

# GANGNAM LIVING BLOCK

ARTIFICIAL SEOULNESS



ATELIER HUANG FALL 2021

Gangnam District, the newest city center of Seoul, South Korea that has drawn attention internationally due to the worldwide K-Pop song "Gangnam Style" will be our site and field of experimentation. With a grid network – superblocks with a division of smaller urban blocks of various scaled buildings – the urban organization of Gangnam District contrasts significantly from that of Gangbuk, the northern region of the Han river. Currently, multiple housing development projects are taking place throughout the district in response to a surging demand.

In this studio, we will critically examine Gangnam as a site, and use AI to process images of Gangnam to capture, collect, learn, and archive the architectural DNA of the local identity of Gangnam that developed in a relatively short period since the 1970s. We will explore a particular AI technique called Generative Adversarial Networks (GANs) that have, in recent

times, been embraced with considerable enthusiasm in the progressive artistic and design community, because of their capacity to recognize and generate patterns from a given visual corpus.

GANs encode information in a mathematically defined high-dimensional landscape, so-called "latent-space." Navigating this landscape enables machines to hallucinate and deeply dream of cultural artifacts beyond human imagination, potentially augmenting the conventional creative process, and establishing a new kind of collective intelligence, a symbiotic machine-human partnership in architectural design.

In the Gangnam Living Block studio, Artificial Intelligence (AI) will be our "telescope," through which we will rediscover our built environment. We will critically question the role of AI and deep learning in architecture: Is creativity in architecture only

exclusive to humans? Can machines automatically learn and generate meaningful architecture? Can they go beyond quantifiable data and optimization and enter the realm of architectural quality? Can machines capture and generate something as fragile and elusive as “genius loci”? What are the dangers and dark sides when we let the machines loose?

Recent restrictions imposed by the Covid-19 crisis have exposed the limitations of cities with hyper-dense environments. Offices and workspaces have been left vacant and people forced to adopt new working methods, such as telecommuting and decentralized satellite offices. Reduced access to urban functions in dense environments have increased the need for easier access to green and open spaces. Thus, rethinking the spatial structure of cities is needed to improve the quality of life, resilience and self-sufficiency of people in cities.

In Seoul, the demand for residential spaces has surged despite the population decline since 1990. The demand hit a record high in 2021 based on the observed demographic changes. The single-person household increased as it accounts for the highest proportion of all households in Seoul at 33.3%. As the younger generation represents a large portion of single-person households, the demand for alternative housing has also sky-rocketed. Thus, there is a need to reconsider existing housing typologies in response to the recent pandemic's digitalization and changes in work life and lifestyle.

Seoul has also experienced rapid urbanization with a sharp growth of dynamic urban fabric through numerous urban development projects ranging from small townhouses to high-rise apartment complexes. As the city prioritizes securing a sufficient housing supply to meet the increase in demand, housing

redevelopment projects are rapidly being carried out. The projects range from regeneration of existing neighborhoods and buildings to complete redevelopment from a tabula rasa.

In this context, the design studio will investigate the Gangnam neighborhood in Seoul and explore the idea of transforming urban blocks and buildings as a response to the rise of demand for homes and rapid change in social-cultural climates.

The first part of the semester will consist of learning “Seoulness” through curating data and manipulating a state-of-the-art GAN algorithm to form a liquid archive of Seoul architectural possibilities. With imagined densification strategies that connect the past and future Seoul neighborhood, this creative confrontation will result in a series of proposed Gangnam living urban block “proto-typologies”, presented as schematic, axonometric drawings.

In the second part of the semester, we will investigate neighborhoods in Gangnam and design “creative codes” for extending urban blocks, with the objective of not only densifying the existing urban block but also inventing new shared collective spaces that enhance the quality of Gangnam urban life through various properties such as architectural form, climatic performances, social and cultural spaces, and more.

The studio will culminate in a final proposal for a precise urban block extension that integrates and expands existing buildings in a specific location in Gangnam, offering strategic solutions for facilitating a collective living community, and deciding on what to keep, reuse, demolish, and extend.

