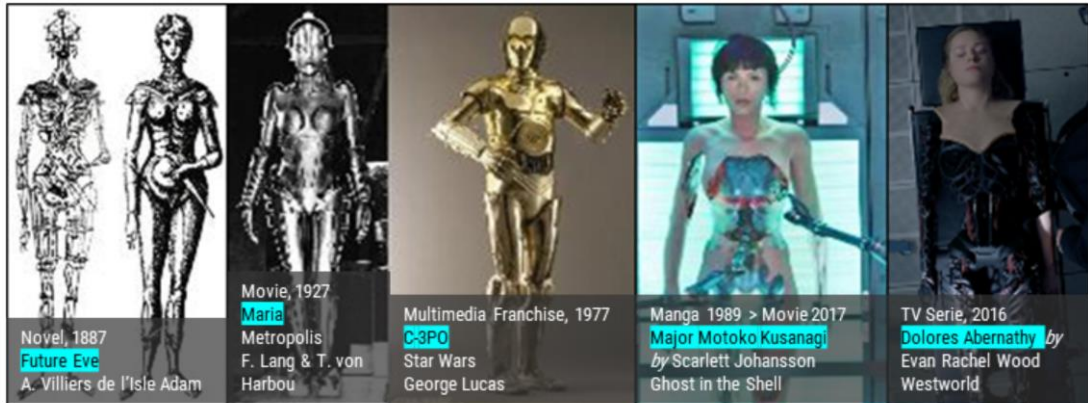
- **Through Imaginaries: a cultural blend**

- General Trends

- 2, In Fictions:

Stable : anthropomorphism, desire of autonomy, vulnerability

- AI embodied in female shape (+/- visceral)

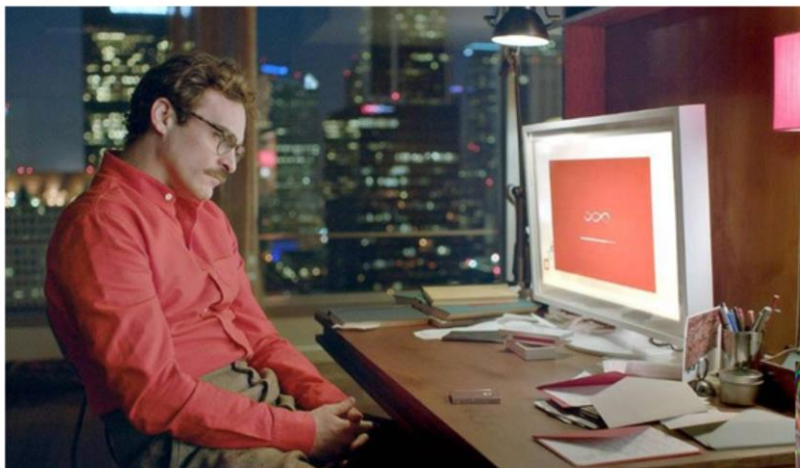


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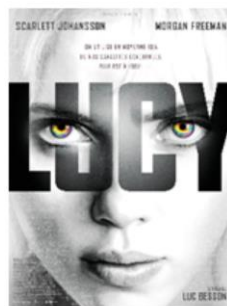
An other example of general trends, in fictions, is the embodiment of AI in a female body. It's the choice of both anthropomorphism and vulnerability. We have the same shape, from left to right, through centuries and media (novel, movie, TV series, etc.). It's pretty amazing how this body is revealing more and more of its visceral nature: do people want to know how it works inside? Or do they want to reassure themselves about the weakness of these artificial organs?

In this trajectory, and moreover in our bestiary, the person of Scarlett Johansson takes a specific place.

# AI Imaginary embodied in female form



Empathy, seduction and Care.



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# Trajectories

- **Through Imaginaries: a cultural blend**

- General Trends
- New trends
  3. de-politization of the relation between tech and humans
    - (Big Brother > HAL > The Grain)
  4. re-politization of the relation between tech and humans
    - (Existenz > Matrix > Sleep Dealers)
  5. exploitation to autonomy
    - (Metropolis > Replicants, A.I > Westworld, Better than us, Real humans)

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# New trends

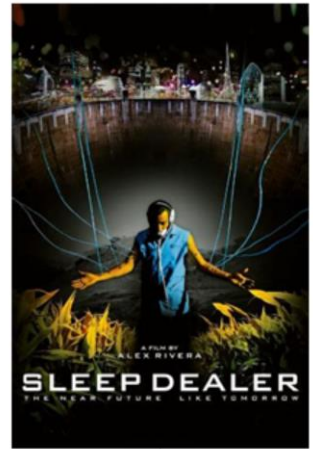
## De-politization

From mediascape (Appadurai) to mediacultures (Macé, Maigret)

Contribution of intermediality (Müller) to study cultural forms embodied in mediality (Brown) as a media materiality.



