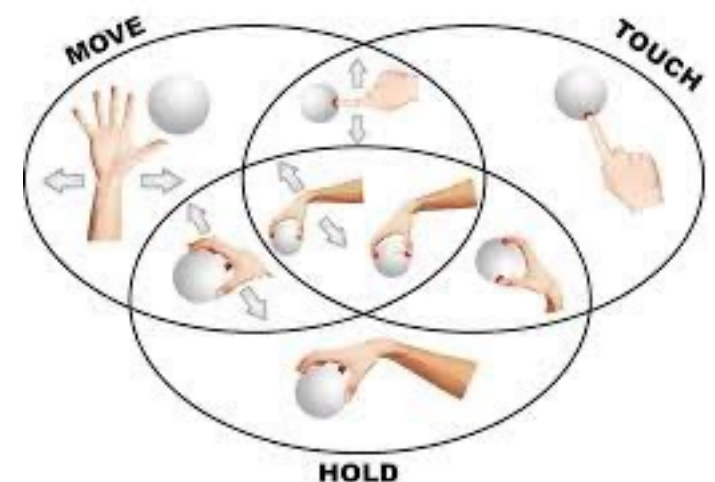
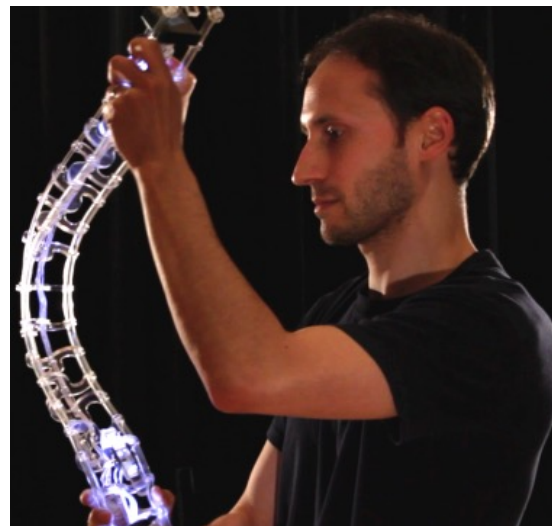


Dronible: operating drones with tangible objects

Jérémie Garcia, Nicolas Viot, Dong Bach Vo, Sylvain Pauchet



Goals of the workshop

1. Discovering Human-Drone Interaction
2. Practice physical and digital prototyping techniques for HDI
3. **Have fun** in a creative and cooperative activity

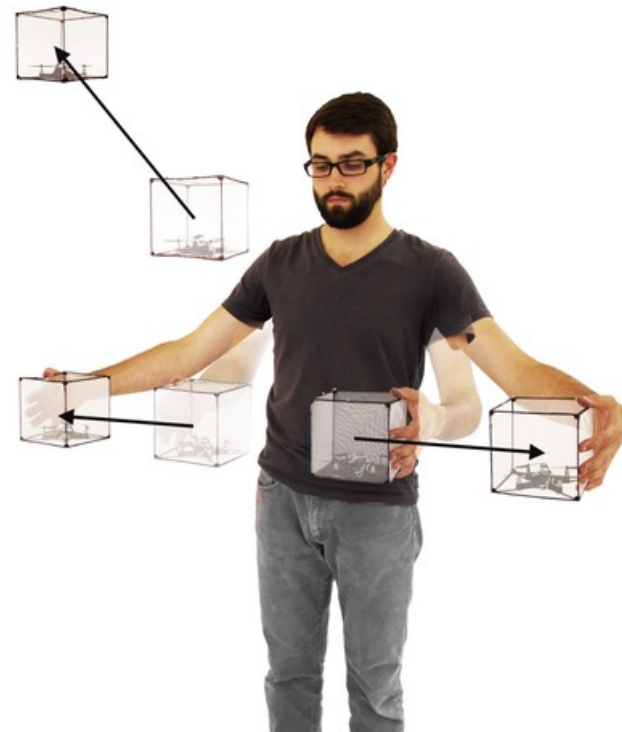
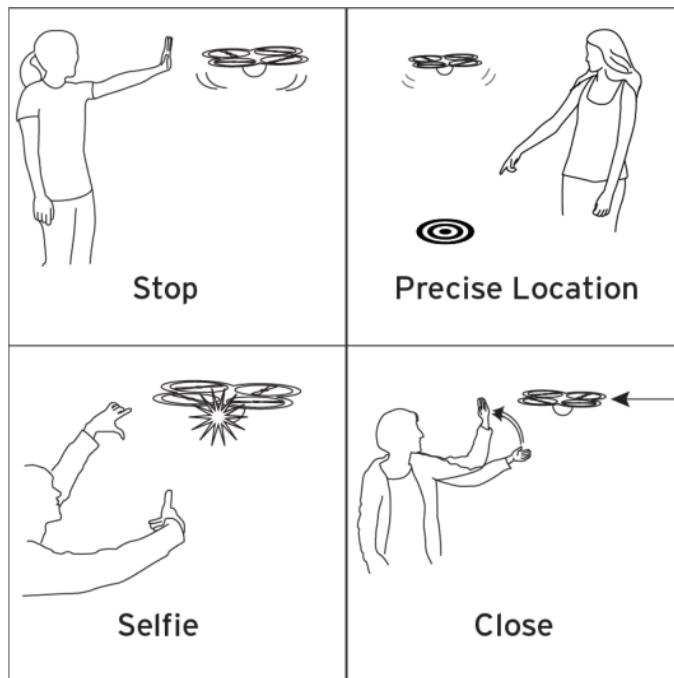
Schedule

