Liang Zixin

From 2012 to 2023
Profile

Form 2019 to 2023
University of Pecs

Catalog

Architectural design project of Coastal Hotel of Turtle City in Naozhou Island, 2020/5

Architectural design project of Wetland Hotel in Naozhou Island, 2020/7

Architectural design project of Waterfront House in Mazhang, 2021/1

Landscape design project of Guangzhou Baiyun International Airport T3 Terminal Building, 2021/10

Landscape design project of Foshan Xijiang Ecological Belt, 2021/10

Landscape reconstruction project of Guang Dong Jian Gong Ji Tuan Building Platform, 2021/10

Landscape reconstruction project of Guangdong Calligraphy Institute, 2021/10

Landscape reconstruction project of Foshan High-tech Zone Industrial Park, 2021/10

Landscape reconstruction project of Guangdong Broadcasting Center Building Platform, 2021/11

Landscape reconstruction project of Bao Steel Zhanjiang Steel Plant, 2021/11

Landscape design project of Guangzhou Tianhe Software Area, 2021/12

Landscape design project of Shenzhen Just Motion Control Industrial Area, 2021/12

Landscape design project of Nansha Fengting Avenue, 2022/1

Landscape design project of Huidong Zhongdong River, 2022/1

Landscape design project of Shanwei Zhanqian Road, 2022/1

Architectural reconstruction project of Minzhu Road, 2022/5

Landscape reconstruction project of Huizhou Jiangbei Sports Center, 2022/12

Naozhou Coastal Hotel

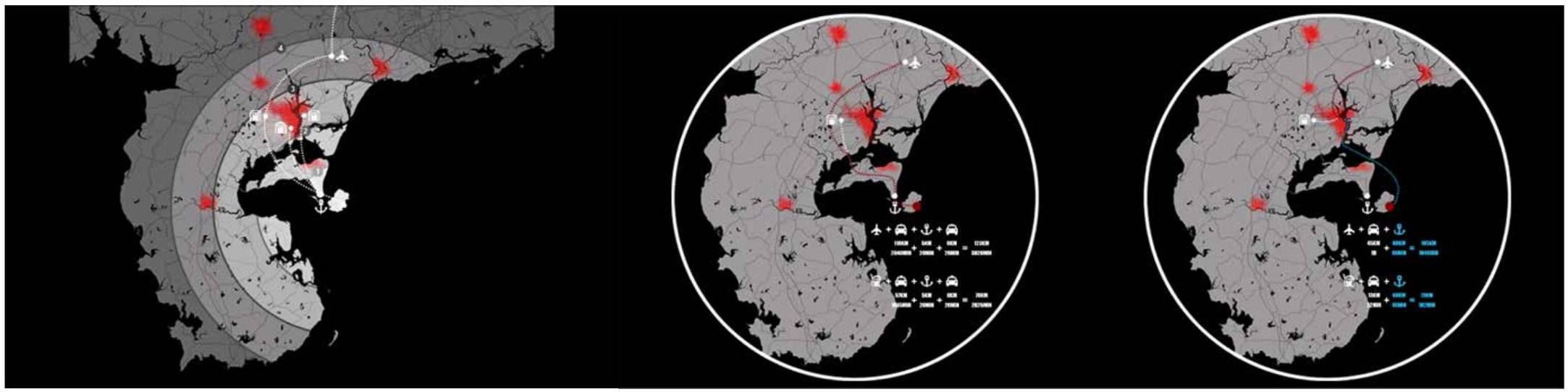
Date: 2020/05/20
Address: Zhanjiang, Mazhang

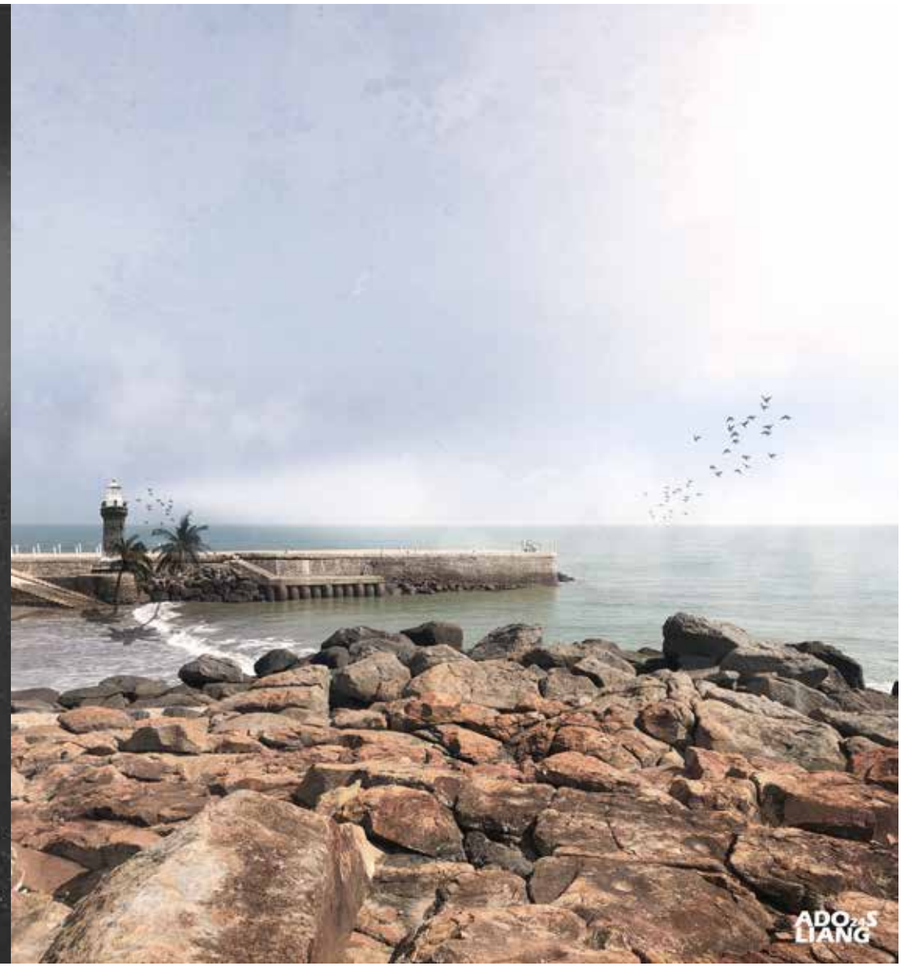
Location Analysis

Naozhou island is formed by a submarine volcanic eruption about 200,000 to 500,000 years ago. It is also the largest volcanic island in China. It is located about 40 km southeast of Zhanjiang city. The total area of Naozhou island is about 56 square kilometers. The coastal hotel is located to the east of Naozhou island. The surrounding area is a number of aquaculture farms that are obsolete or in use. This project intends to give higher value to this area through design.

Traffic Analysis

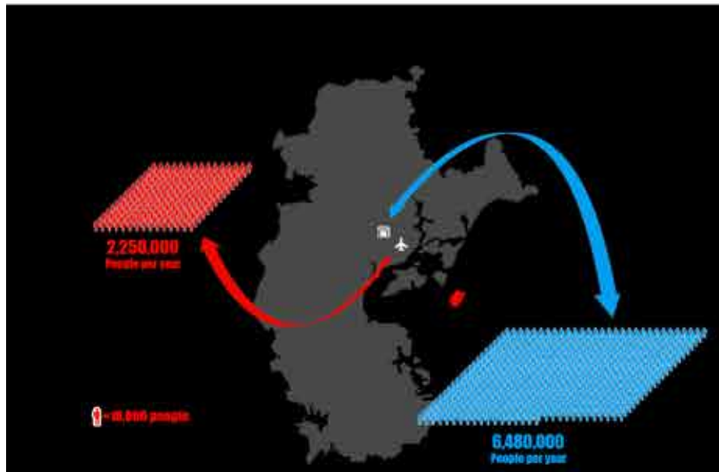
The journey from Zhanjiang international airport to Naozhou island totals 123 kilometers and takes 3 hours and 20 minutes. And the distance from Zhanjiang west high-speed rail station to Naozhou island is 70 kilometers, it will take 2 hours and 25 minutes. In the future, the wharf in Zhanjiang city will be directly connected to the wharf of the coastal hotel. The time from Zhanjiang international airport to coastal hotel is shortened by 1 hour and 40 minutes. From Zhanjiang west high-speed rail station to coastal hotel takes less time by 1 hour and 23 minutes.



