Hacking the Urban Village | Architecture As Board Game

Xuyun Liu

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Hack the Urban Village
A board game

This project uses a board game as a new presentation method and a platform for the study of southern China’s urban villages. It builds on my thesis research into the urban village, a typical phenomenon of informal settlement in China resulting from a rapid urbanization process. This research forms the contextual core of a board game where game settings present the current conditions and players explore alternative forms of urbanism. The board game offers players the opportunity to investigate both the formal conditions of the urban village as well as its social relationships and juridical context. Architects are conventionally educated to design static buildings with drawings and models, which falls short of meeting the requirements of the complicated and dynamic system design that China’s urban development needs. Due to its inhabitants’ hacking and re-organizing the existing spaces and infrastructure, urban villages are embedded with both chaos and creativity, which can only be sufficiently reflected by a board game featuring a hacking-friendly system that allows players to make additions, subtractions, and replacement of accessories to the game board. The randomness and dramatic events in the game would bring in absurdity and uncertainty to the results, representing the complexity and uncertainty in the real process of urban development in China today and also offer possibilities for new forms of urbanism.
- For Architect, Villager, Migrant. Finish building the five pieces to win the game. Need to collect 4 tokens for constructing each.

- Black pawns show the main path while the orange pawns reveal the secondary path. All holes on constructed color pieces are also treated as secondary paths. Players need to follow the main path primarily and could only use the secondary paths when the main path could not work. The map paths are changing with new constructions. Players always need to follow the newest and shortest one.

- If you get one of the four types of activity card: SOCIALIZING, CONSUMPTION, UTILITY, and EXPANSION, you could pick the object from your tool kit following the instruction on the card and construct a piece on the board. The piece could locate one step before or after your pawn's current location. The piece construction occupied one step of the board, and should not overlap with the other piece. If you build a new connection, you should announce with "I, ___" (construction of one step size). Pins could be used to make the connections. The new construction should not influence any players' pawns or block the existing roads and should be suitable and steady. If any of the requirements is not met, the construction task fails. If you build a new piece successfully, you would be rewarded with a TOKEN. (Construction of one cube size would cost 10K.)

- If you end up on a color pieces constructed by other players, you need to pay the player for using this construction. 2K using fee per cube. If more than 1 color pieces are connected, the player needs to pay for all the pieces.

- If you are walking on the top of buildings and confronting a gap between buildings. You need to purchase a proper link piece to connect the path. If you are not willing to or have no enough money to buy the link, the ungated migration path could be used by other players for free. If you get a DESTRUCTION card, you need to remove the piece you are currently on only if it is a constructed color piece or a removable small piece. And you could relocate your pawn on the newly exposed paths wherever you want. If you are on the main body of buildings, you could hold the card and use it in next rounds when the situation is applicable before you pick a new card. (Destruction of one cube size would cost 5K.)

- Investor could demolish a whole building after collecting 4 tokens and purchase the land from villager with 100K.

- Irregular pieces could only used by migrants for free to replace task pieces. Once built, the irregular piece could become a shortcut to make connections between two spots.

- Players need to use bridge pieces to connect the gaps between buildings.
Case Study
### Categories of Anarcommunity

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<td>Informal Settlement</td>
<td>buildings without architects, illegal construction, free form and organization</td>
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Christiania is a self-proclaimed autonomous neighbourhood of about 850 residents, covering 34 hectares in the borough of Christianshavn in the Danish capital Copenhagen. Civic authorities in Copenhagen regard Christiania as a large commune, but the area has a unique status in that it is regulated by a special law, the Christiania Law of 1989, which transfers parts of the supervision of the area from the municipality of Copenhagen to the state. It was closed by residents in April 2011, whilst discussions continued with the Danish government as to its future, but is now open again. The area has its rules, flag, and currency.

Christiania has been a source of controversy since its creation in a squatted military area in 1971. Its cannabis trade was tolerated by authorities until 2004. Since then, measures for normalizing the legal status of the community have led to conflicts, police raids and negotiations which are ongoing.
Dispersive

Self-construction is popular in Christiania. Habitants took use of all kinds of materials to build different forms with variable decorations. There is no strict construction rules. The creativity of the habitants makes the area full of artistic buildings and installations.

