

Intervalles pour l'exploration autonome

L. Jaulin

Journée du pôle "IA & Océan"
18 Mars 2022



1. Intervals [1]

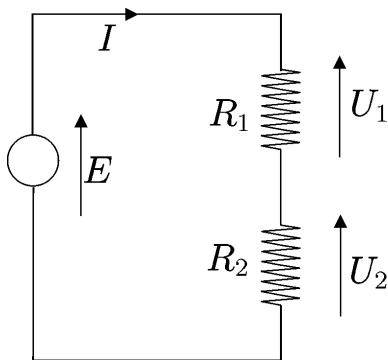
$$P = E \cdot I$$

$$E = 1 \pm 2$$

$$I = 5 \pm 3$$

$$[-1, 3] \cdot [2, 8] = ???$$

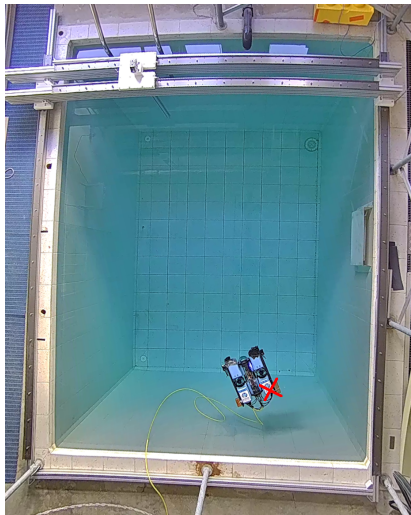
$$[-1, 3] \cdot [2, 8] = [-8, 24]$$

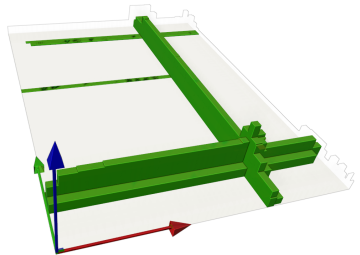
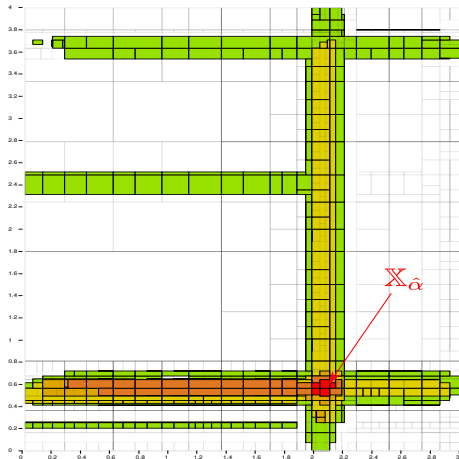


$$\begin{aligned} E &\in [-1V, 3V], I \in [2A, 8A], U_1 \in [2V, 5V], \\ U_2 &\in [1V, 4V], P \in [20W, 100W], \end{aligned}$$

$$\begin{aligned}P &= EI; E = (R_1 + R_2)I; \\U_1 &= R_1I; U_2 = R_2I; E = U_1 + U_2.\end{aligned}$$

2. Localisation [2]

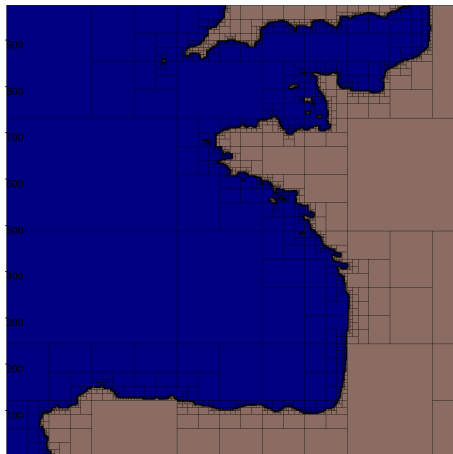


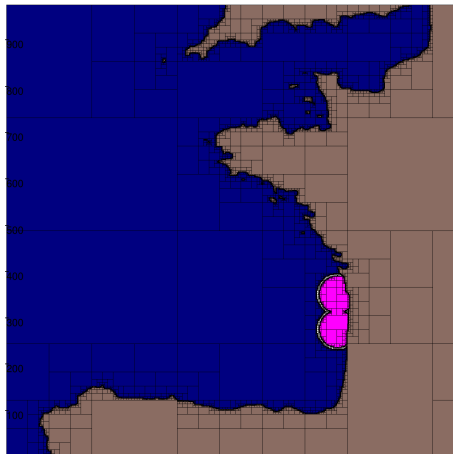


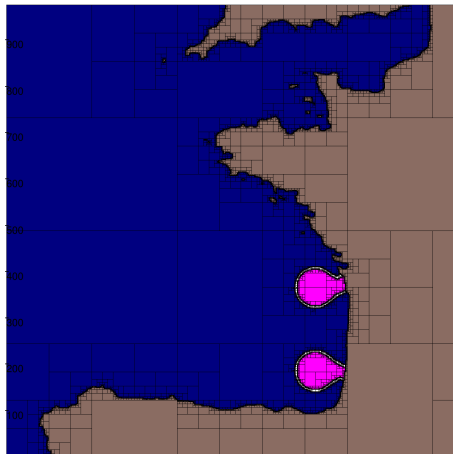
3. Recherche d'un homme à la mer [3]