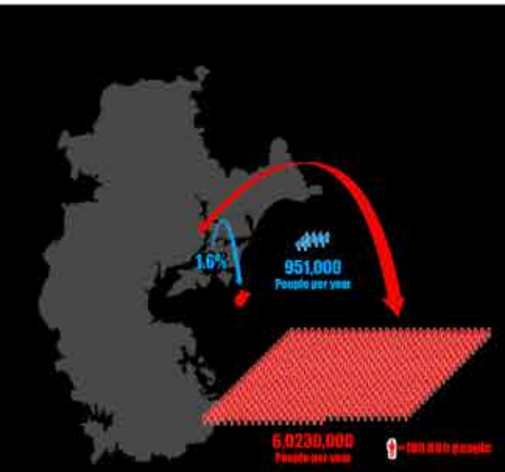


Population Analysis

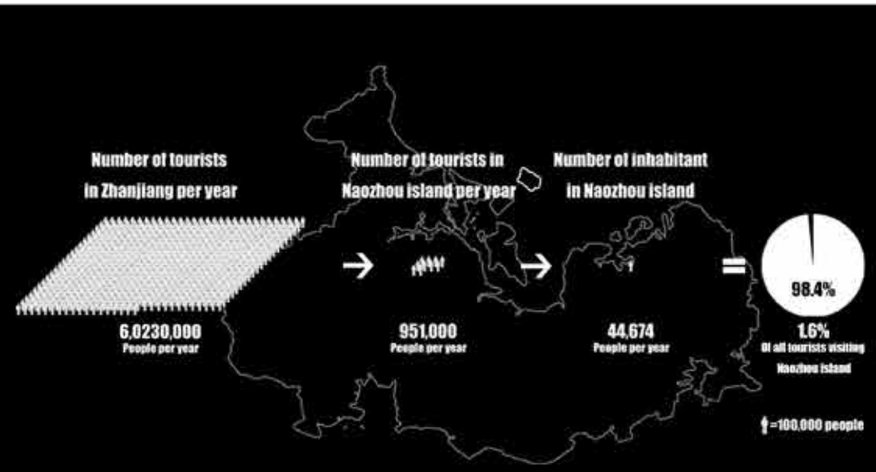
Population of Zhanjiang airport and high-speed rail station: Zhanjiang airport and high-speed rail station handled 2.25 million and 6.48 million passengers in 2019.
Number of Zhanjiang and Nao island tourists: Zhanjiang had 60.23 million tourists in 2019. On the other hand, about 950,000 tourists visited Naozhou island in 2019.
Number of Zhanjiang and Nao island tourists: Naozhou island has 44,674 inhabitants, and the passenger traffic on Naozhou island accounts for 1.5% of Zhanjiang's passenger traffic.



Population of Zhanjiang airport
and high-speed rail station



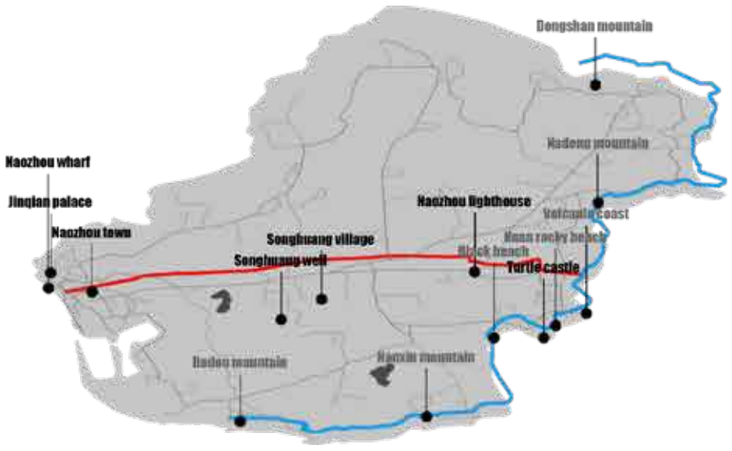
Number of Zhanjiang
and Nao island tourists



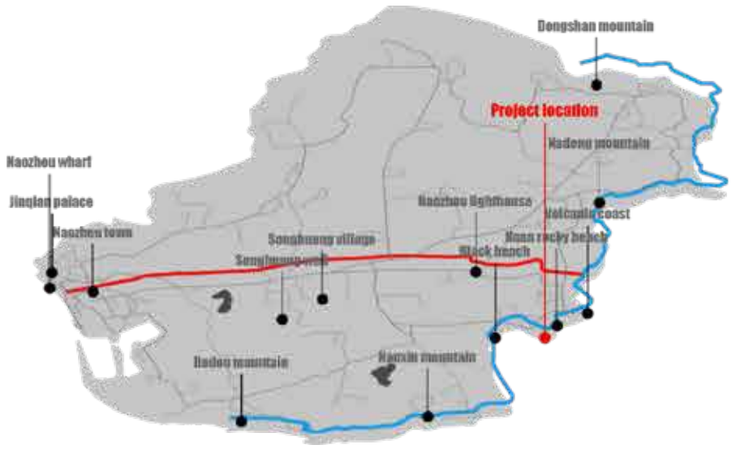
Proportion of Zhanjiang
and Nao island tourists

Resource Distribution

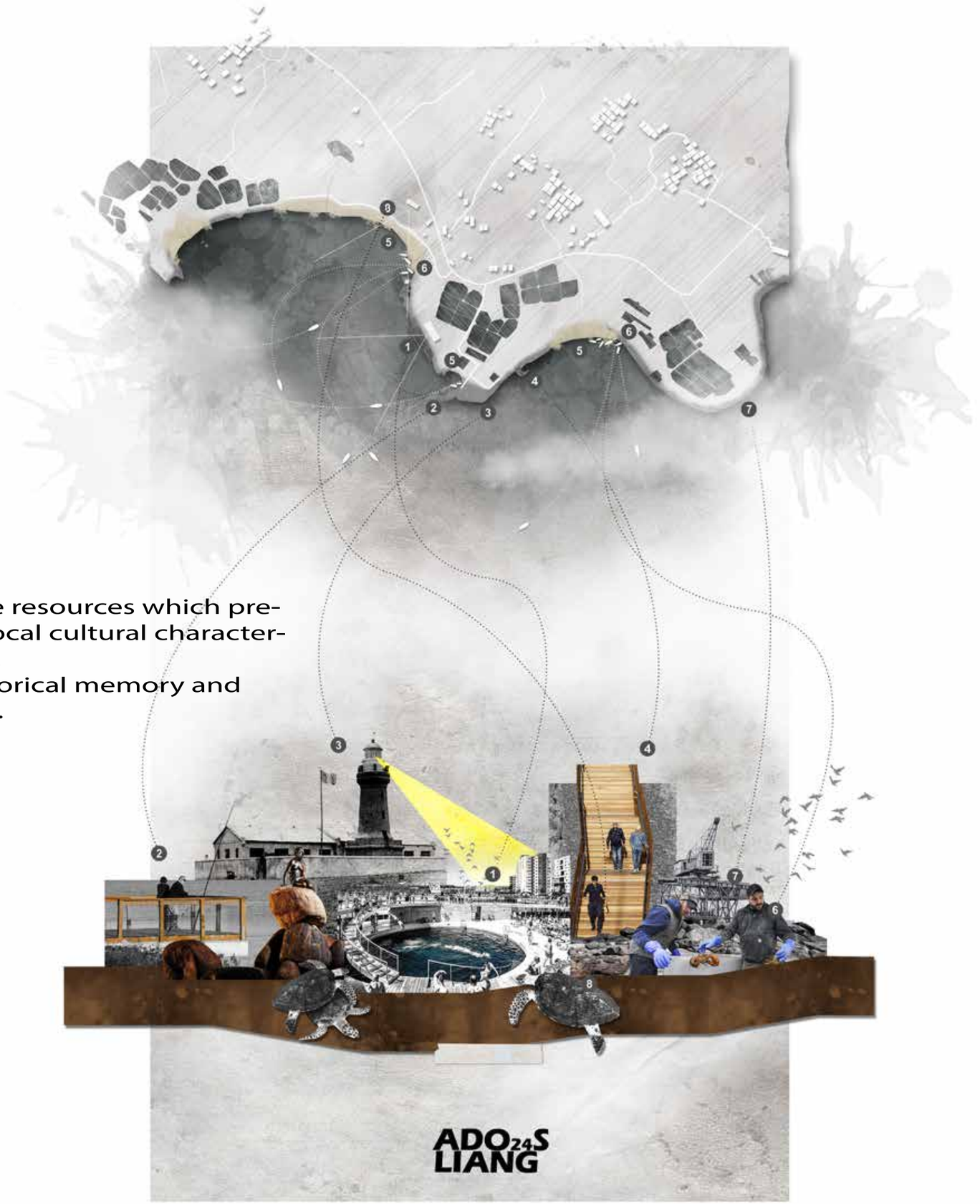
Project location



Main road



Resource distribution

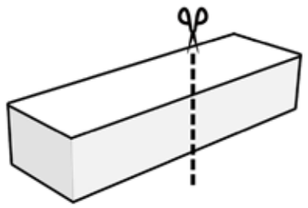


Design Concept

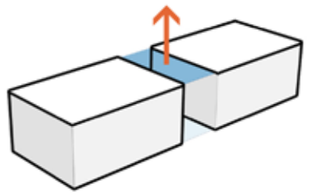
Design conecept is use the artificial landscape resources which previously used for production, combined with local cultural characteristics and environmental resources for design.
The project seeks to preserve the original historical memory and live in harmony with the natural environment.

1. Infinity swimming pool
2. Fishing area
3. Lighthouse landscape
4. Boardwalk by the sea
5. Beach
6. Fisherman's wharf
7. Rocky landscape
8. Aquarium

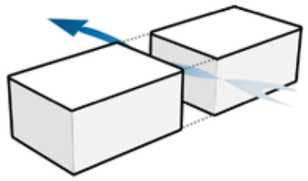
Analysis of Building Block



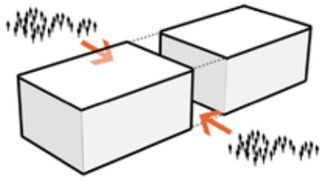
The building is too large, cutting the connection between the land landscape and the ocean landscape.