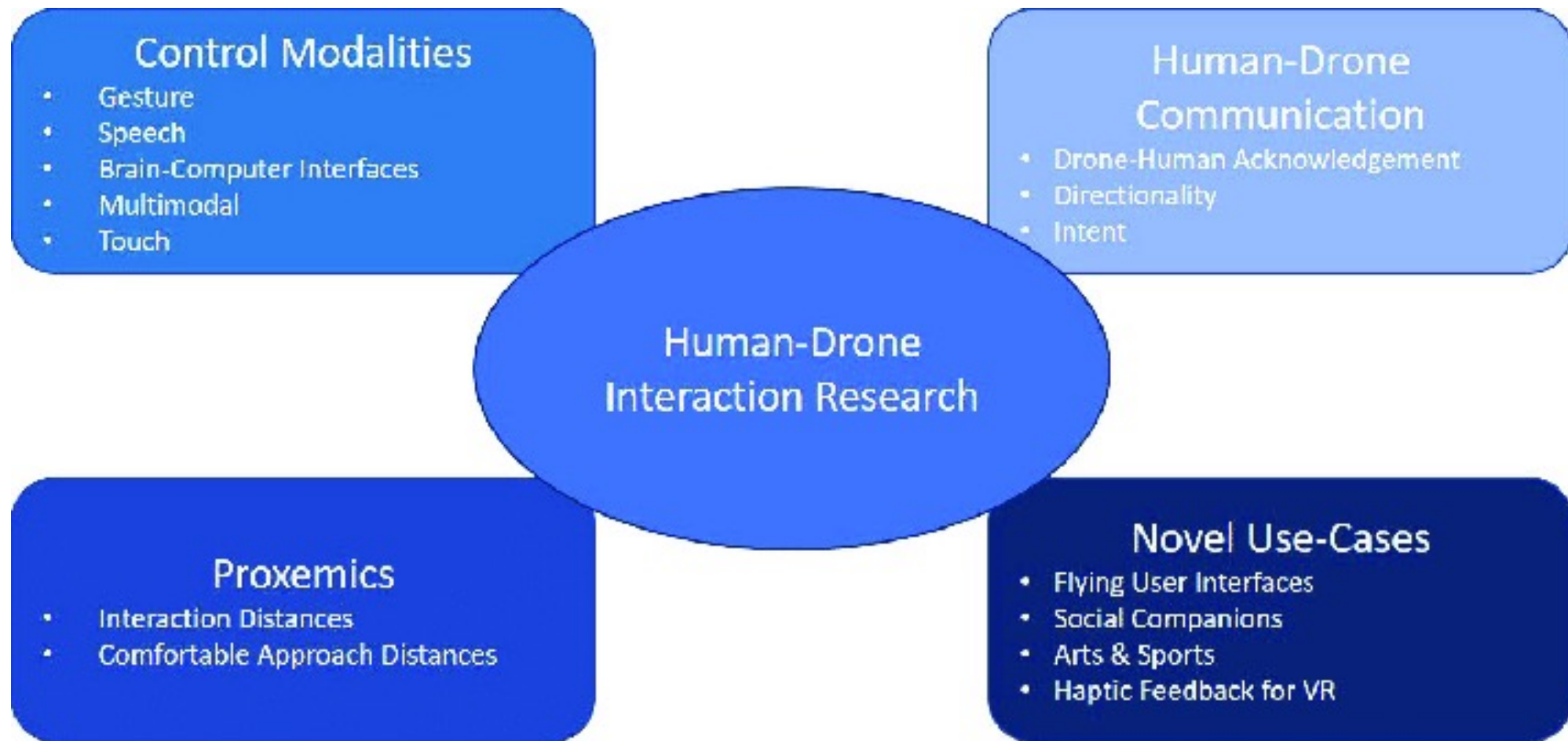
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Human Drone Interaction

