

# Prepare for Failure !

## CYBER-PHYSICAL SYSTEMS IN THE WILD

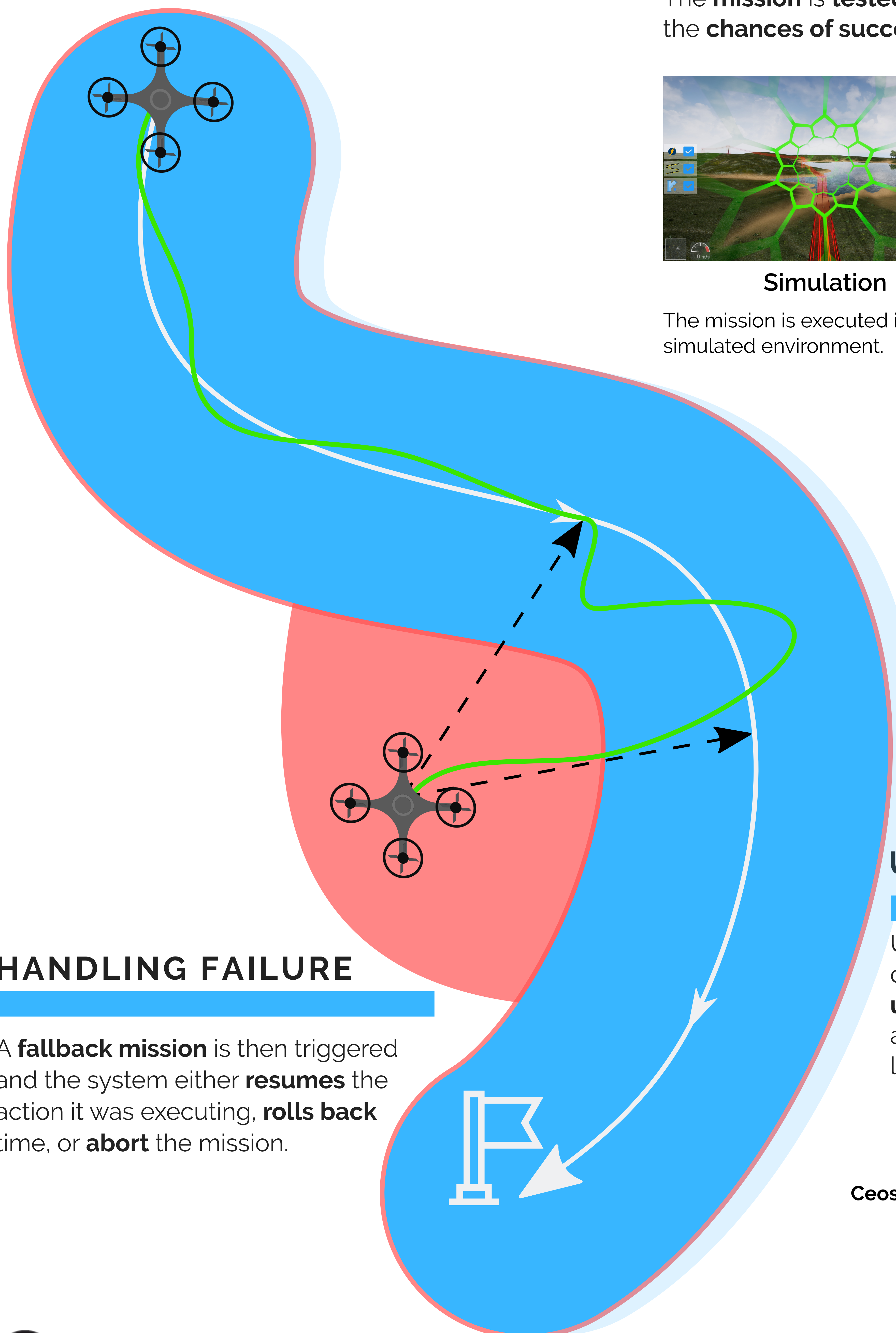
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### CYBER-PHYSICAL SYSTEM

A Cyber-Physical System executes **actions**, which rule the **evolution of the state** of the system. This evolution is **continuous** and subject to **uncertainty**.