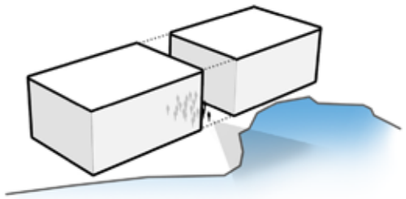
Cut the entire building into two buildings with the length of 50 meters.



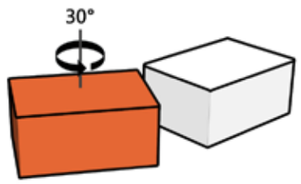
Sea breezes can penetrate buildings.



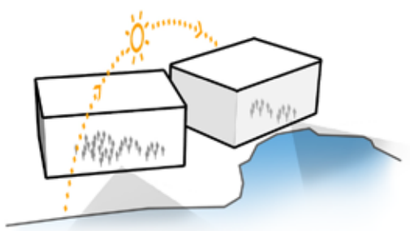
People who come to the hotel by boat and car from the city can gather together.

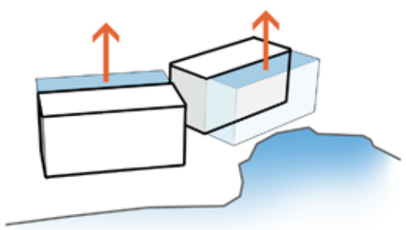


The place where people gather has a good view of the ocean landscape.

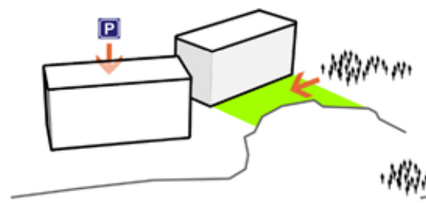


Rotate one of the buildings by 30 degrees to obtain better lighting and a richer viewing angle.

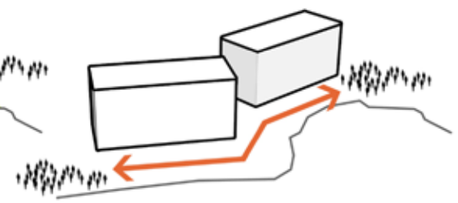




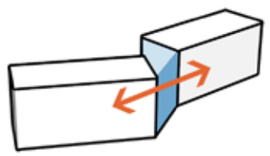
Two building parts are drawn away.



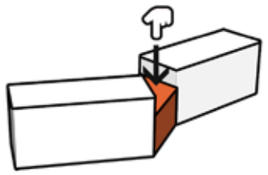
One part is used as a parking lot behind the hotel and the other part is used as an activity square in front of the hotel.



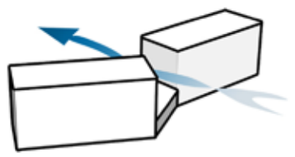
The hotel building is 20 meters back towards the land. People can pass and hold events in this area.



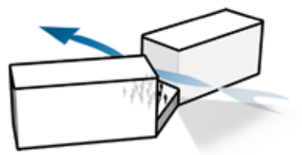
Join the connection between the two buildings.



The project have to keep the connectivity from land to sea. So I pushed down the middle part of the building.

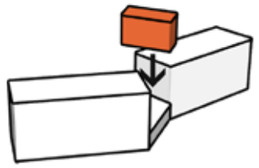


This design facilitates air flow in the area.

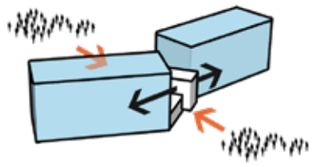


This design facilitates air flow in the area. It is facilitates air flow in the area. Tourists can watch the sea on the aerial platform.

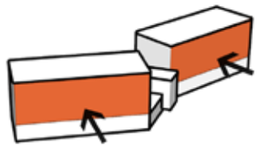
Analysis of Building Block



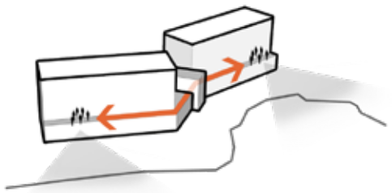
Add a central module to the building complex.



The central module serves as the connection between the land and the sea, and the connection between the two building blocks.



Extrusion of building facade.



The second floor is a connected open platform that can provide visitors with a space for communication, rest and viewin

A 8301

Residential Interior Design

Date: 2020/06/06
Address: Zhanjiang, Chikan

Naozhou Wetland Hotel

Date: 2020/07/21
Address: Zhanjiang, Mazhang

Mazhang Waterfront Residence

Date: 2021/01/05
Address: Zhanjiang, Mazhang

Building Reconstruction

Date: 2021/05/21
Address: Zhanjiang, Mazhang

Guang Dong Jian Gong Ji Tuan Building Platform

Date: 2021/10/22
Address: Guangzhou, Yuexiu

Huidong Zhongdong River

Date: 2022/01/05
Address: Huizhou, Huidong

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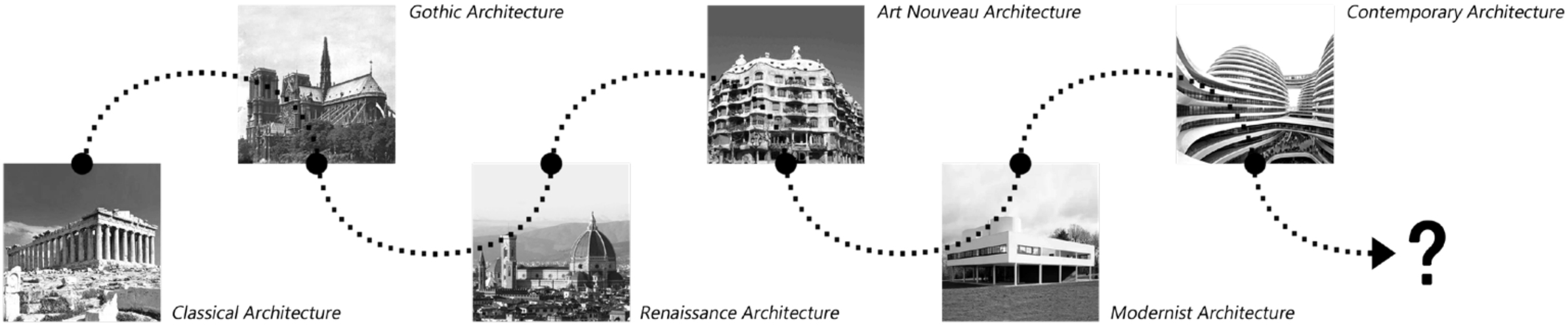
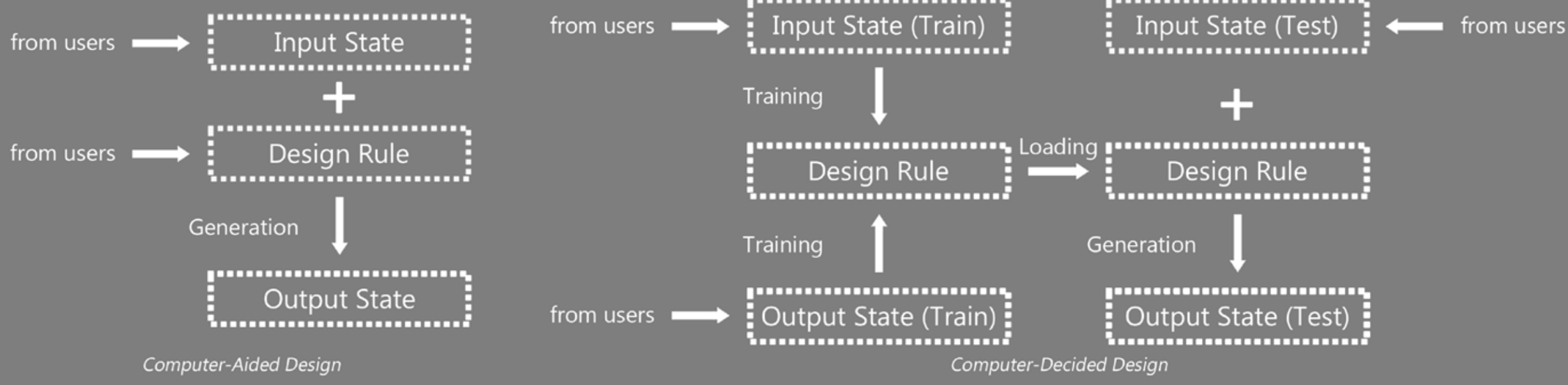
Application of Visual Simulation in the Activation of Historical District

Online Publication Date: 2022/05/04
Publication Date: 2022/06/07
Article Category: Research Article
DOI: https://doi.org/10.1556/606.2022.00321



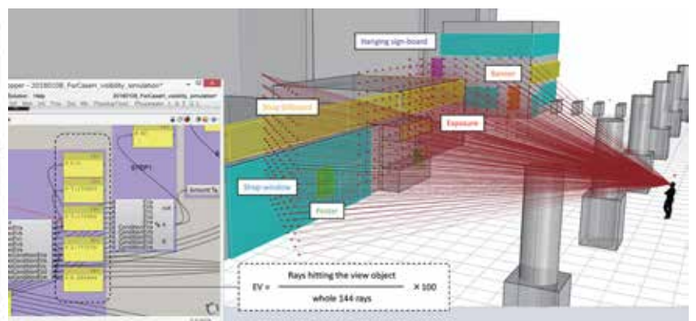


AI architecture design has become one of the important research?