Gangnam Living Block is the third and final installation of our “artificial design” studio trilogy (part of which is currently exhibited at the Seoul Biennale of Architecture and Urbanism 2021) and will partner with Prof. Jae Kim and Prof. Minjung Maing from Hanyang University in Seoul.



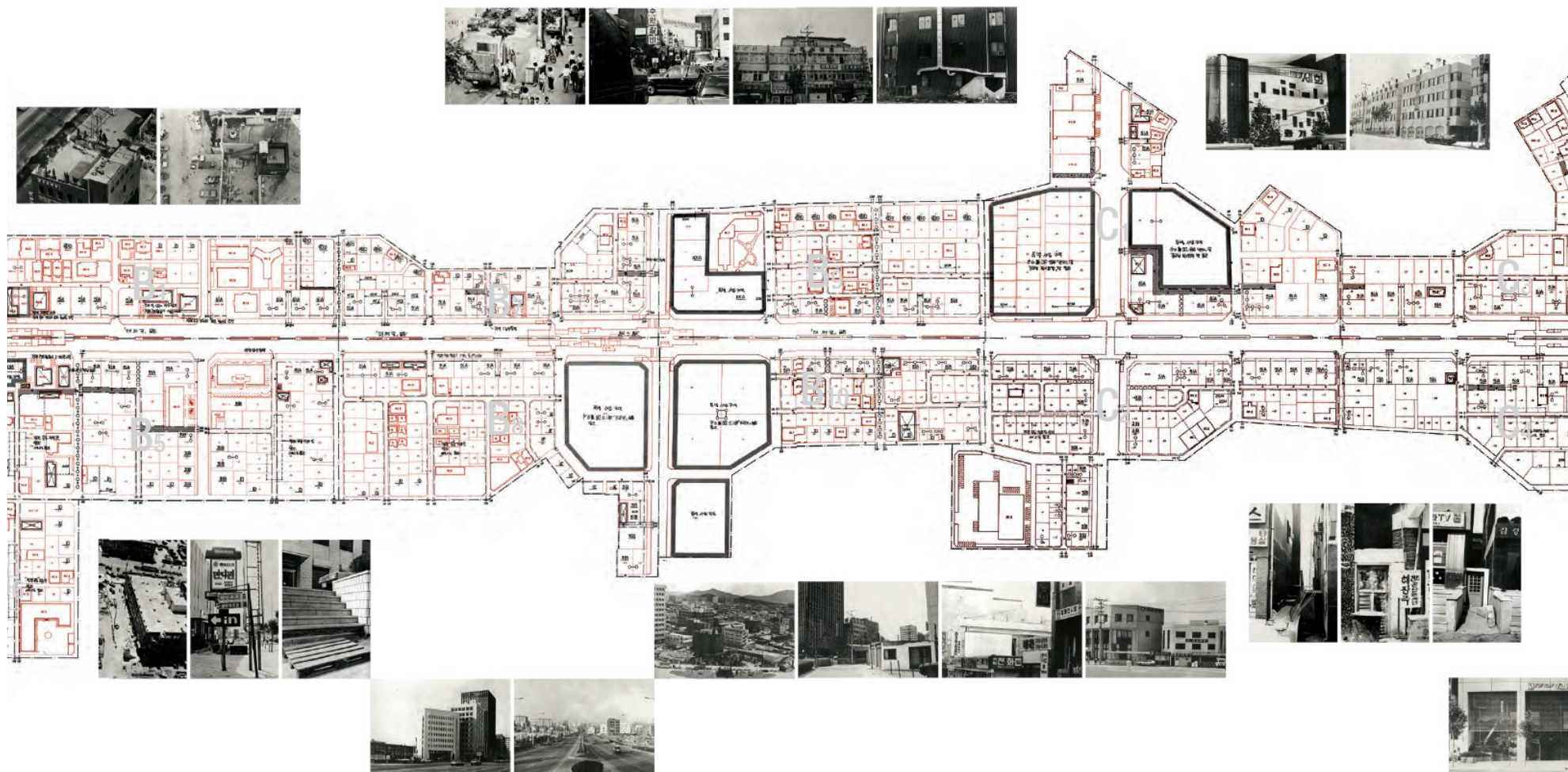
Kyungshub Shin  
Scrutable Landscape Series No. 44, Seoul, 2016