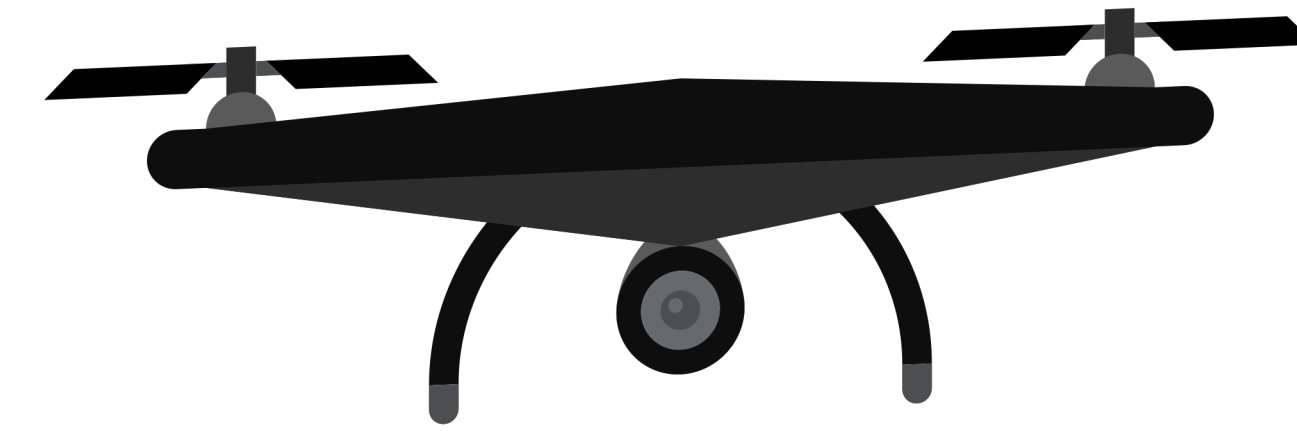
### MISSION & MONITORING

A **mission** concatenates **actions**, and add **constraints** such as no-fly areas.

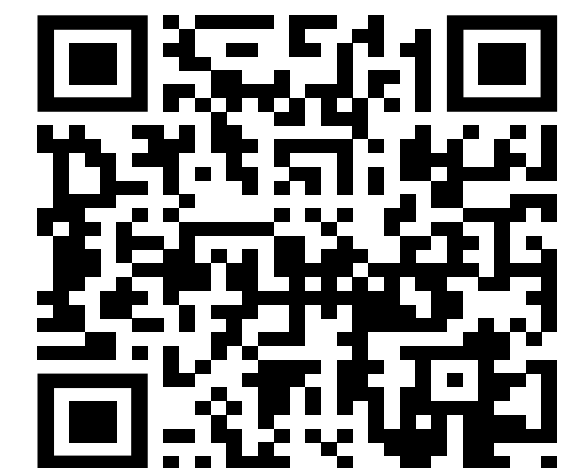


### HANDLING FAILURE

A **fallback mission** is then triggered and the system either **resumes** the action it was executing, **rolls back** time, or **abort** the mission.

