03.OVERLAPPING IN THE CLOUDS

LOCATION
Conceptual Project

KEYWORDS
Vertical Farming; Sustainability; Urban Planting

INVOLVEMENT
Individual Work

ABOUT
An exploration of vertical farm based on ant colony optimization algorithm

Cities worldwide are expanding, pushing rural areas further away and increasing the distance between food production and urban centers. This project integrates agricultural units into high-density cities, reshaping production methods and creating a co-existence of two cultures. As production demand grows, these units expand, offering both cultural experiences and landscape value.

Design Strategy

Through the survey shows that with the development of urbanization and the reduction of the food crisis in the cultivation of land, the countryside and the city show a trend of confrontation and separation, our cities are eroding our farmland, and we will use the concept of "stacking" to skillfully solve the problem of the coexistence of urban and rural opposites.

Fold
Divide traditional farmland into small areas

Break
Break the divided area into small pieces of space

Extract
Extract monomer prototypes

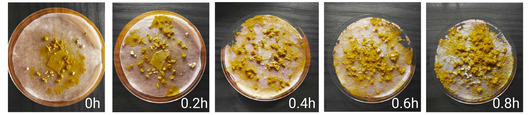
Pile
Divide the small pieces to pile up to improve theutilization of space

Stack
Sliding and stacking blocks creates a richer and morepractical space

Biomorphology allows for a better integration of the building with the surrounding space, an increased adaptation to the site and a better handling of the architects' and people's needs for the building.

Slime Mold Observation

When biologists first brought slime molds into the laboratory more than 30 years ago, they discovered that they move in a different way. Not only do they walk mazes and have the ability to learn, they can even simulate the layout of man-made traffic networks. In just a few hours, they can do what a bunch of top engineers have been doing for decades, and have been described as "the smallest road planner in the world".



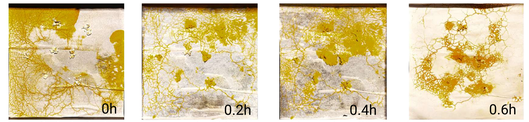
Place the slime in a Petri dish and maintain the temperature and humidity

The slime begins to expand towards the food slowly

Slime travels in a web-like route, connecting the food on each corner

The road network has became clearer, the number of slime is rising rapidly

The mucilage completely covers the surface of the food and begins to expand uncontrollably



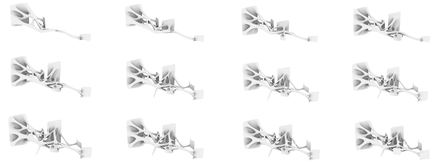
Arrange the food in the direction of the target buildings on the site, then release the slime

slime scans the Petri dish rapidly in a mesh form, then starts gathering after discovering the food

The sticky bacteria attach to the surface of the food and grow and spread, connecting multiple food spots

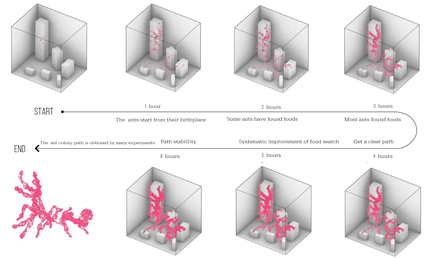
Inactivates slime, the network of pathways travelled by the slime is more visible and easier to be observed and recorded

Growth Simulation



The project uses the concept of "stacking" strategy to skillfully solve the problem of the coexistence of urban and rural opposites.

Experiment on Site



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