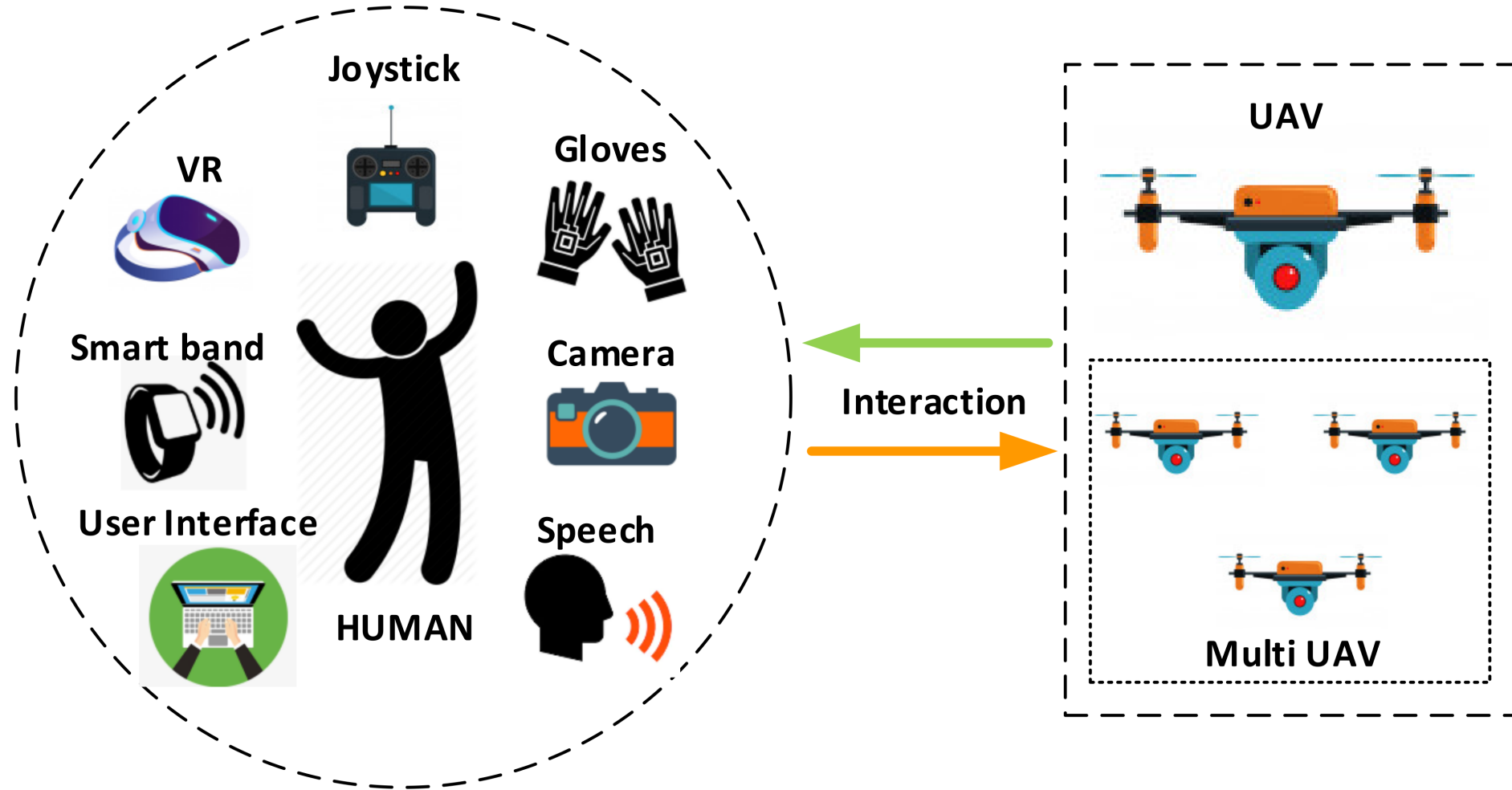
Growing community in HCI and Robots communities

