

# PCOG yearly team meeting 2018

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Gabriel Duflo

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# What I have done

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## INSA Rouen Normandie



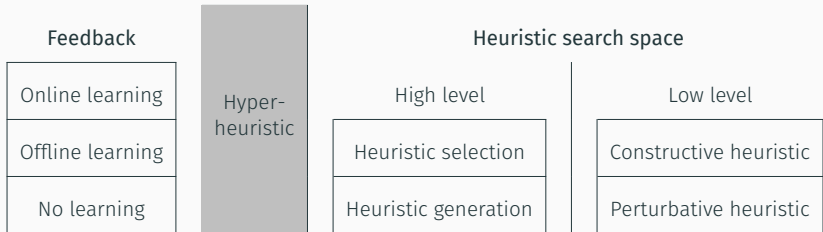
Mathematics engineer degree with **Decision Aid** speciality (2018).

## Université de Rouen Normandie



Master degree in **Theoretical Computer Science and Applications** (2018).

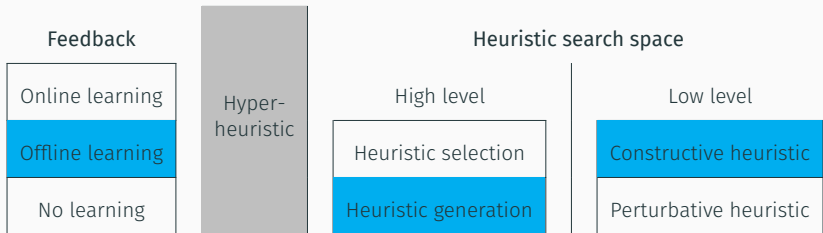
## Use of machine learning methods for UAV swarm behaviours [1]



**Figure 1:** Classification of hyper-heuristics

[1] Gabriel Duflo, Emmanuel Kieffer, Grégoire Danoy, Pascal Bouvry; GP hyper-heuristic for the travelling salesman problem, OLA 2019 (accepted)

## Use of machine learning methods for UAV swarm behaviours [1]



**Figure 1:** Classification of hyper-heuristics

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What I do now

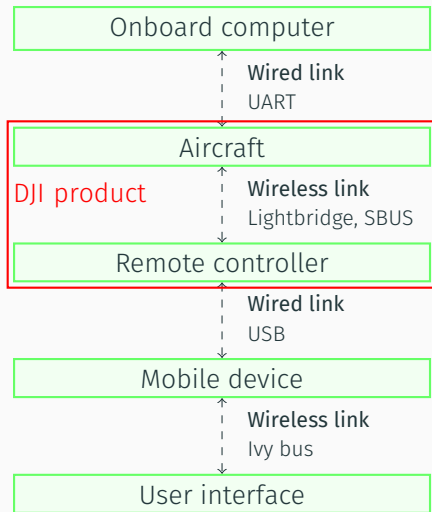
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Applying swarming algorithms of the team to real UAVs.

- Implementing the behaviour of the UAVs.
- Implementing the communication between every UAV.
- Implementing the user interface for controlling the swarm.



# Work distribution



**Figure 2:** Different components of the project.



**Figure 3:** Aircraft with the onboard computer.



**Figure 4:** Remote controller with the mobile device.

# Work on the onboard computer

- Behaviour of the UAV in the swarm.
- Processing messages from the mobile device.

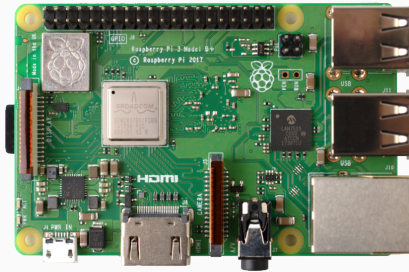


Figure 5: Raspberry 3 model B+. *Source: Wikipedia*

# Work on the mobile device

- Communication between every mobile device and the user interface.
- Getting information from the aircraft.
- Sending messages to the onboard computer.

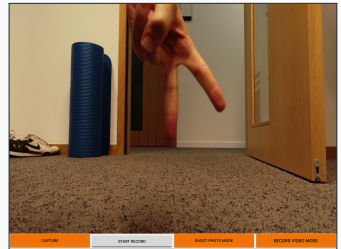
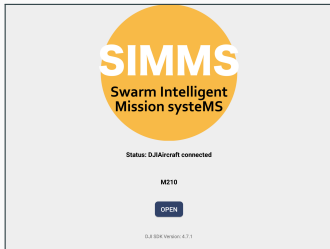


Figure 6: Screenshots of the application running on the mobile device.

## Conclusion

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