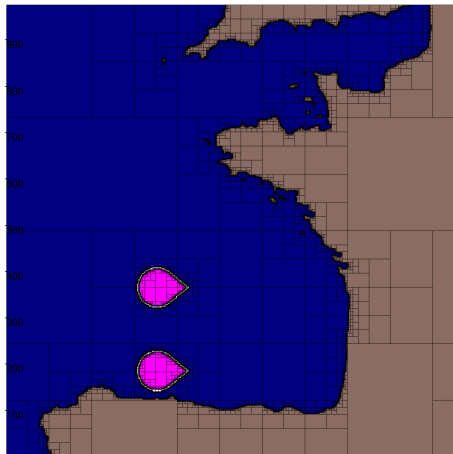


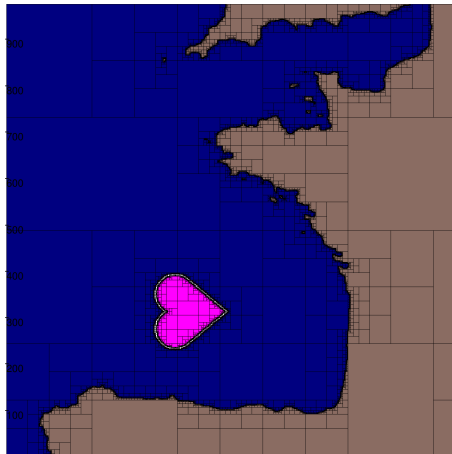
Bay of Biscay 220 000 km²

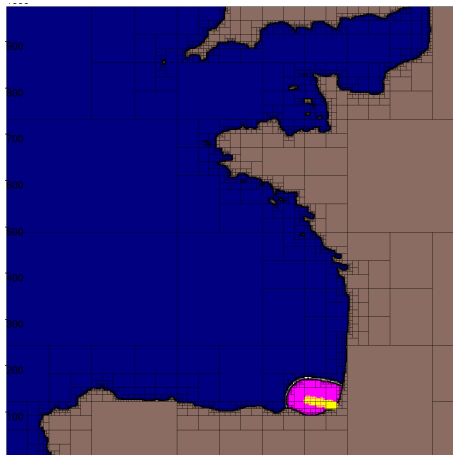


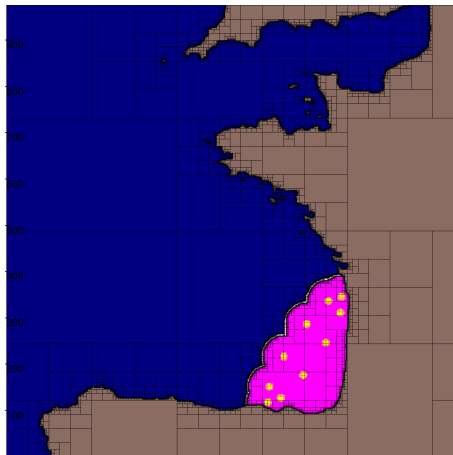


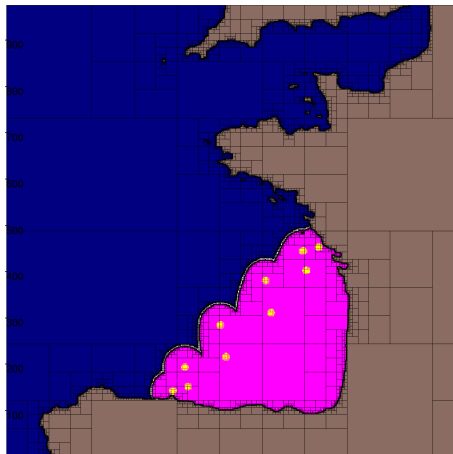


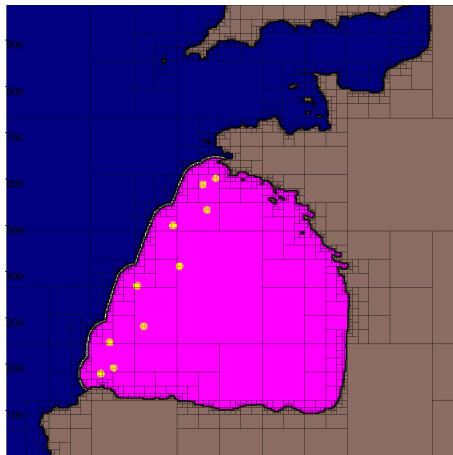












$$\mathbb{X}(t) = \mathbb{G} \cap (\mathbb{X}(t - dt) + dt \cdot \mathbb{F}(\mathbb{X}(t - dt))) \cap \bigcap_i g_{\mathbf{a}_i(t)}^{-1}([d_i(t), \infty])$$



ISTE Group, 2019.



Reliable Computing, 2022.



Ocean Engineering and Oceanography, 93:76–84, 2018.