Self-construction

Area Meetings

Christiania has a fully developed self-management system with 14 small areas. Area meetings and the community meeting are held to solve problems and make consensus. Residents could do whatever they want, but every individual has a responsibility for his/her own life and home. The resident's in an area have a common responsibility for the area's development and condition.

Management

Incrementalism

Random

The residents could pick their own site and construct their own houses. There is no strict rules and limits. However, after more and more people join the community, the construction has to be controlled. The building meeting is formed to approve the new construction and process.

Form

Public Areas

Besides the private living spaces, there are lots of restaurants, shops, workshops and public spaces in the community. Automobiles are not permitted in the area. The bicycle is the most popular vehicle. Markets, parades, and other activities are often held in the open areas.

Construction mode

Occupied & Construct

Christiania was a military site and was abandoned around 1970s. On 26 September 1971, Christiania was declared open by Jacob Ludvigsen, a well-known provo and journalist. People occupied the existing military buildings and started further decoration and constructions.

Public vs. Private

Random

Christiania was a military site and was abandoned around 1970s. On 26 September 1971, Christiania was declared open by Jacob Ludvigsen, a well-known provo and journalist. People occupied the existing military buildings and started further decoration and constructions.
Kowloon Walled City was a densely populated, largely ungoverned settlement in New Kowloon, Hong Kong. Originally a Chinese military fort, the Walled City became an enclave after the New Territories were leased to Britain in 1898. Its population increased dramatically following the Japanese occupation of Hong Kong during World War II. In 1987, the Walled City contained 33,000 residents within its 2.6-hectare (6.4-acre) borders. From the 1950s to the 1970s, it was controlled by Triads and had high rates of prostitution, gambling, and drug use. In January 1987, the Hong Kong government announced plans to demolish the Walled City. After an arduous eviction process, demolition began in March 1993 and was completed in April 1994. Kowloon Walled City Park opened in December 1995 and occupies the area of the former Walled City. Some historical artifacts from the Walled City, including its yamen building and remnants of its South Gate, have been preserved there.

Life in Kowloon Walled City

The super dense living block contains living, small factories, shops, dentists, schools, garbage piles, entertainment grounds and etc. This is a vertical city full of abundant life scenarios.
Self-construction is popular in Christiania. Habitants took use of all kinds of materials to build different forms with variable decorations. There is no strict construction rules. The creativity of the habitants makes the area full of artistic buildings and installations.

The area is not under the control of any government. Residents formed associations to help each other. The gang was the most powerful force to guarantee the operation of the area, offering protections and opportunities of jobs.

The complex is a super dense block containing hundreds of buildings with multiple floors. The buildings are attached or have small gaps between. Living units are stacking like legos.

The original site was a military site and abandoned later. New constructions were built between and on the top the existed structures to extend the buildings.

Along with the growing population, the residents add constructions to extend the density and height. The largest height is limited by the airplane. The whole site was finally destroyed and built as a park.
Torre David was designed as a central trade center in the CBD of Caracas. But the project was not finished due to the death of its developer in 1993 and the Banking Crisis in 1994. The unfinished building was abandoned for almost 14 years. The rapid growing population and the collapse of economy led to the housing shortage. In 2007, the building was occupied by hundreds of squatters and became a vertical informal community. The habitants use the regional material such as adobe bricks to reorganize the interior space of Torre David to build their new homes. The squatters occupied up to 28th floors since there is no elevator here. And a administration institute was founded by elder people to maintain the order of the residences in the building. With the increasing of the occupiers and their basic living demand, a variation of new function emerged in this building, such as hair cut, tailor, grocery, gym, playground and even moto-taxis for the first 10 floors.
Builder

Self-construction

After occupying the building, the residents took use of the materials left in the building and make adobe bricks to divide the spaces for living units. Knowledges and skills are shared to manage the water and electricity supply.

Management

Hierarchical Management

An administration is formed to manage the community. The secretary is the most important to manage issues guided by the director. Each floor has a manager to negotiate the relation between habitants and the secretary. New members and basic rules are strictly controlled.

