

# Déploya

## Scaffolding That Adapts to the Work

### In a nutshell

Traditional scaffoldings used in the construction and renovation of buildings face 2 major challenges: First, their assembly and dismantling process is entirely manual, labor-intensive, tedious, and hazardous. Second, the scaffoldings are static; their dimensions are determined by standardized components rather than by the building's features or the task at hand. Both leads to unnecessary delays, safety risks, and high labor costs.

At Déploya, we intend to completely change the rules of the game by replacing traditional stationary scaffoldings with an intelligent robotized scaffolding.

### Why is our technology important?

The construction sector accounts for nearly 23% of all workplace deaths in the EU, with scaffolding-related accidents responsible for up to 70% of site injuries and fatalities. This leads to hundreds of avoidable deaths and thousands of injuries every year. And yet, scaffolding is actively used only 1–10% of the total construction time, while manual labor accounts for 80–85% of its total cost. These numbers highlight the urgent need to rethink how scaffolding is designed, deployed, and used.

Déploya introduces scaffolding as an intelligent, adaptive system that automatically deploys only where needed and precisely positions work decks based on task and location. This reduces safety risks, costs, and labor time, while significantly boosting efficiency across the construction process.

### The benefits of our solution

Inherited and inspired by research in tensegrity robotics at Laboratory of Intelligent Systems at EPFL, Déploya's key innovation lies in the self-deployable scaffolding structure, which employs an origami-inspired Miura-ori pattern. Our custom design provides high foldability with folding ratio  $> 1:10$ . Wherever it takes days of manual work to assemble scaffoldings, our solution is safely operational in hours. It deploys in less than 1 hour, brings people, materials and tooling where and when they are needed at centimeter precision.

### Keywords

Scaffolding, Construction Robotics, Self-deployable Structures

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