Kyungshub Shin  
Scrutable Landscape Series No. 29, Seoul, 2016



Seoul City Reference Center  
Area classification of Teheran road in Gangnam, 1984



Seoul City Reference Center  
Teheran road development in Gangnam, 1984

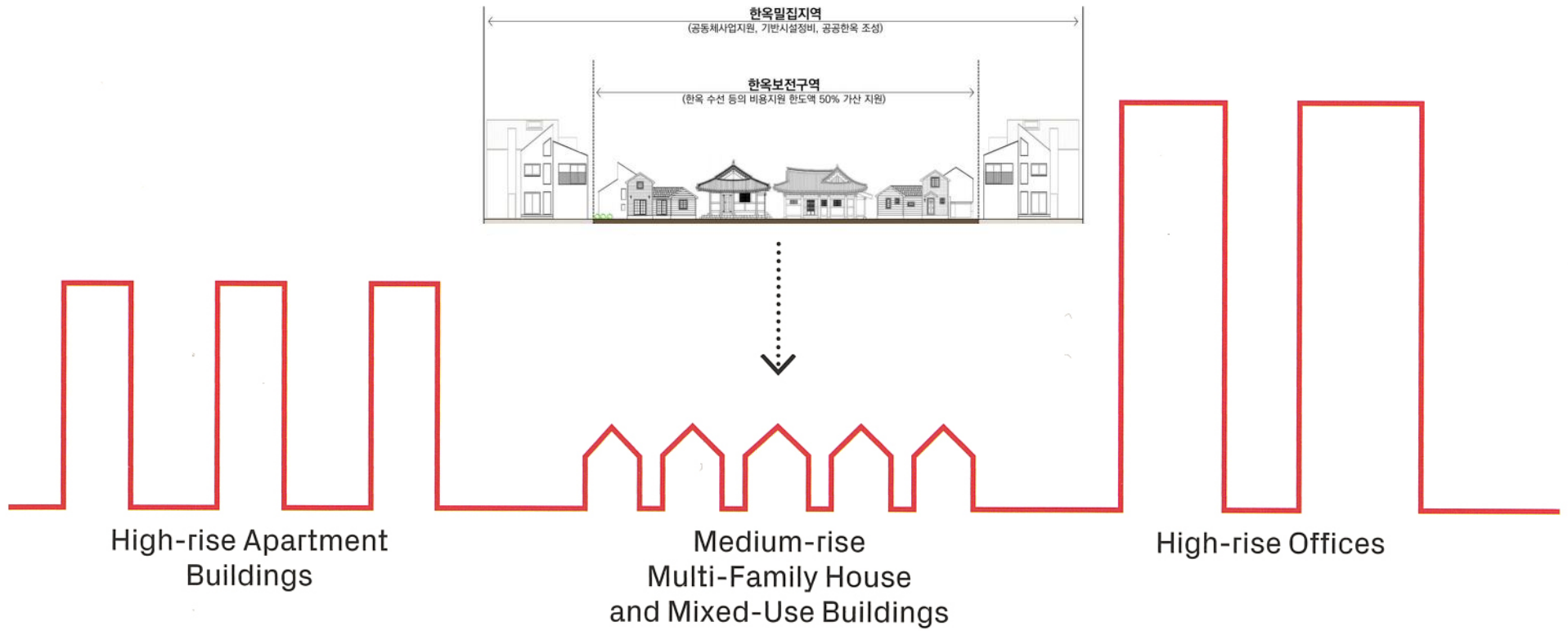


Bong Joon-ho  
Street scene of Seoul residential area. *Parasite*, 2019





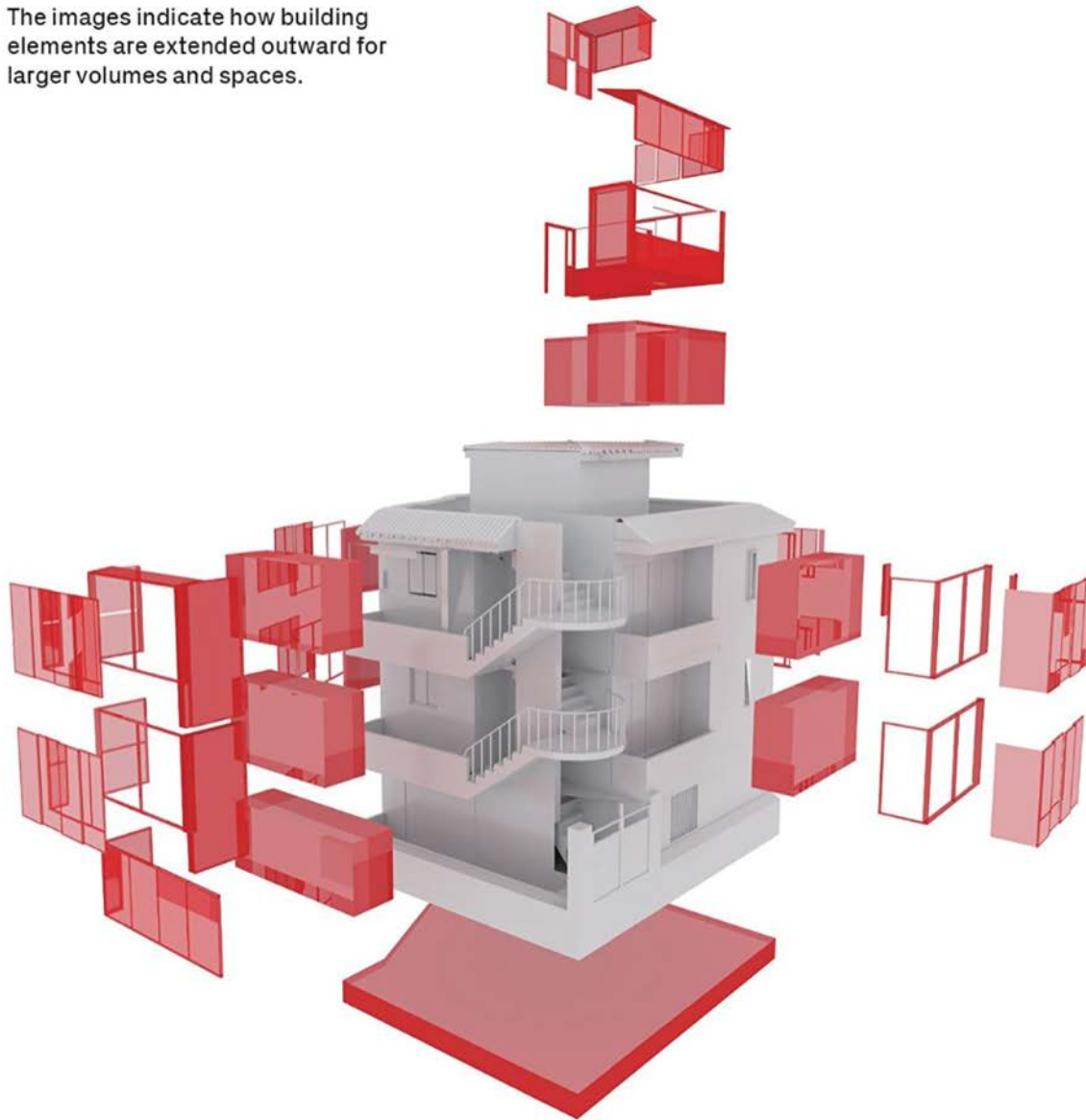
Bong Joon-ho  
Inside of semi-basement apartment *Banjiha*. *Parasite*, 2019