Form

Vertical

The structure is a skyscraper designed for business offices. The main buildings is accompanied by a parking structure, two affiliated buildings and an atrium.

Construction Mode

Occupy

The building offered a strong structure for the residents to further develop their homes. People occupied the building with tents at beginning and then divide the spaces to build up separators and facilities.

Incrementalism

Divide

Before

After

The original structure is not built for residential spaces. Separating walls are constructed to divide living units. Till now, the growing occupations stop at the 28th floor due to the lack of elevations.

Public vs. Private

Vertical Mix

The ground floor and the atrium are mainly used for public activities. The staircase is essential for the social interaction without elevators. Groceries, workshops and small gyms are spreading in the whole building.
Freeland, MVRDV’s urban planning concept for Almere Oosterwold, revolutionizes the way that land is developed in the Netherlands. It proposes remapping the regulation of buildings and development towards community initiative, while reinventing the relationship between governments, people, and their urban fabric through the power of the collective via the Internet. It is a radically liberated place where architectural freedom extends to the urban environment as a whole, challenging and empowering citizens to become active participants in the land development process. In 2008, MVRDV was commissioned to create an overall development strategy for the city of Almere for the next 20-40 years. Almere is a New Town developed on reclaimed land since the 1970s, and it has grown – not coincidentally – into a prime example of the low-density, low-diversity suburban condition. Almere plans to add 60,000 homes and 100,000 jobs by 2030, partly to siphon development from nearby Amsterdam. MVRDV convinced the municipality of Almere to ‘repair’ the mono-functional character of its existing housing stock by adding neighborhoods with more urban qualities in the west, and neighborhoods with more rural qualities in the east (Freeland), integrating job creation into developments and turning Almere into a diverse and balanced city.
The whole project is based on an Internet program: the Housemaker. The technique support is offered on line. The residents could pick their own site, building program and form. Then they need to deal with the facilities and agriculture based on the requirements of the ratios of buildings, roads, green lands, water and agriculture. Collaborations would be made to help each other to share supplies and food.

The residents in close areas would form neighborhoods to collaborate and negotiate the connection between each lands. The neighborhood communities offer the power to protect the rights of residents and set some limitations in such a free construction condition. For example, a factory with air pollution would be protested to develop the environmental friendly technique.

The project is prosed on the open rural land with small density. The sites and buildings are spread on the ground with irregular boundaries, sizes and forms.

There is no top-down plan of the distributions of public and private spaces. Each individual decides the program of the site. Share spaces and facilities would happen after the forming of neighborhoods. The government would participate for the development of common and large-scale components when desired or needed.
The project is for the design and construction of a sustainable neighborhood, of 450 low-cost houses, earthquake resistant, complete with community facilities, based upon the concept of high-density, low-rise development with courtyard houses, which can grow and adjust over time to accommodate the changing needs of families. New methods were developed to reduce unit costs and raise environmental standards. Objectives of the project are improved designs, rationalized building methods and materials, dimensional standardization, and increased productivity with the use of new building equipment and plant. An international competition was organized for twenty-six architects with engineers, thirteen from Peru and thirteen from other countries to obtain proposals for designs and building methods for twenty-six clusters of houses. The countries represented were Colombia, Denmark, Finland, France, Germany, Holland, India, Japan, Peru, Poland, Spain, Switzerland, United Kingdom and the United States. The architect Peter Land conceived and carried out the project as UN Project Director in cooperation with the Government of Peru.
26 design teams are participating to design 26 clusters basing on the requirements of the habitants. The original structure is economical and expandable. The habitants could self-construct to extend the buildings due to the new requirements and financial condition.

The whole community is formed by 26 clusters of low-rise houses.

Sub-communities are formed to maintain the public spaces with facilities and green spaces.

The basic structures were built by the architects and then further extensions and decorations would be made by the habitants.

James Stirling’s design is formed by 3X3 grids with supporting columns in the center box. Multiple forms are possible for future developments. The house could expand basing on the growing population of the household and requirements. Decorations and facades in later stages could express abundant personalities to add varieties to the community.

Public areas are spread on the site between the clusters and in the center of the clusters. Shops and schools are embedded in the buildings.