① People have put forward higher and more urgent needs for the urban environment.
② Innovative technology is the key to sustainable urban development.
③ The application of innovative technology conforms to the law of architectural development history.

Site Analysis

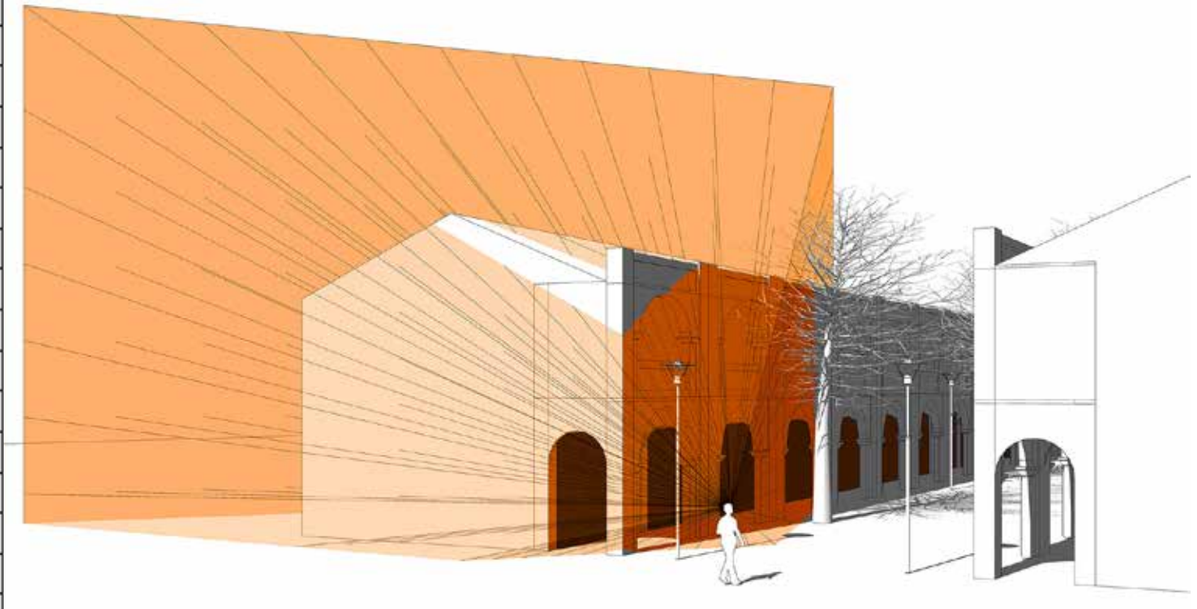
① Minzhu Road historical district is also known Minzhu Road pedestrian street, with a length of about 1.3 kilometers and an area of about 1 square kilometer.
② In China, this arcade-style building is called "Qi-lou". Most of the Qi-lou buildings in Zhanjiang was established in the 1820s. Under the influence of French colonial culture, Zhanjiang Qi-lou buildings show a combination of French style and Lingnan style.

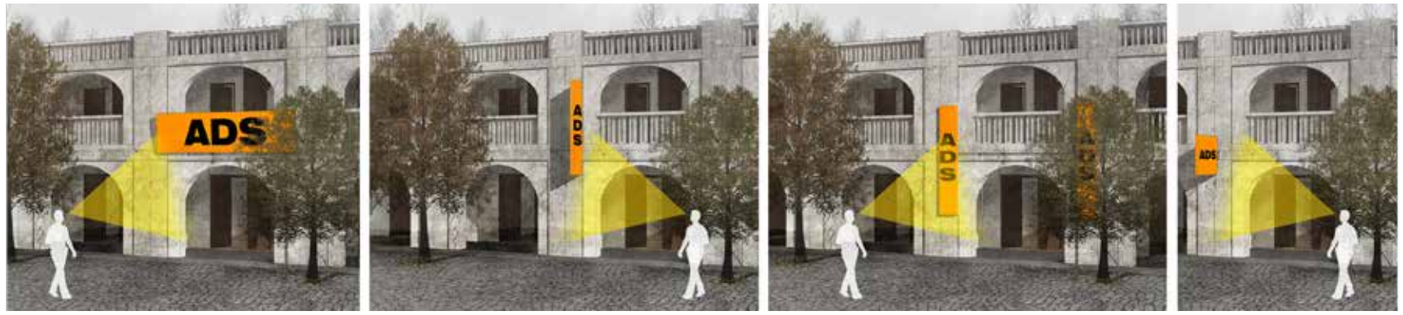


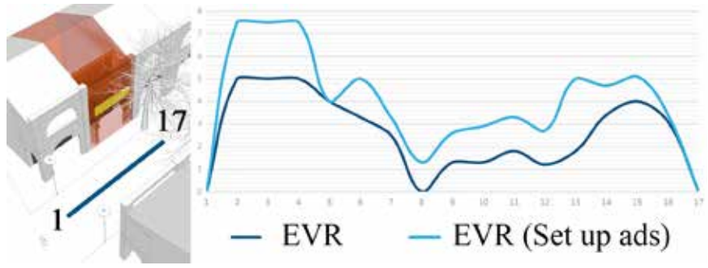
Visual Simulation

A algorithm model is generated on the basis of machine learning. Agent-based pedestrian behavior simulation is mainly used in urban planning, evacuation research, and building evaluation. Build an algorithm to dynamically reflect the perception of pedestrians by collecting visual information.

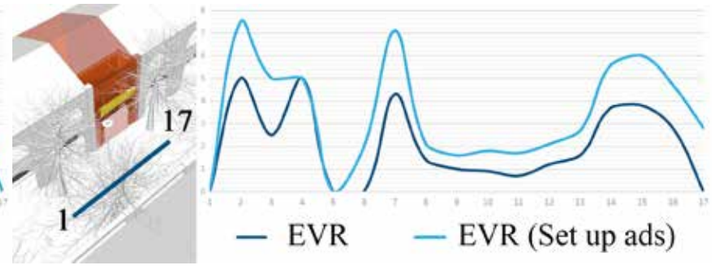
Pedestrian route selection (PR)			
PR¹	Route anchor	A square grid with a width of 1 meter divides the area	
PR²	Route direction	Simplify 360 degrees into 8 directions	
Observation point selection (OP)			
OP¹	Number of observation points	Number of grid points on the route	17
OP²	Observer height	Z coordinate direction of observation point	1.6 m
Observer parameters (OP)			
OP¹	Camera position	Observer position	1-17
OP²	Lens length of camera		28 mm
OP³	Viewing angle of camera		75°
OP⁴	Focal length of camera		20 m
Visual simulation (VS)			
VS¹	Number of ray for simulation	Rays projected on the object	12*9=108
VS²	Visual object score (VOS)	Rays projected on the visual object	
VS³	Building score (BS)	Rays projected on the building	
VS⁴	Object visibility ratio	EVR = VOC / BC * 10	







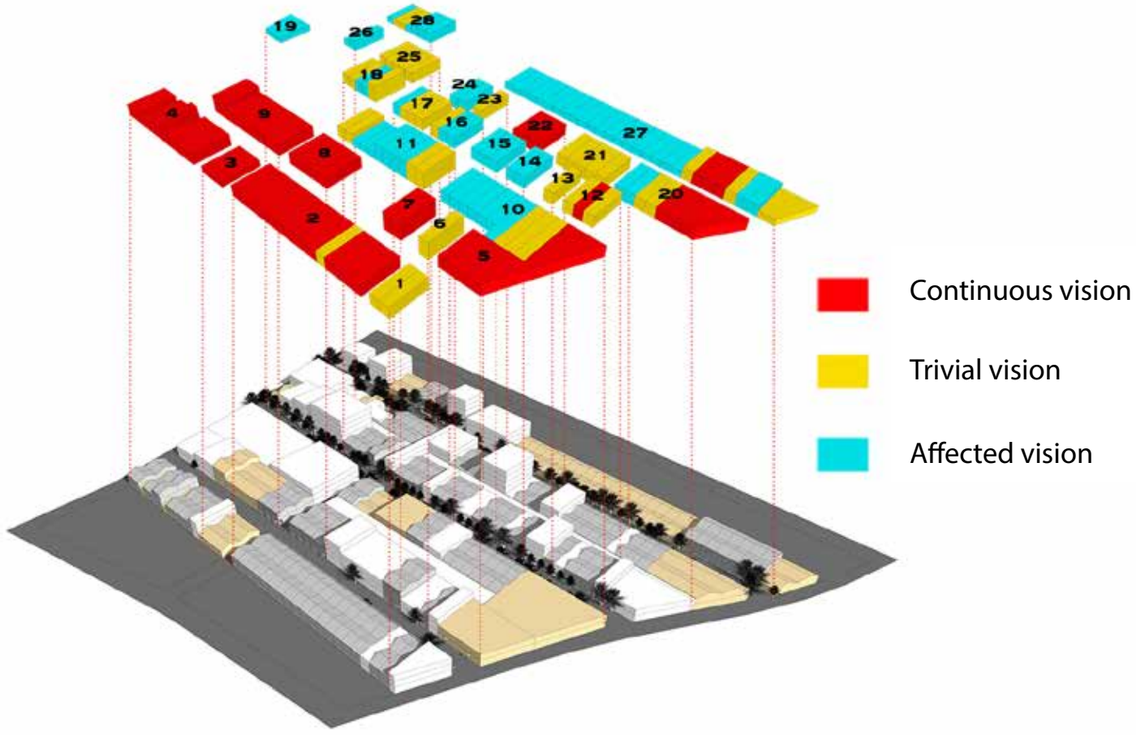
EVR for setting up ads without interference



EVR for setting up ads under the influence

Visibility Evaluation Analysis

Stores can use visual elements to influence whether pedestrians enter the store. These factors have both positive and negative effects. The visualized area ratio of the store can be exhibited through the visual simulation model.