## Re-politization



# Trajectories

- **Through Agency: a path to patency**

- Ex.: the role of **Paro** in Medical Home for the Elderly
- Or: **Anakin&C3PO** / the **Murderbot** Diaries (M. Wells)
- A new ecology: what niche for robots?
- A new ontology: what empathy for the robots?
- Taking care of technology: a way to avoid dystopia



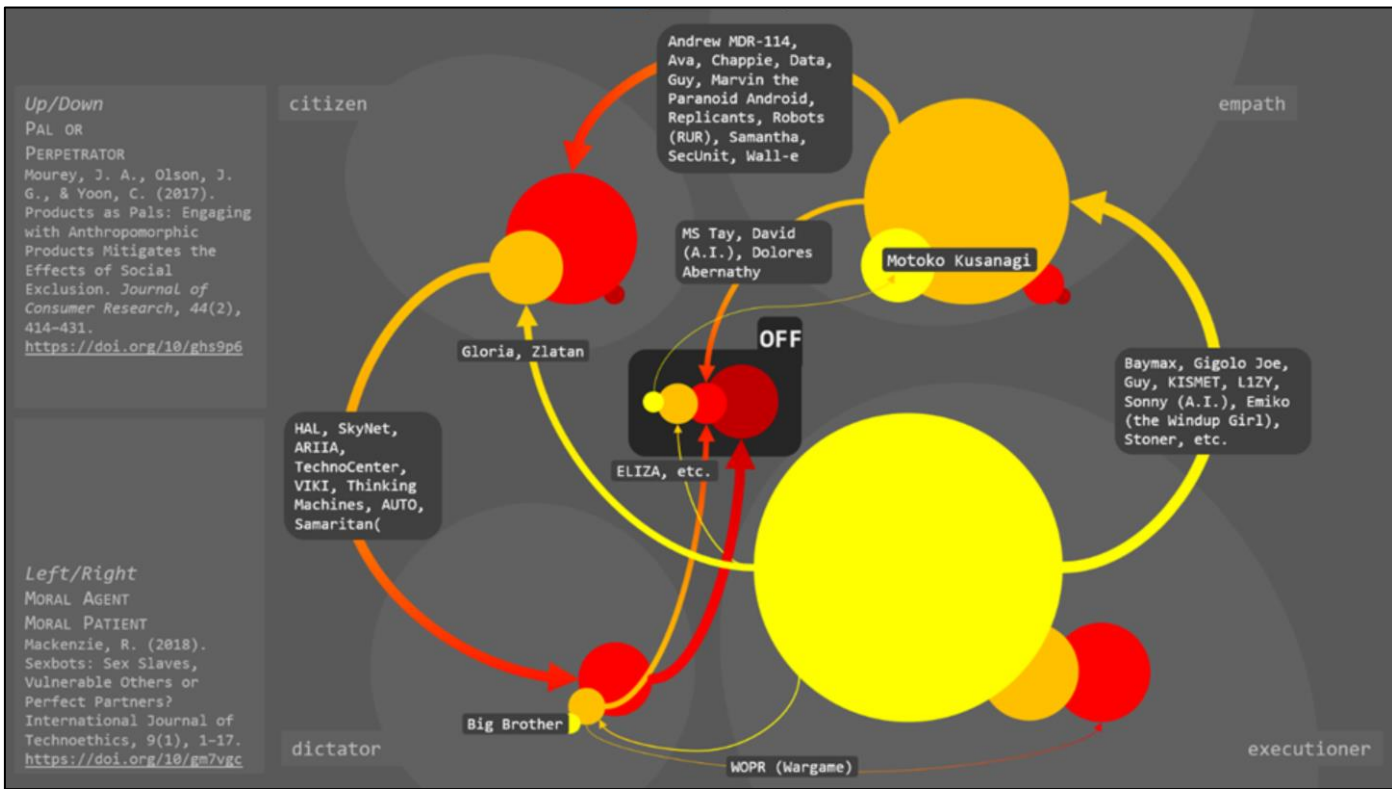
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One last trajectory we want to highlight is the behavior of those artifacts.

Social robots are programmed to behave in a specific way, and they support affordances of empathy and care with human. We have an example with Paro, the little seal. There are many examples of these robots dedicated to the well-being of humans beings. And in most case, this behavior doesn't change: they are robots. But here we observe two points of divergence:

First, some humans can develop empathy for the robots, like we can see in technanimism. ON the right, it's a robots show in a Tokyo restaurant. The way Pepeer is dressed is also the sign of an attention to the robot. IN fiction, at the begining of Star Wars, the young Anakin is devoted to the future C3PO. He will change to Darth Vador when he stops to take care of his robot (and his mother)

And it's the second point: in fictional narratives, characters evolve between the beginning and the end of the story. Robots also evolve in stories; and we all know how SkyNet became Terminator.