- CHI Paper and workshops, UIST, RoMan, HRI ...

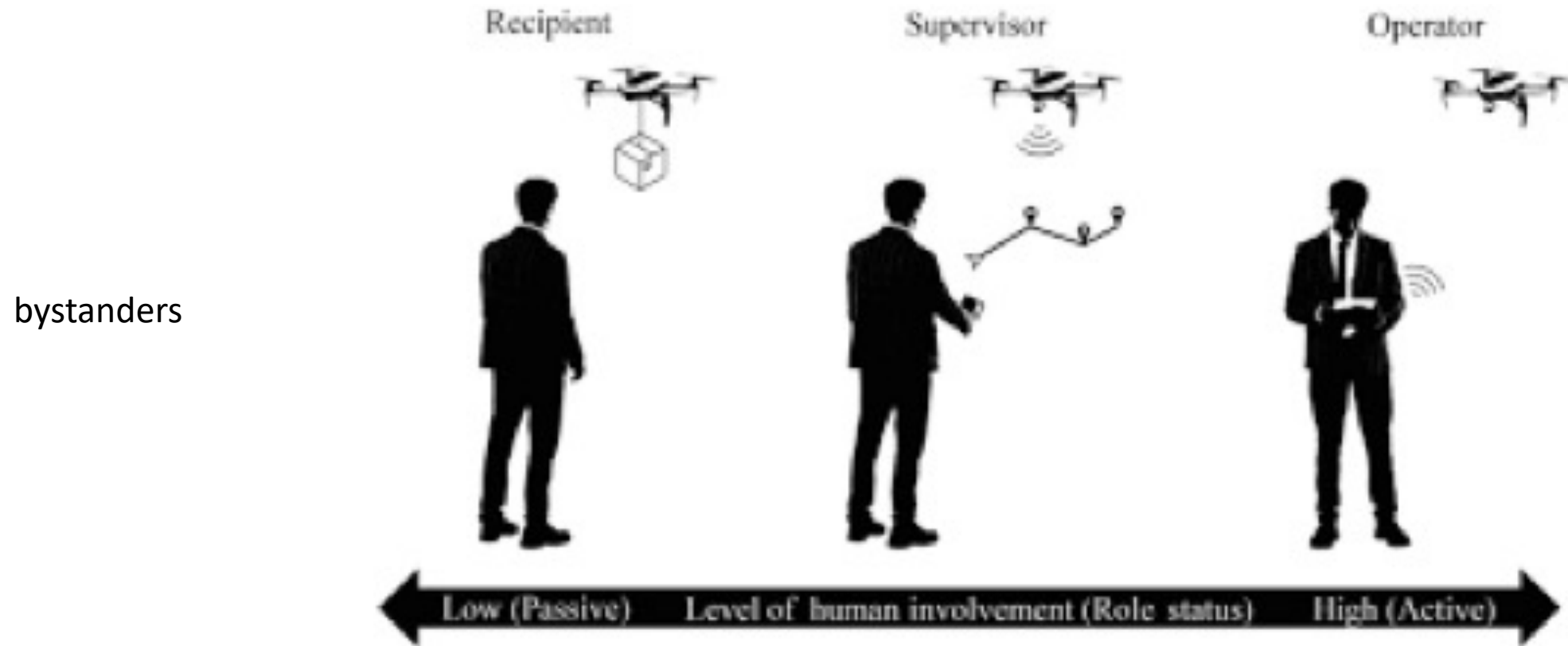




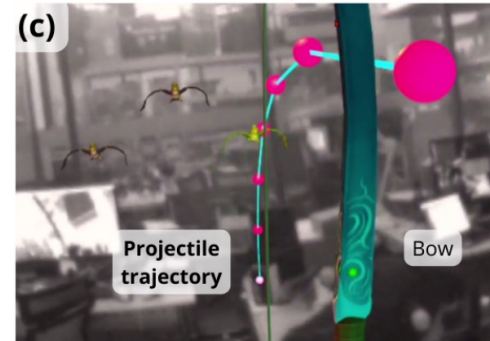