Site Plan

The EVR is calculated by the visual simulation model can evaluate the visibility of different stores in the site, including the visibility of the internal space of the store and the visibility of the external publicity of the store. Through the evaluation, the store can be divided into three categories according to the EVR of the building.

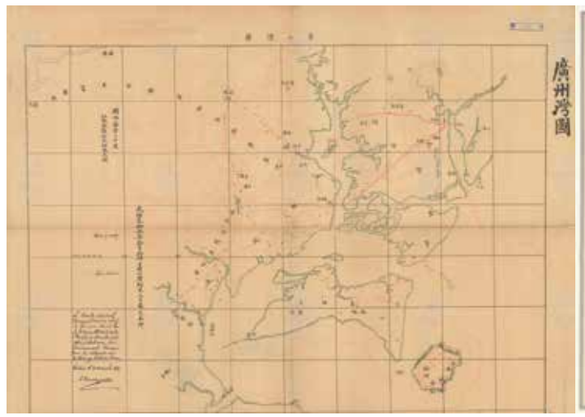
An algorithm focusing on people's perception is built in this research, and the internal state of pedestrians is dynamically reflected by collecting visual information. The EVR can clearly and accurately reflect the visibility of each store. In other words, the commercial value of each area can be evaluated through the EVR value, and different types of stores can be arranged according to the EVR value of different areas to realize the effective allocation of resources.

Application of Normalising Least Angle Choice in the Evolution of Zhanjiang

Online Publication Date: 2022/05/04
Publication Date: 2022/06/07
Article Category: Research Article
DOI: https://doi.org/10.1556/606.2022.00521

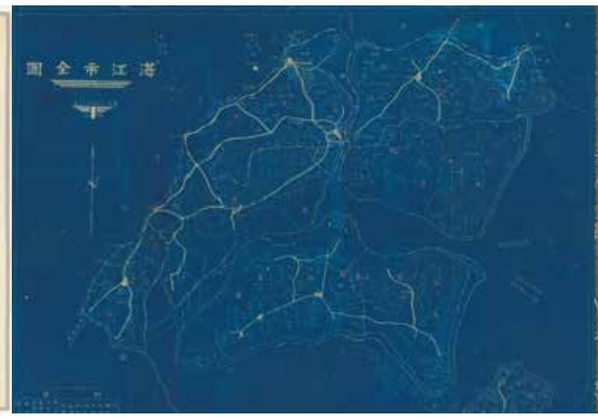
Spatial Organization Analysis

Based on the theory of space syntax, this research conducts a quantitative study on the four stages of Zhanjiang urban spatial organization system, and draws the urban evolution process. This study found that the development strategy of different periods has a huge impact on the urban development. It determines the structural basis of the original urban space and creates a strong development inertia. The historical maps of Zhanjiang in different periods are transferred to depthmap files, and the latest normalising least angle choice is used for analysis and research.



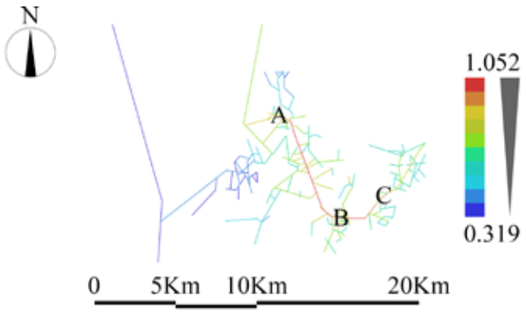
Before 1899

1899

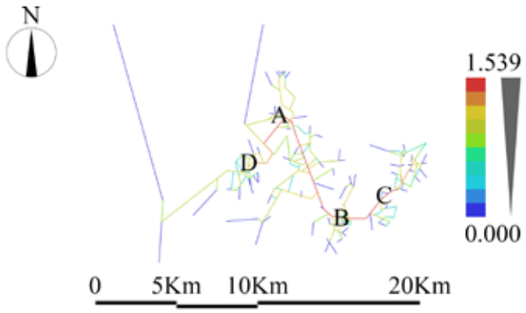


1950

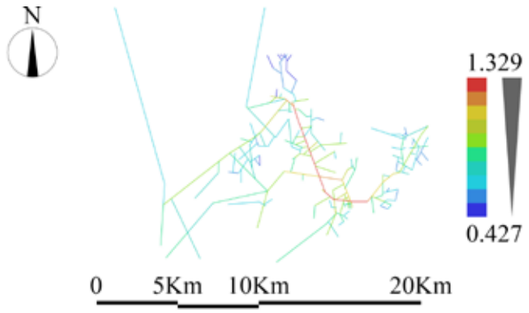
2021



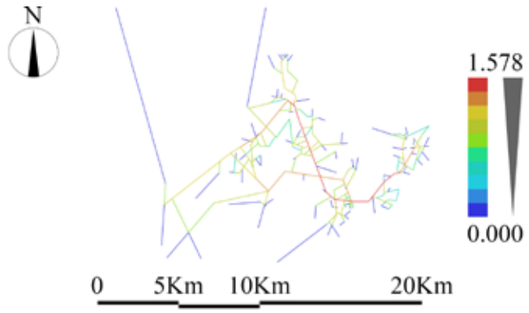
1899 normalising least angle integration



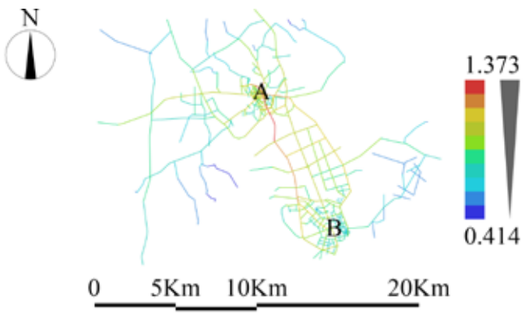
1899 normalising least angle choice



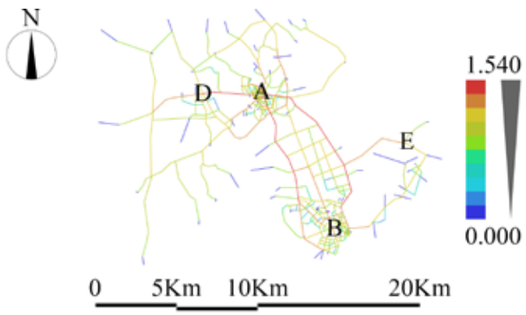
1950 normalising least angle integration



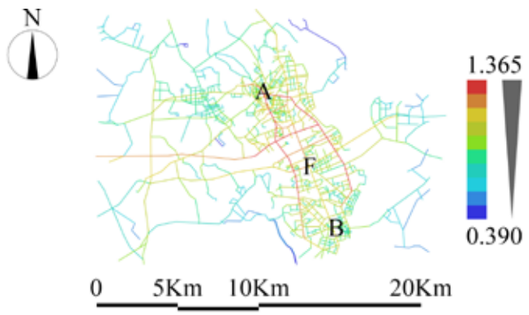
1950 normalising least angle choice



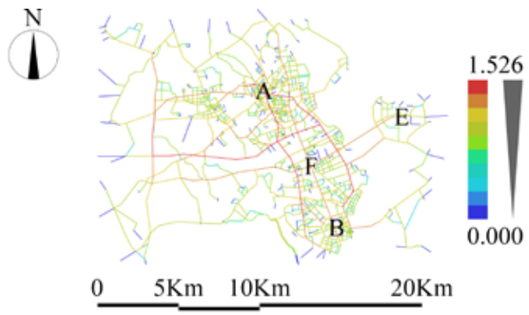
1986 normalising least angle integration



1986 normalising least angle choice



2021 normalising least angle integration



2021 normalising least angle choice

Application of Space Syntax in the Renewal of Industrial Areas

Online Publication Date: 2022/10/17
Publication Date: 2022/10/17
Article Category: Research Article
DOI: https://doi.org/10.1556/606.2022.00631