James Stirling’s design as eg.
Begun in 2003 and completed in 2004, Quinta Monroy was ELEMENTAL’s first built project: a 5,000sqm site illegally occupied by 93 families who had squatted the place for three decades, in the center of Iquique, a city of about a quarter million lying in northern Chile between the Pacific Ocean and the Atacama Desert. The settlement was unsafe, a labyrinth, and difficult to police. However, residents were adamant—likely due to the site’s central location—about remaining there. Rather than displace the residents, the Chilean Government asked ELEMENTAL to design permanent housing for them. With limited budget, Elemental decided to build half a good house for the residents than a poor whole house. And the residents could self-construct extensions in the future. The main structures and facilities, which are difficult for self-construction, are built at the beginning. Workshops are held to communicate with the residents to know the requirements and suggestions. Self-construction techniques are taught to help further expansion. The good quality and the sub-community divisions are the key factors to maintain and even increase the value of the community.
The project is based on collaboration between architects and habitants. Workshops were held to explain the constraints, make pragmatic choices, make survey of local strategies, and give technique guide for future self-construction.

The whole community is divided into four sub-communities with limited access serving for around 20 families. Negotiations are made between habitants to decide the distribution of the houses and the maintainance of the public areas.

The main structures are built at the first stage to provide a solid skeleton. The exteriors are built with bricks and woods. The walls expected to be expanded are constructed with movable wood materials. The spaces are reserved for future extension and decorations. The kitchen and bath facilities are located according to the final arrangements of the house. The construction process is based on what is necessary now and what could be further developed in the future.

Around twenty families would share a sub-community space with limited access. The shared public space is used for parking and playing, and would be further constructed in the future.
Board Game
Board Game

A board game is a game that involves counters or pieces moved or placed on a pre-marked surface or “board”, according to a set of rules. Games can be based on pure strategy, chance (e.g. rolling dice), or a mixture of the two, and usually have a goal that a player aims to achieve. Early board games represented a battle between two armies, and most modern board games are still based on defeating opposing players in terms of counters, winning position, or accrual of points (often expressed as in-game currency).

There are many varieties of board games. Their representation of real-life situations can range from having no inherent theme (e.g. checkers), to having a specific theme and narrative (e.g. Cluedo). Rules can range from the very simple (e.g. Tic-tac-toe), to those describing a game universe in great detail (e.g. Dungeons & Dragons) – although most of the latter are role-playing games where the board is secondary to the game, serving to help visualize the game scenario.

The time required to learn to play or master a game varies greatly from game to game. Learning time does not necessarily correlate with the number or complexity of rules; some games having profound strategies (e.g. chess or Go) possess relatively simple rule sets.

Physical Accessories

Card

Board

Placeholder

Property

Guide book

Others

Mechanics

Auction

Role Playing

Trade

Construction

Area Control

Negotiation

Dice

Vote

Win a Game

Competition

Knock-out System

(Temporary allies)

Credits ranking

Cooperation

Reach a goal

(Traitor)
Game Scenarios

In the anarchy communities, the relations among the habitants and the outside are complicated. They share some common goals but also have conflicts with each other. They need to manage the money, space and social relations for construction and operations of daily life. Strategies and negotiations are necessary to solve problems and maintain some basic orders. How to survive and achieve a better life for both individuals and the communities? All those life scenarios could fit into a board game to mock up the situation and development of anarchy communities.

Stakeholders
Role playing
Strategy
Negotiation
Competition

The stakeholders (architects, habitants, government, NGO and investors) have different interests and goals, who need to collaborate and compete at the same time, just like the players in a game playing with strategies to earn their own profits.

Habitants
Role playing
Different personalities
Different skills
Groups
Negotiation
Conflicts

The diversity of the habitants offers variable culture and knowledge to the community. The role playing of different habitants would encounter conflicts and collaborations with each other and contribute to community development with individuals’ skills.

Occupy spaces
Negotiation
Conflicts

How to occupy the spaces without ownership, like the roofs, the staircases, the corridors? Conflicts may happen. Negotiations are necessary to decide the ownership and the way to share the spaces.

Construction
Money
Labor
Facilities

The constructions and extensions are like the stacking of legos. Money and labors are required for construction. Electronic and water supply is also necessary to be added.