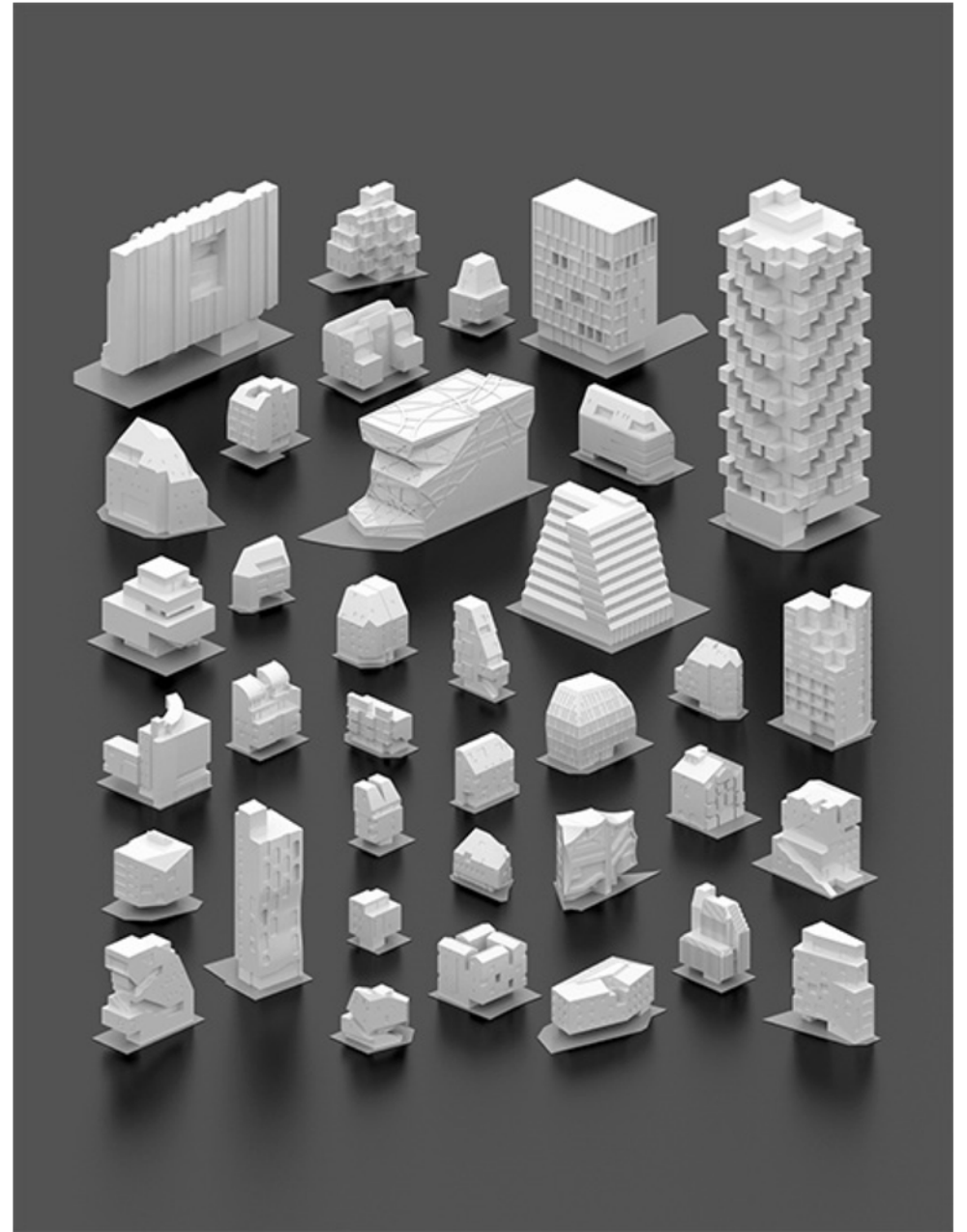
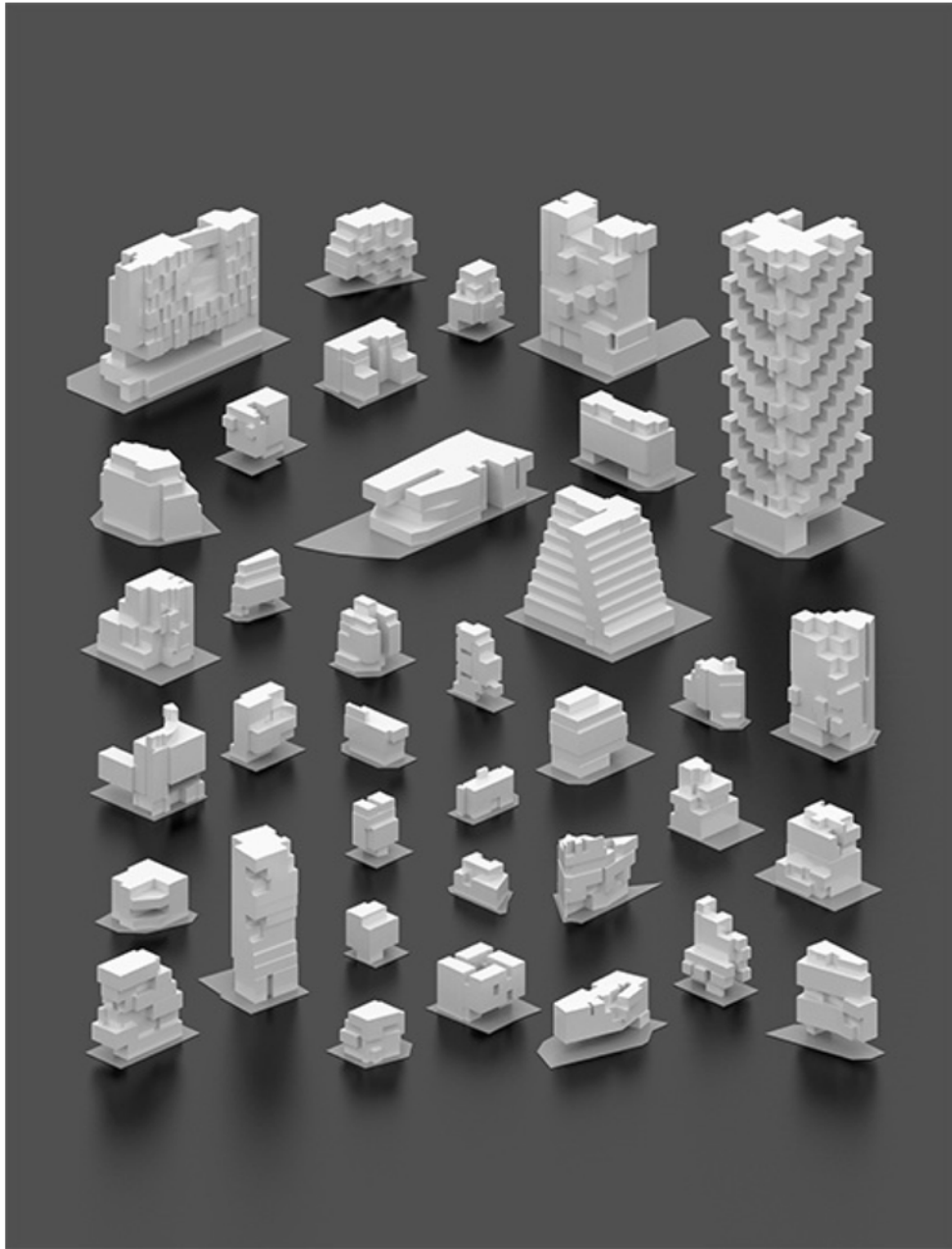
Sung Hong Kim  
The FAR Game, Korean Pavillion, Venice Biennale, 2016