Spatial Organization Analysis

NAIN R600

NACH R600

NAIN R3000

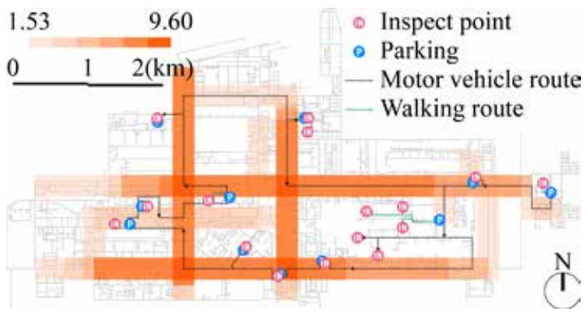
NACH R3000

NAIN R5000

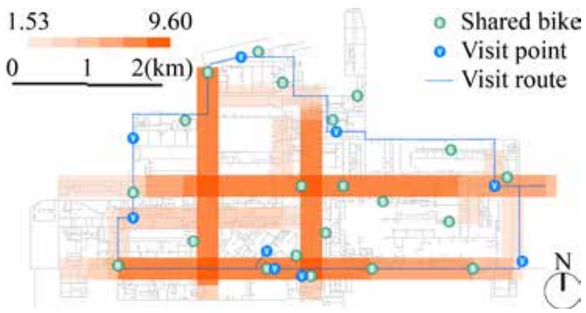
NACH R5000

NAIN R10000

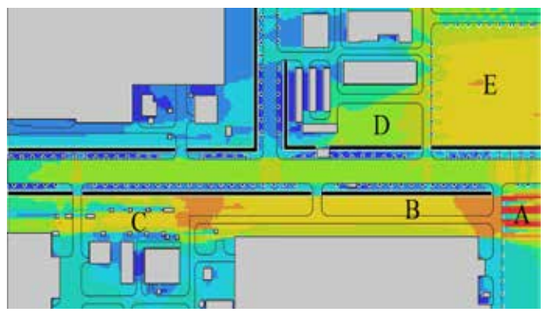
NACH R10000



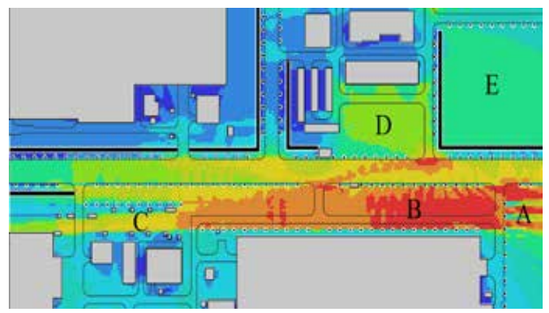
Inspect route planning



Visit route planning



Visibility graph analysis before renovation



Visibility graph analysis after renovation

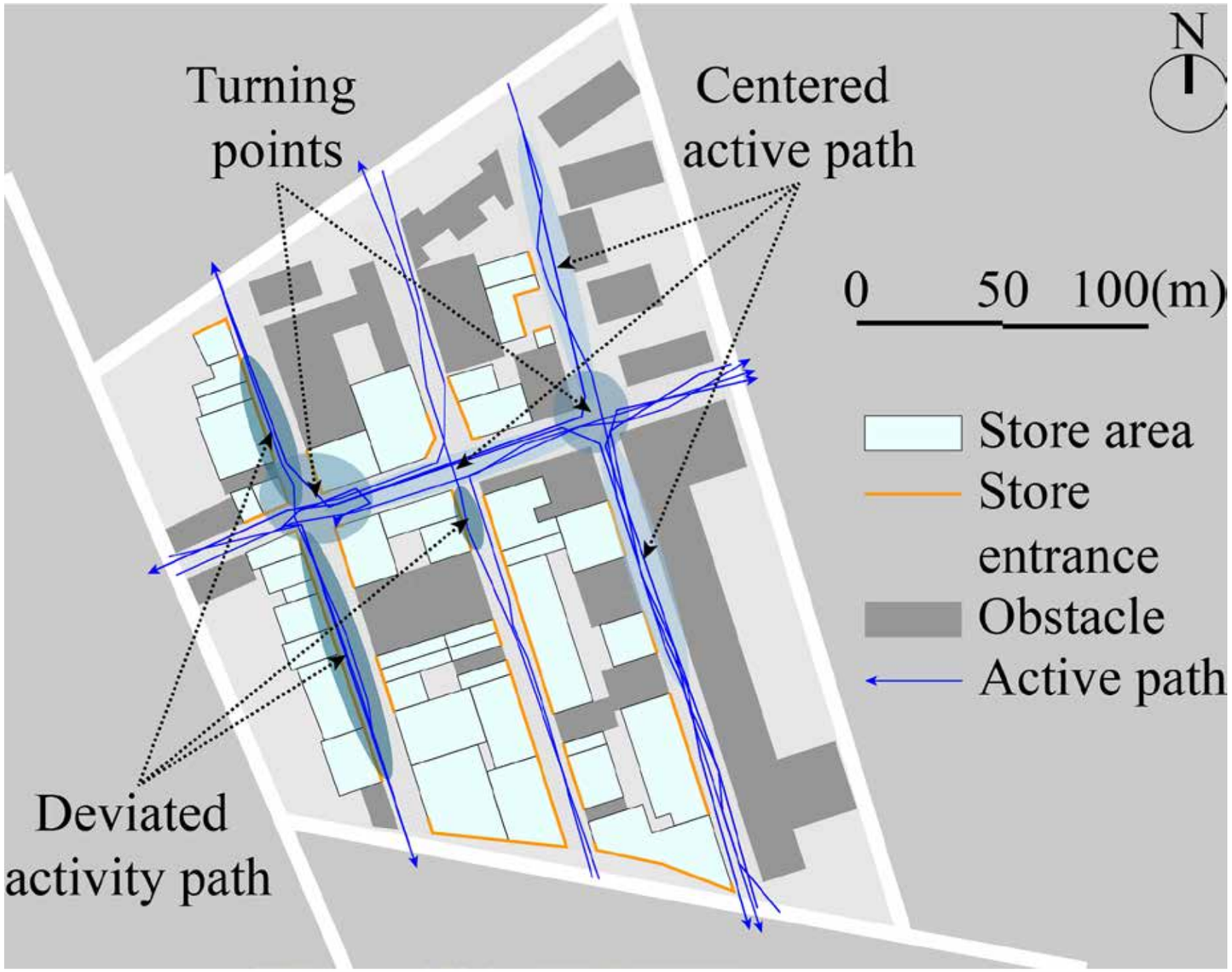
RAVSTEEL
1991

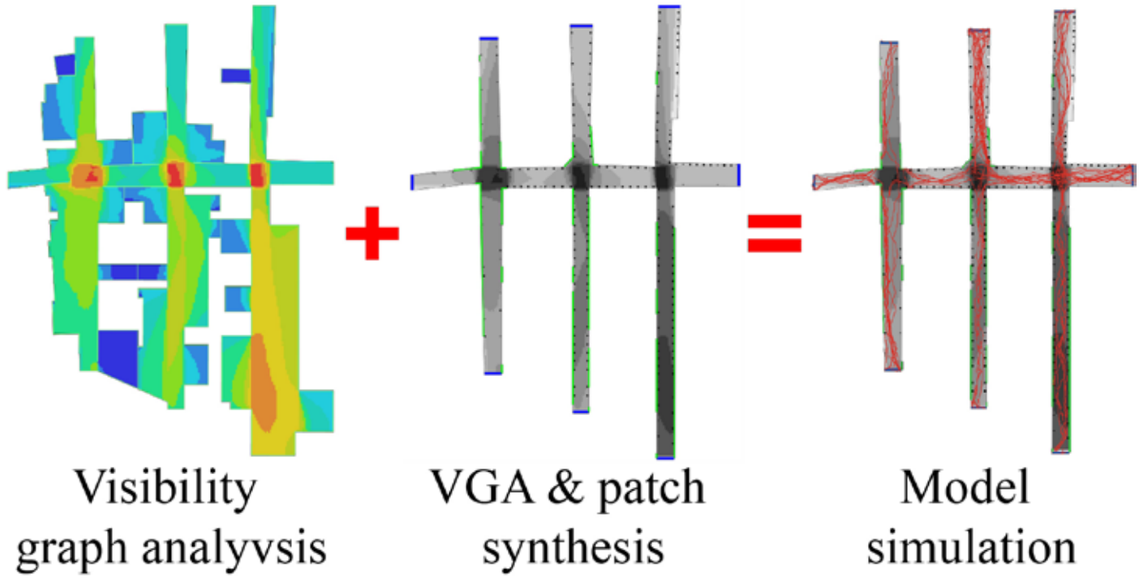
Application of Multi-agent Simulation in Historic District Renovation