Budget
Investment
Financial management
Bankrupt

Budget is always limited for construction, no matter it is personal saving or funding from government for a social housing community. How to manage the budget to get future value instead of declaration is important to win the game.

Management
Role playing
Strategy
Negotiation
Competition

Administration has to exist for the community to operate. The way of management differs according to certain condition. Meetings, hierarchies, or associations are all possible solutions. Deciding which method to use and how to operated relate to negotiation and voting.

Allies
Role playing
Shared goals
Agreement

Allies would be formed by individuals or groups who share common goals. Agreements and compromises would be made to benefit the majority. The allies could be permanent or temporary according to the situation.

Crime
Crisis
Emergency
Murder
Detective

Crime exists here as a crisis or emergency which is threatening the normal life. Habitants need to find out who is the murder and get rid of such situation. Associations are formed to protect themselves. Collaborations with gangs and policemen are also necessary sometimes.

Public life
Social contact
Life quality

Public life is essencial to maintain the vitality of the community. Social interactions happen in public areas to strengthen the community sense. Life quality relies on better public spaces. How to develop the spaces and manage the activities is the key for a better community.
Context
URBAN VILLAGE

Gangxia Village in Shenzhen
BOARD GAME VS. URBAN VILLAGE

**RULE**
- Uncertainty behind orders

**PLAY**
- Collaboration
- Competition
- Randomness
- Open-end
- Uncertainty
- Diversity
- Multiple outcomes

**CULTURE**
- Reflection
- Projective

**SYSTEM**
- Orders hidden in chaos

**STAKEHOLDERS**
- Alliance
- Conflicts

**CONTEXT**
- Complexity
- Dynamic

**How to play**
The urban village is full of issues but also has great commercial value if it is demolished and rebuilt into high-rise buildings. Meanwhile, the considerable amount of compensation fee and the consequential problems with resettling the habitants have pushed the government to give a second thought about doing so. Opportunities are given to the stakeholders involved to pursue their own expectations for the village, as long as they can complete certain tasks and gain tokens. What is the future version of the village? Whose best interest does it serve for?
INVESTOR
ARCHITECT
VILLAGER
MIGRANT

TASK PIECE

CONSUMPTION
SOCIALIZING
UTILITY
EXPANSION

“TRASH” PIECE (only for migrants)

GOAL PIECE

PURCHASING LANDS
PUBLIC FIELD
PARTICIPITY
ENDOR BOOTHS

WIN
Rule Book
NARRATIVE

The urban village is full of issues but also has great commercial value if it is demolished and rebuilt into high-rise buildings. Meanwhile, the considerable amount of compensation fee and the consequential problems with resettling the habitants have pushed the government to give a second thought about doing so. Opportunities are given to the stakeholders involved to pursue their own expectations for the village, as long as they can complete certain tasks and gain tokens. What is the future version of the village? Whose best interest does it serve for?

ACCESSORIES

BOARD MAP

3D BOARD WITH REMOVABLE PIECES

PAWS

BRIDGES

TOKENS

- Present each player with the color from the role cards and move along the board.

- Players need to buy bridge pieces to connect the gaps between buildings. 10K per bridge.

- Players are rewarded one token for finishing one construction task. One goal piece could be achieved with 4 tokens.
**Role Cards**

- Pick a role card by chance or consensus.

**Action Cards**

- If you get one of the four types of task cards, you could pick the object from your tool kit following the instruction on the card to build the piece and get a TOKEN. (Construction of one cube size would cost 10K.)

- If you get a CHANCE card, you need to pick a chance card and follow the instructions on the card. The contents on the cards may also influence other players.

**Chance Cards**

- Follow the instructions on the card. The contents on the cards may also influence other players.

**Task Pieces**

- Follow instructions from the action cards to build task pieces and win one token for each task construction.

**Goal Pieces**

- For Architect, Villager, Migrant. Finish building the five pieces to win the game. Need to collect 4 tokens for constructing each. Investor’s goal is to demolish one building after collecting 4 tokens and purchase the land with 100K.

**Trash Pieces**

- Irregular pieces which could only be used by migrants for free to replace task pieces.
For Architect, Villager, Migrant.