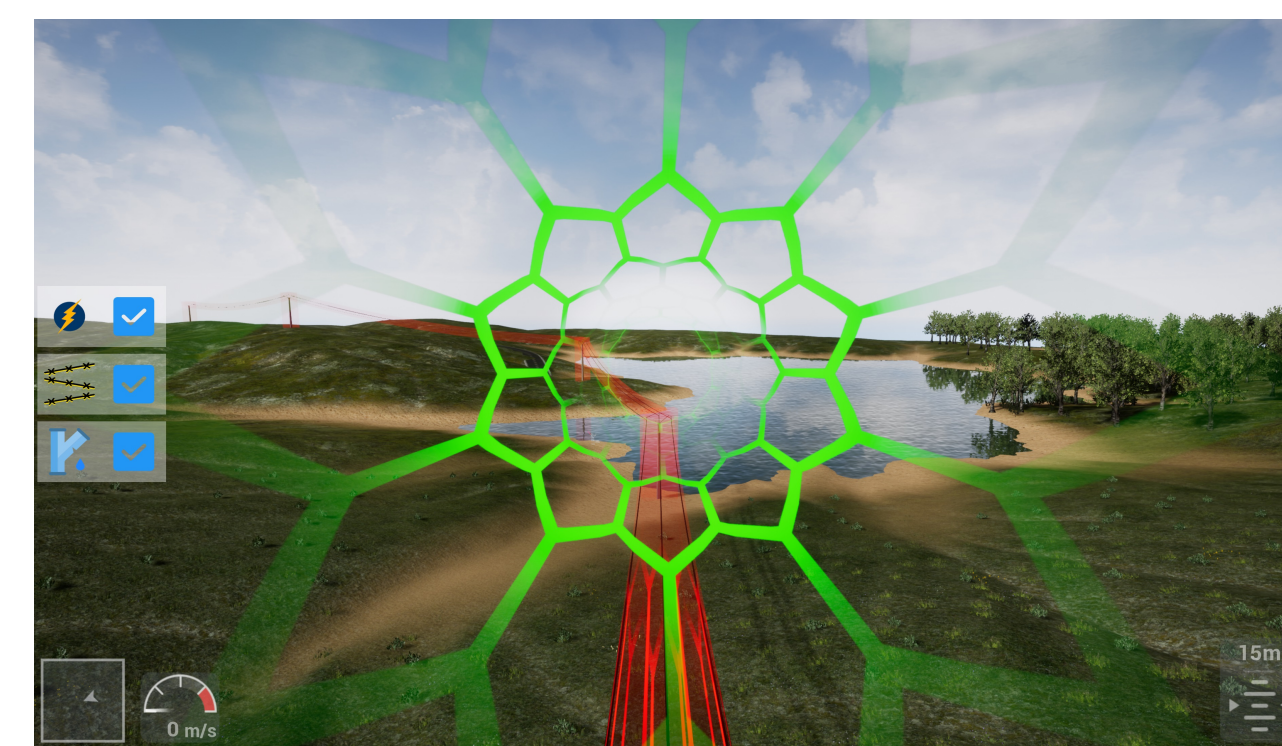


About the **mission language**



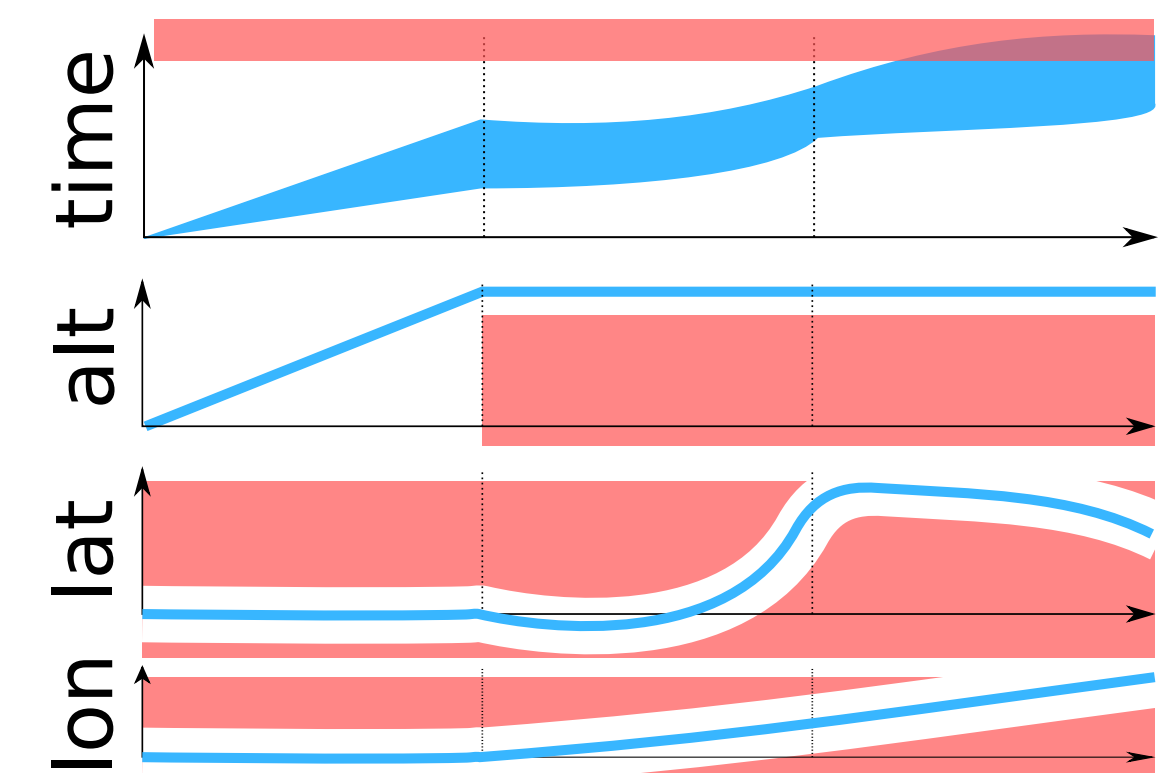
### MISSION VERIFICATION

The **mission** is **tested** and **formally verified** to increase the **chances of success**.



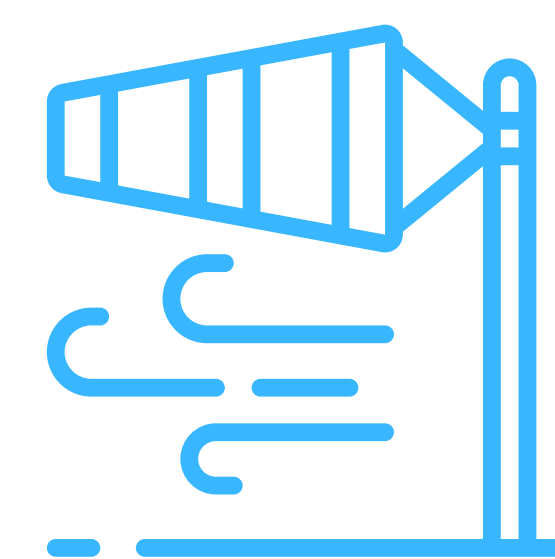
Simulation

The mission is executed in a simulated environment.



Score

The expected evolution given by the actions generates the reachable states.



### UNEXPECTED EVENTS

Unfortunately, **overestimation** of our model accuracy and **unforeseen events** -such as a gust of wind- may still lead to **failure**.

**Ceos project**: an application