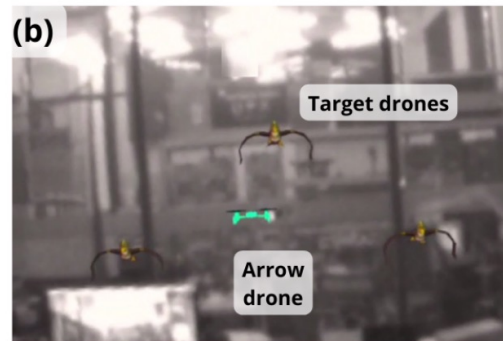
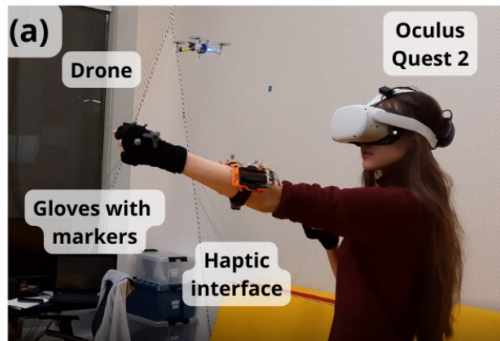
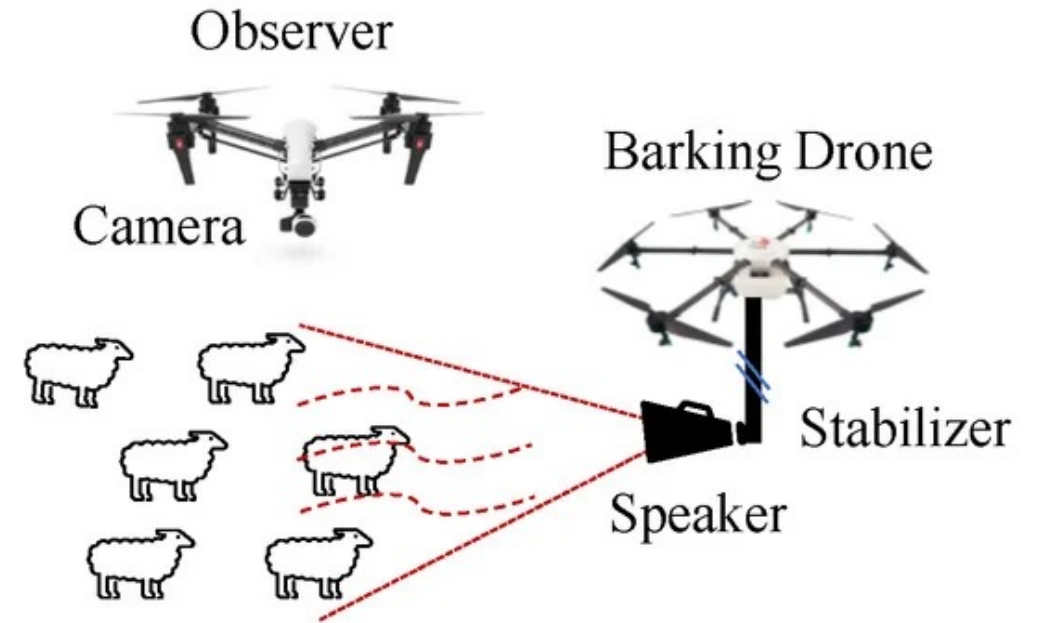
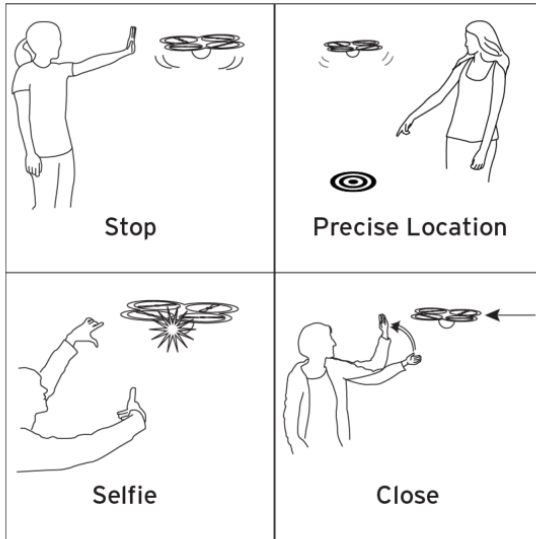
Control