Acceptance Date: 2022/10/06
Article Category: Research Article

Activity path analysis

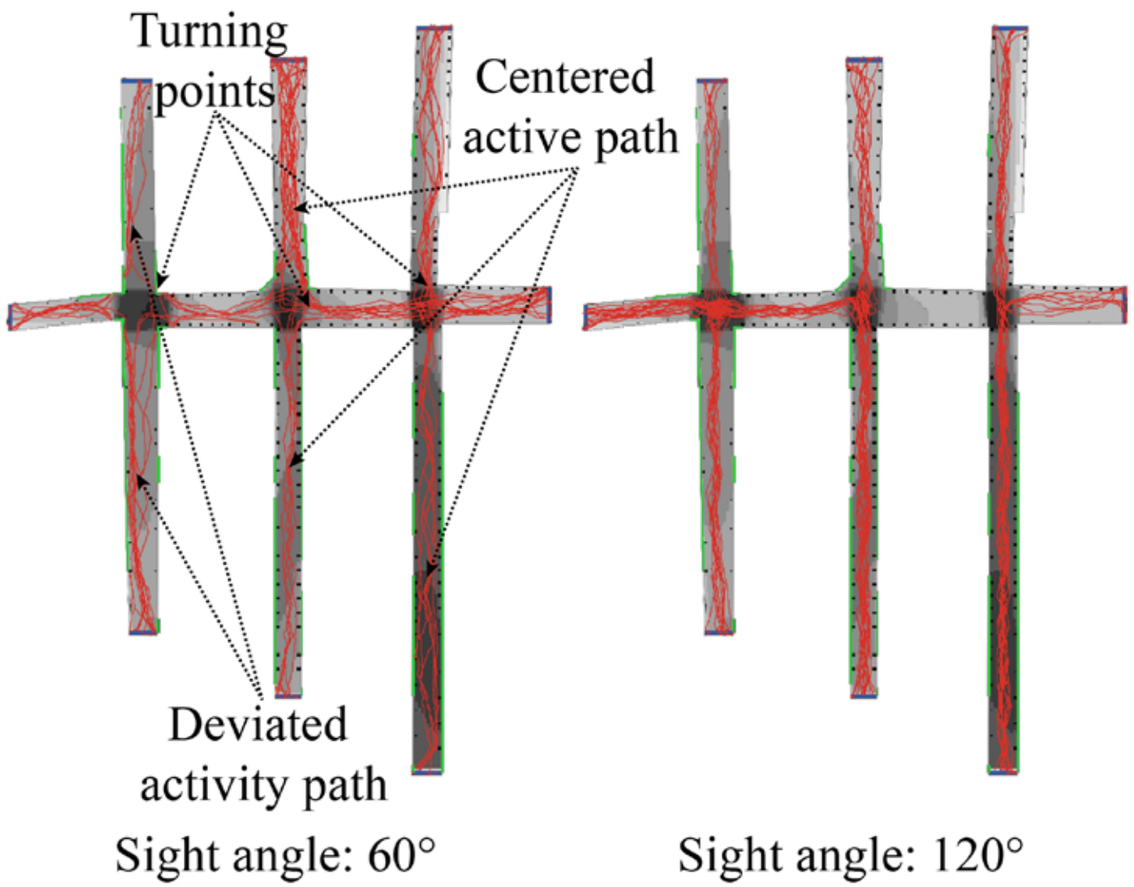
Through research, the researchers investigated the pedestrian activity in the Minzhu Road historical district. The features of pedestrian activity in the area were identified after the data was analyzed, and the hypothesis that environmental pheromones may have an impact on pedestrian activity was put forth. The goal of the subsequent study was to build an effective and realistic multi-agent model of pedestrian routes that reflected reality whilealso having influence parameters that were consistent with the basic rules of actual pedestrian observation and activity.





Comparative Study

I developed the fundamental model algorithm by the several comparison tests and generally identified the basic set of relevant influencing parameters. By assigning fixed pheromone values to objects with different attributes in the environment, although it can play a role in guiding the activities of the agent, the accuracy of the simulation results obtained is seriously insufficient.

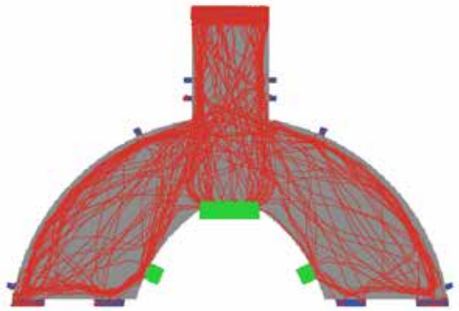


Model Improvement

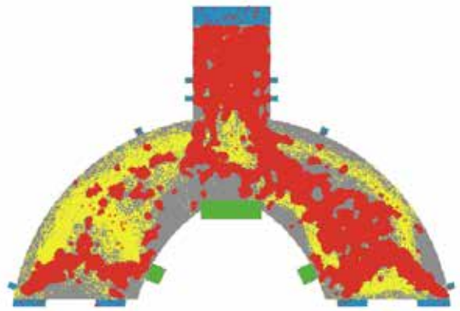
I optimized the model - refine the pheromone distribution, which is mainly achieved by adjusting the pheromone value of each patch in the active area. The logic is that the more open the space, the easier it is to attract The attention of pedestrians, so these areas should have higher pheromones. Combining the previously studied VGA technology with the Auto CAD plan of the simulated environment, the corresponding visual evaluation graphics can be obtained, and the work of refining the distribution of pheromones can also be completed. After I retuned the parameters, I got a simulation result that was highly similar to the results of the field study.

Application of Automatic Generation in Urban Landscape Design

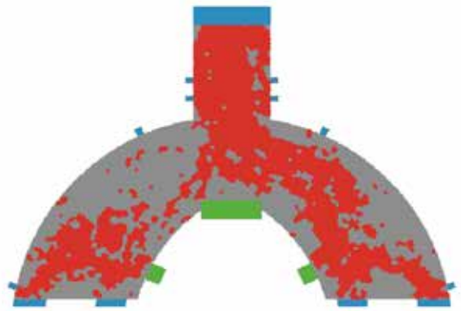
Date: 2022/12/20
Address: Huizhou, Huicheng
Graduation Project



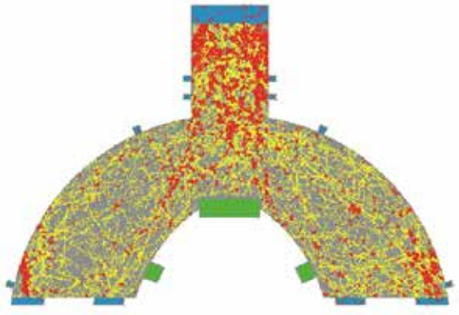
1) Foundation



2) Process



3) Result



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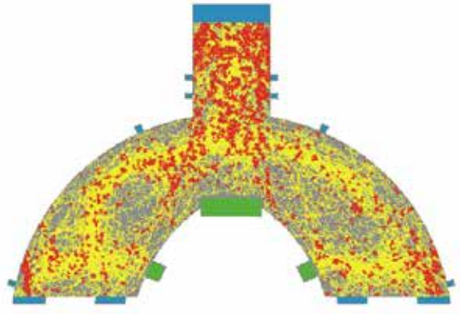

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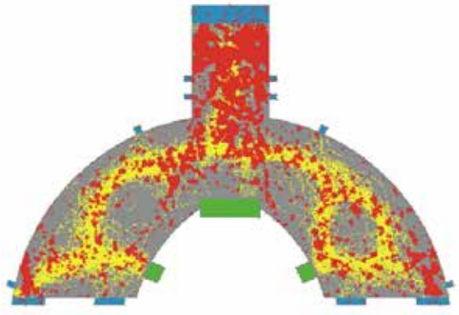

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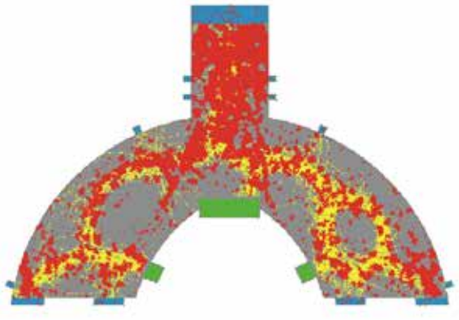

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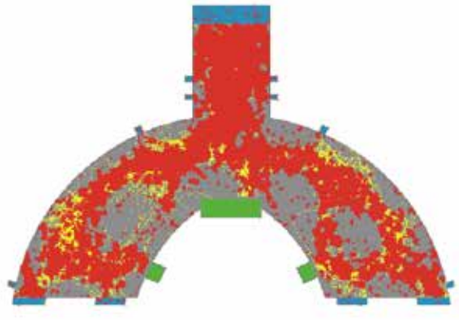

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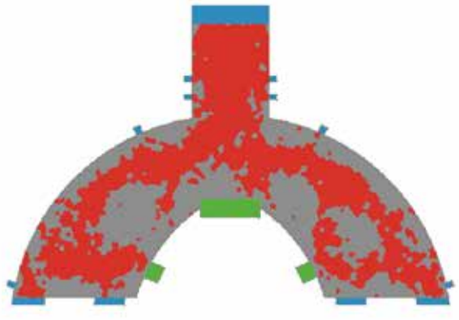