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In this picture, we draw the trajectories of fictional AI, from bottom right where they are simple executioner of their programmed instructions. Upper right, they discover emotions and empathy (like the android data in Star Trek). Upper left, they reach citizenship (like replicants in Blade runner). It's at this stage that a lethal drift occurs, when citizen robots want to rule the world. And the black hole in the middle is the place where dystopian artifacts are terminated by humans. Here appears a threshold of social acceptance: do not design AI beyond empathy, it's a dangerous path where things may turn bad.

## Research Perspectives : how to transfer to engineering ?

- **Through Mediation: intermediary objects to disseminate**
  - visual and tangible materials to share, discuss, and co-design
  - Ex : Bestiary, or Sensible Smart home, as transmediation device
  
- **From intermediary objects to mediation devices**
  - Ex.: forthcoming workshops with industrial partner in June 2022
  - **topics: controversies on AI, affective daily life, alternative tech, AI bestiary**
  - **objectives: sharing knowledge and results, co-designing new cultural trajectories**

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# Research Perspectives

## Potential uses of the bestiary

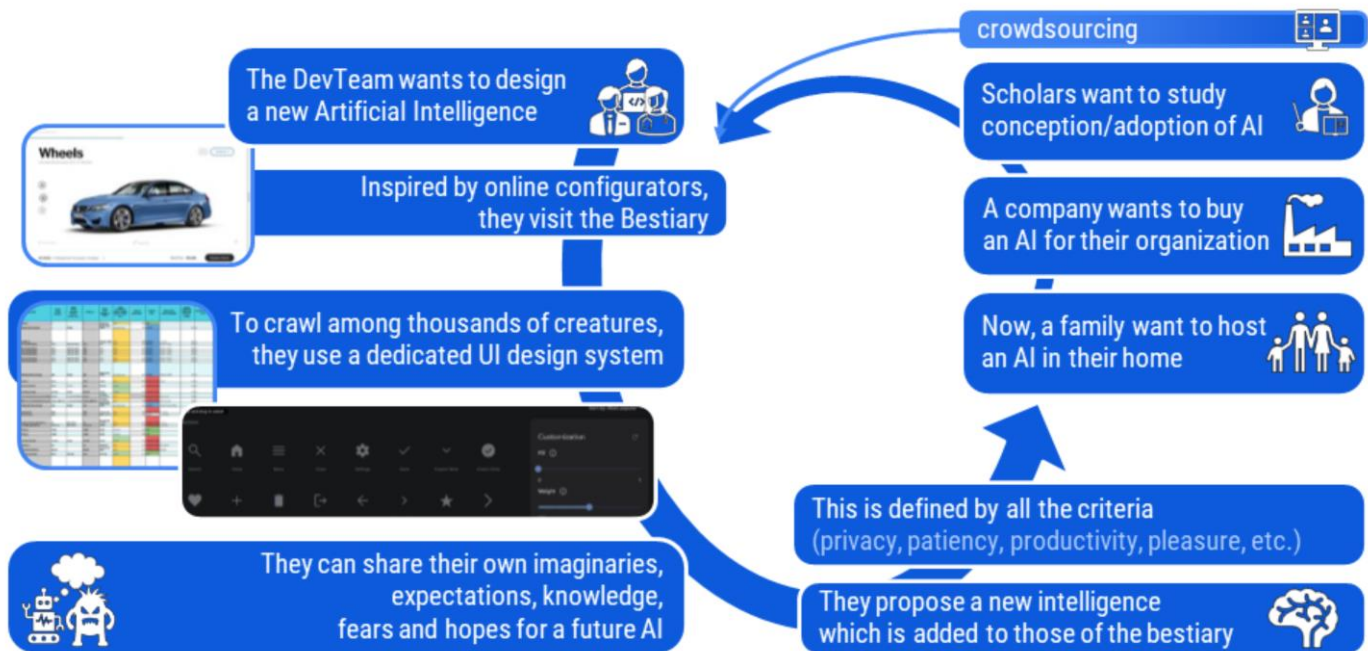
- Researchers
- Professionals
- Families



Bestiary, v4

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# The bestiary as an AI Configurator



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One last word, the next step of the bestiary, is to be used as a configurator, as we can experience when we want to buy a car. Our purpose is now to enhance this spreadsheet with interactive features where people can sort things out. What criterion are the best for our situation? Can we forecast its moral trajectory for this setup?

This digital tool can be used by the development team, but also by families later, once the product is on the market. It can also be useful for scholars who want to study trajectories, design choices, and market choices.

Thank you