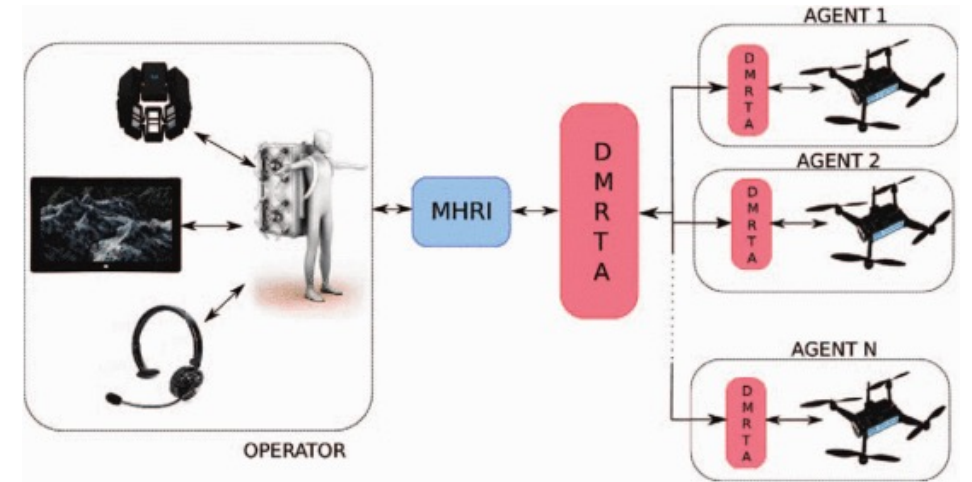
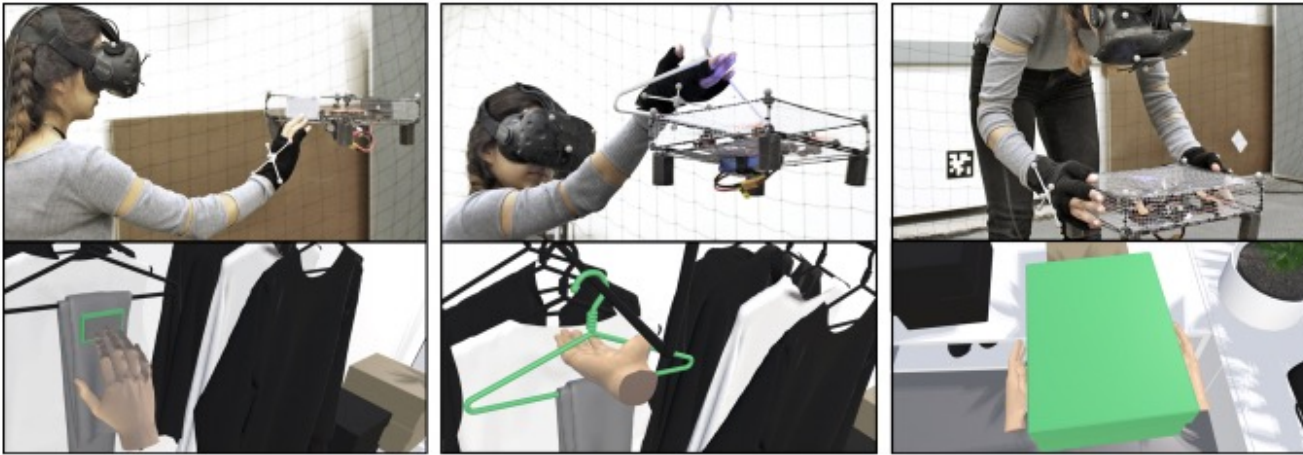
Proxemics



Communication



Novel use cases



Design challenge for today

How drones can be operated with tangible objects and provide haptic feedback?