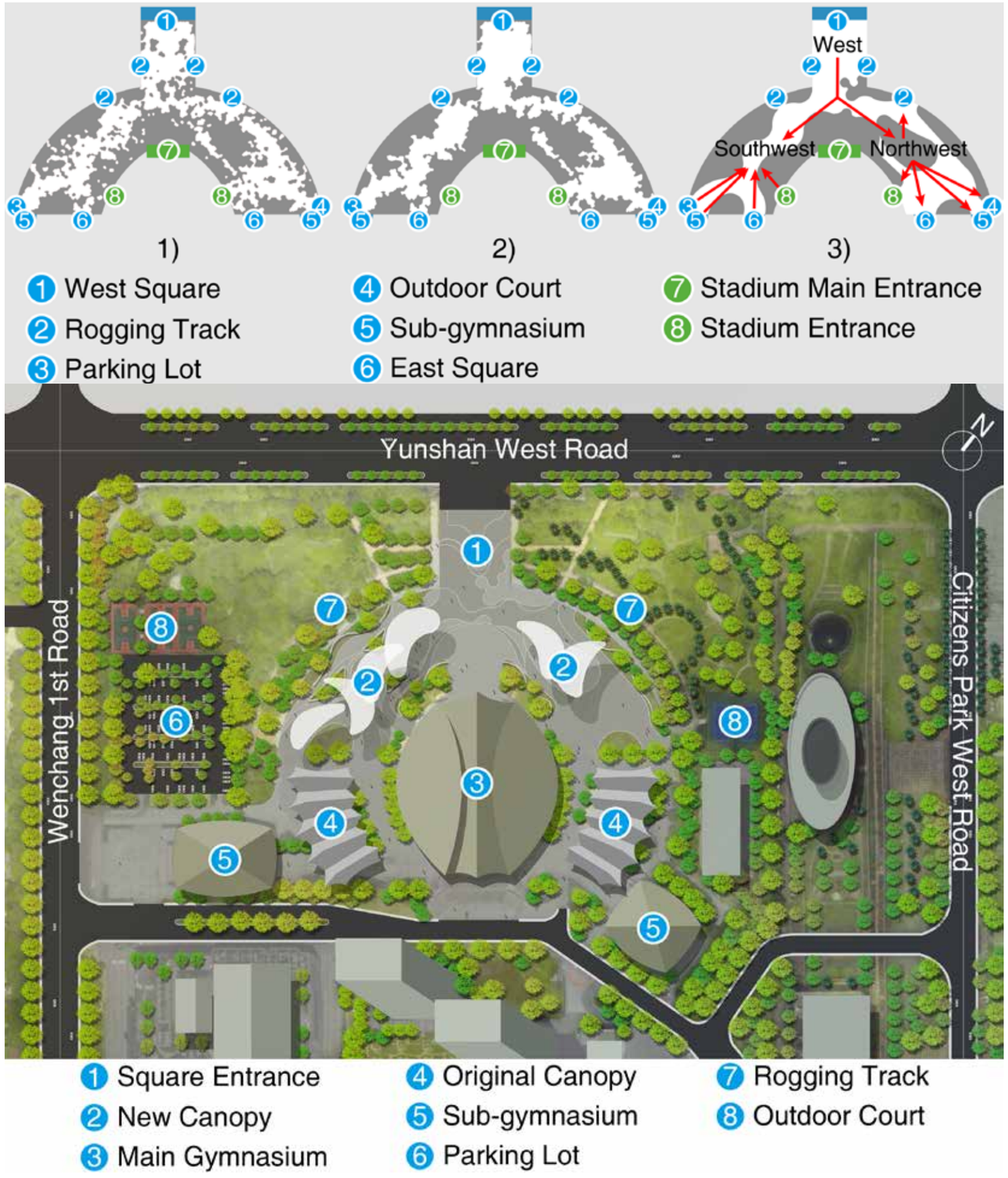
Ticks = 320

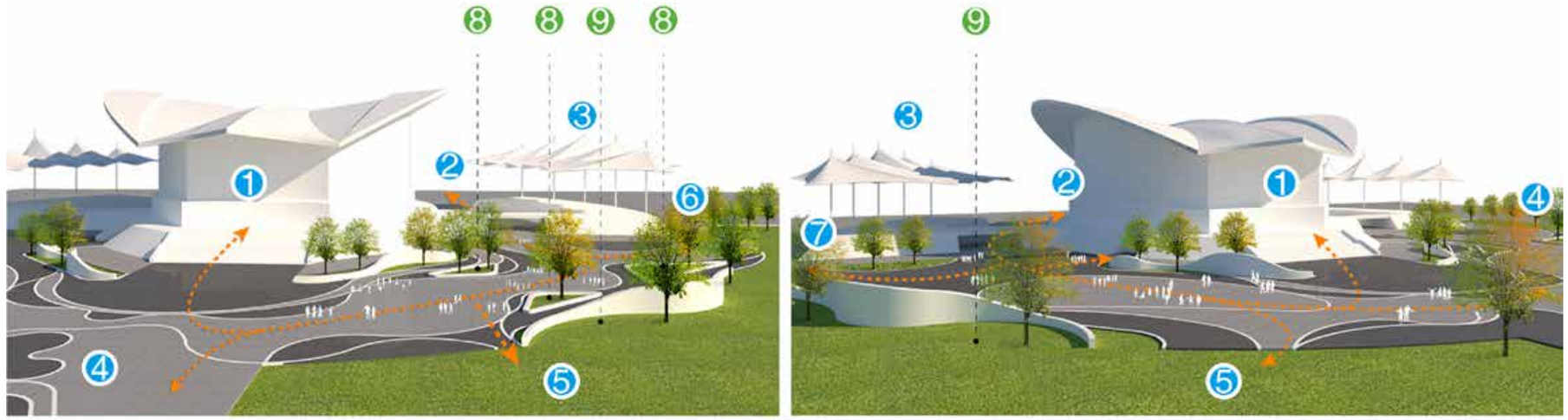
Model Construction & Operation

The above model can basically only be used in the optimization stage in the middle of the design or the evaluation stage after the design is completed, and cannot play the role of automatic generation. Therefore, I build a new automatic generation model based on the agent movement logic in the previously developed pedestrian simulation model. Agents will release pheromones during their activities, and these pheromones will react on the activities of agents. Agent activity and pheromone distribution are optimized in a competing process. In the area where pheromones gather, groups of red patches are automatically generated, and through continuous competition and optimization, they finally form a relatively stable structure.

Automatic Generated

The new model can automatically generate the patches group structure through a large number of stimulation and optimization calculations only through the outer contour of the site, and the designer can use it in the actual design after making slight adjustments to the image as needed. is an automatic generation model that can be used for urban space design. Finally, I applied this technology to the landscape renovation project of Huizhou Jiangbei Sports Center.

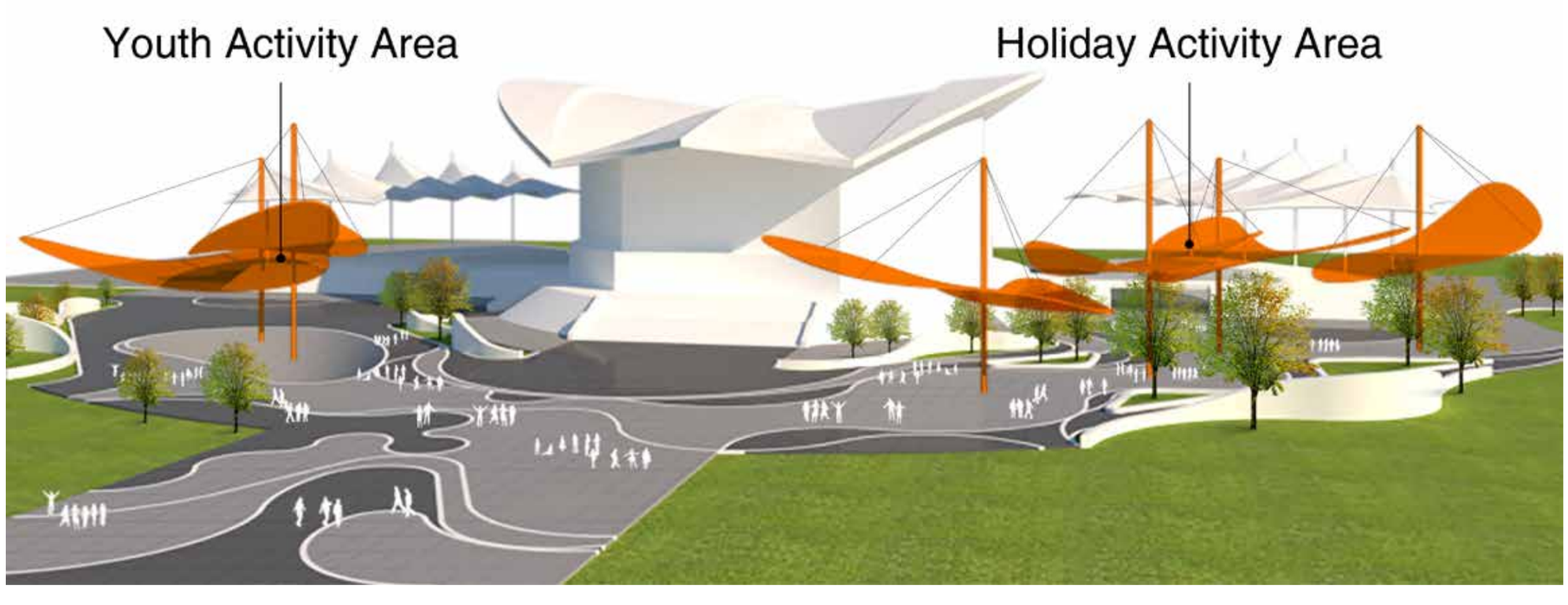




Northeast Square

Southwest Square

1 Main Gymnasium
2 East Square & Sub-gymnasium
3 Original Canopy
4 Square Entrance
5 Rogging Track
6 Parking Lot
7 Outdoor Court
8 Tree Pool
9 Silky Border



Happy
Spring Festival