Finish building the five pieces to win the game. Need to collect 4 tokens for constructing each.

- Follow instructions from the action cards to build task pieces and win one token for each task construction.
- Define each player’s role and goal.
- Each player gets $1K, $2K, $5K, $10K, $25K, $50K, $100K at the beginning. Investor gets double amount of money.
- Place paws here to start the game.
- Pick one chance card and follow the instruction when you get “CHANCES” from the action cards.
- Pick one card after locating your paw. Follow the instruction.
- Make physical connections between pieces.
- Present each player with four different colors.
- Investor’s goal pieces. Demolish one building after collecting 4 tokens and purchase the land with 100K.
- Players need to use bridge pieces to connect the gaps between buildings.
RULES

Start

1. Pick a role card by chance or consensus
2. Get your role’s pawn, money and tool kit.
3. Put your pawn at the starting point on the board.
4. All plays roll the dice. The one with the largest number start the game. Then the turn will go anticlockwise.

Path

Black pawns show the main path while the orange pawns reveal the secondary path. All holes on constructed color pieces are also treated as secondary paths. Players need to follow the main path primarily and could only use the secondary paths when the main path could not work. The map paths are keeping changing with new constructions. Players always need to follow the newest and shortest one.

Round

DICE---LOCATION---PAY---GOAL ACTION---CARD---ACTION---REWARD---NEXT PLAYER
1. Roll the dice. Move steps as the number shown and set your location. Paths are revealed by holes. Follow the black pawns mainly use the orange pawns and constructed color pieces as secondary paths only when the main path could not work. Distance between two steps is one inch. Half inch distance could be neglected.
   a. If you are walking on the top of buildings and confronting a gap between buildings. You need to purchase a proper link piece to connect the path. If you are not willing to or have no enough money to buy the link, you need to stop in front of the gap. The build link piece could be used by other players for free.
   b. If you end in a position where locates another player’s pawn, you need to step back till there is a clear spot for you.
   c. If you end up on a color pieces constructed by other players, you need to pay the player for using this construction. 2K using fee per cube. If more than 1 color pieces are connected, the player needs to pay for all the pieces.
2. Set your location on the board after moving. Then pick an activity card.
   a. If you get one of the four types of task card: SOCIALIZING, CONSUMPTION, UTILITY, and EXPANSION, you could pick the object from your tool kit following the instruction on the card and construct the piece on the board. The piece could locate one step before or after your pawn’s current location. Pins could be used to make the connections. The new construction should not influence any players’ pawns or block the existing roads, and should be suitable and steady. If any of the requirements is not met, the construction task fails. If you build a new piece successfully, you would be rewarded with a TOKEN. (Construction of one cube size would cost 10K.)
   b. If you get a DESTRUCTION card, you need to remove the piece you are currently on only if it is a constructed color piece or a removable small piece. And you could relocate your pawn on the newly exposed paths wherever you want. If you are on the main body of buildings, you could hold the card and use it in next rounds when the situation is applicative before you pick a new card. (Destruction of one cube size would cost 5K.)
   c. If you get a CHANCE card, you need to pick a chance card and follow the instructions on the card. The contents on the cards may also influence other players.
   d. Once you collect 4 tokens, you can make your goal action following the restrains and with certain amount of money whenever you want starting from next round in your turn before you pick a card.
3. Next player.
“Trash” pieces

Only available for migrants. After getting a task card, migrant could take an irregular piece from the trash box for free to fulfill the task and win the token. The Piece has to fit steady structurally. Build irregular pieces would work as shortcut connections.

Cash flow

1. Initial: each player gets 5*1K, 5*2K, 5*5K, 6*10K, 2*50K, 1*100K at the beginning. Investor owns double initial money.
2. When the player pass the start point, Investor gets 10% more money, architect get 30K, villager gets 20K, migrant gets 10k.
3. Investor pays villager to buy the land.

End and win

1. Fast mode. Limited time or rounds. The player who has finished most goal actions win.
2. The player who has finished all the five goal actions first wins. Or the player wins when all others bankrupt.

HAVE FUN!
Form Study
Possible Outcomes
Bibliographies