Use cases are up to your group

You can (must) go wild

From midjourney



Technology for this workshop

- Motion sensor (Riot) – acceleration, rotations, sensors
- Tiny drones – CrazyFlies (Tello)
- Haptic feedback – LRA 

(This list is extensible if you have stuff or needs)

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Round Table & Making groups

- What's your name?
- What is your experience with drones?
- What is your experience with Tangible Interaction
- What are your skills? (code – design - making)

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Video Brainstorming – 1 hour

As a conventional brainstorming but each idea must be **acted** and **filmed**

Focus on **how** users will interact and what is the **feedback**

Two or three ideas per person must be shot!

Think, prototype (rough), film (many times)



Don't be afraid of **stupid ideas**, you need at **least 3 per group**

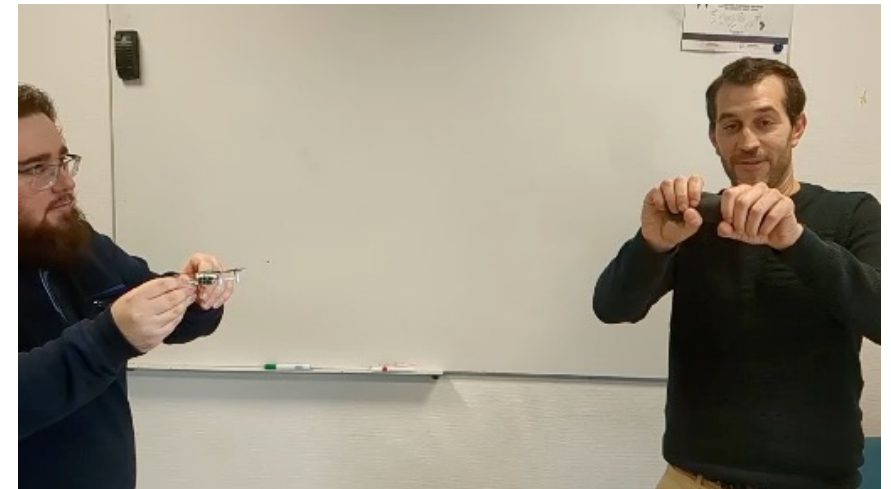
For each idea, one member is the director, the other must comply.

If you don't agree, after shooting, you become the director and redo it your way !

Example!



“I want to change direction by twisting a sausage,
When I twist, it should make the sausage vibrates”



Video Brainstorming – 1 hour

At the end, all groups need to **Pitch & Show your best & crazy ideas in 5'**
Create a video gallery or slides or whatever!

Do share all the videos with jeremie.garcia@enac.fr



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A background of red theater curtains with vertical folds and a slight gradient from top to bottom.

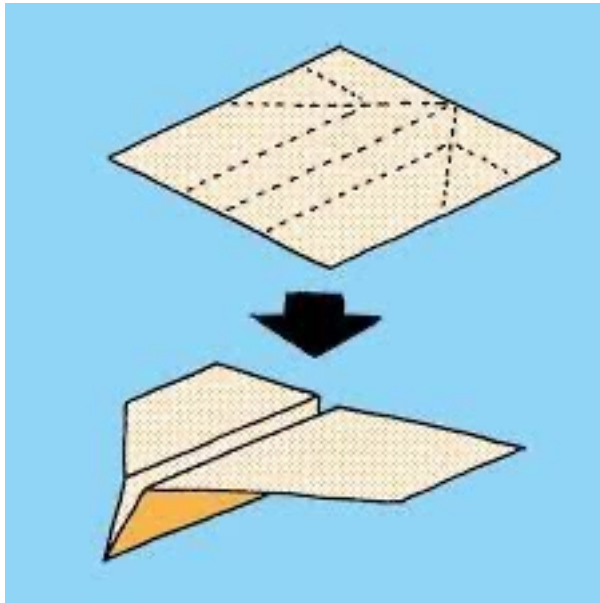
Showtime!

Technology (code -demo)

Github repository <https://github.com/jeremie-garcia/dronible>

Prototyping – 90'

Let's make flying and tangible prototypes



Demo Time

Each group demonstrate their prototypes

We take videos and will share them all afterwards (if you are ok)



Discussion

Is it worth operating drones with tangible objects and provide haptic feedback?

Was it fun?