The images indicate how building elements are extended outward for larger volumes and spaces.

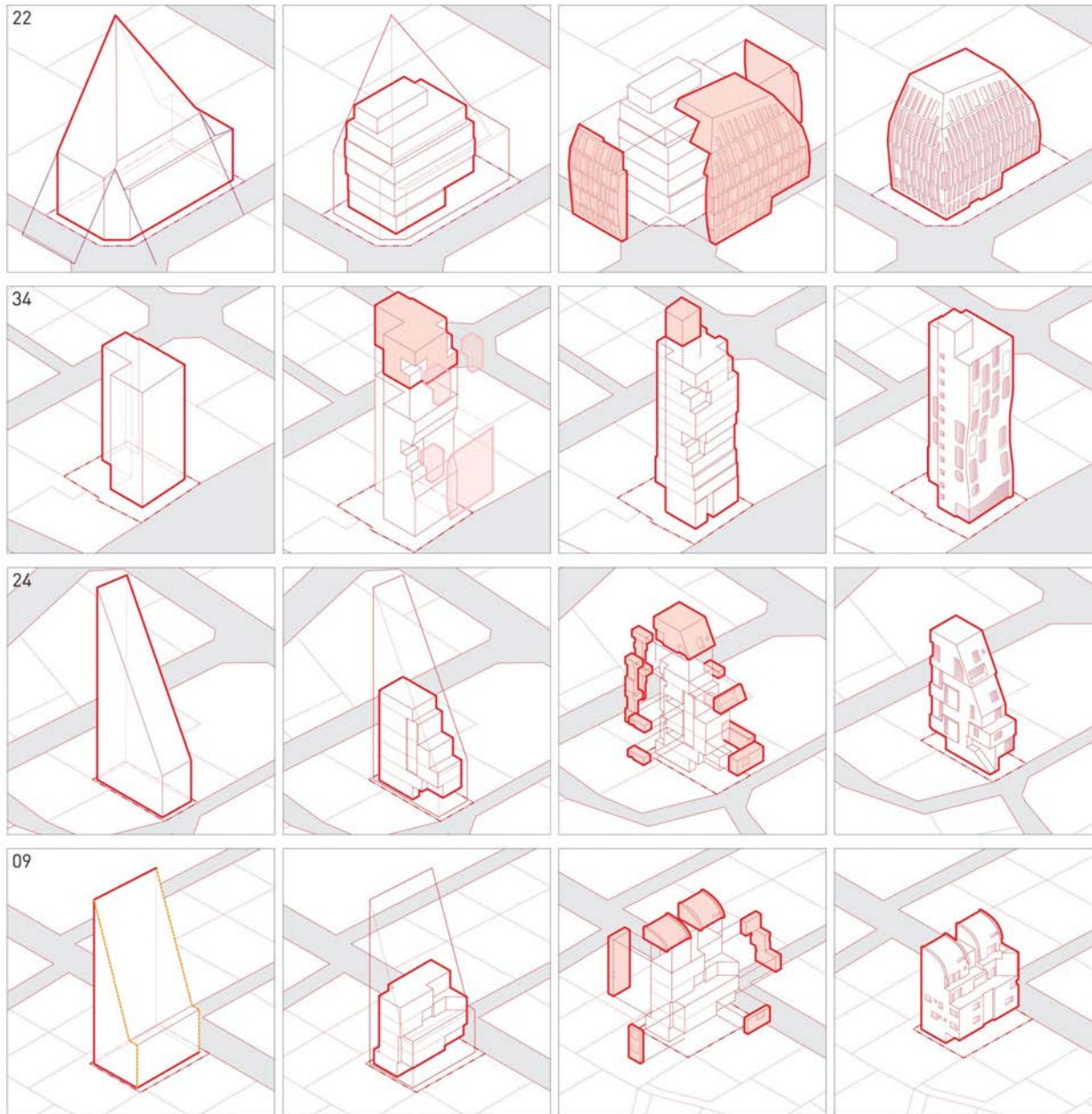


Sung Hong Kim  
The FAR Game, Korean Pavillion, Venice Biennale, 2016

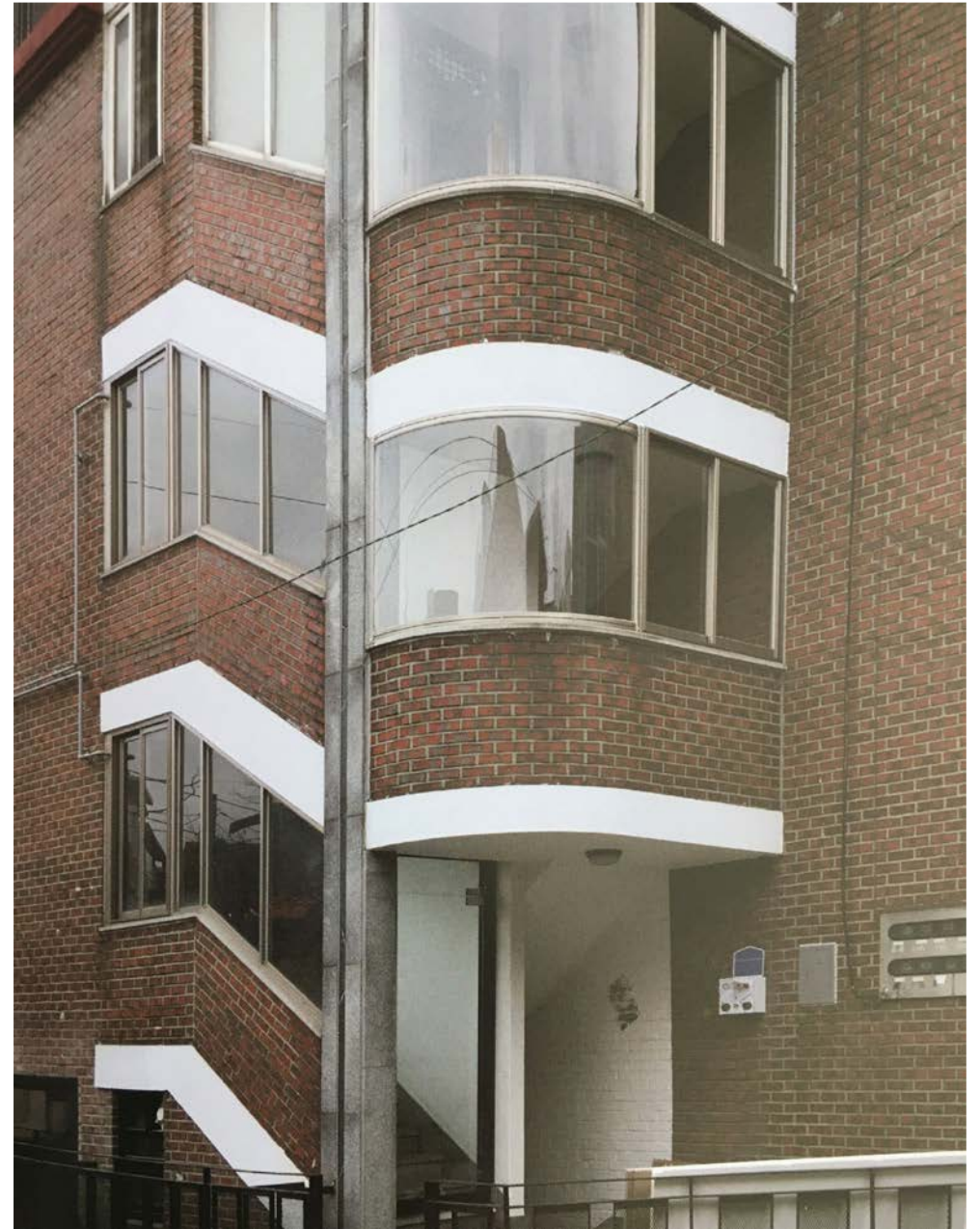
|                   |                                                           |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|                   | BUILDINGS                                                 | 1                                                                                  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| REGULATIONS       | Minimum Distances from Site Boundary                      |                                                                                    |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                   | Maximum Height & Number of Storeys                        | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | North-South Orientation Set-back & Diagonal Plane Control |                                                                                    |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                   | Street Width Diagonal Plane Control                       |                                                                                    |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                   | Number of Parking Spots in Relation to Floor Area         |                                                                                    |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| TACTICS           | Phenomenon                                                | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | Clearing out public areas (except from Education)         | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | Reducing Common Circulation Area                          | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | Planning Pools between Ground & underground levels        | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | Manipulating Ceiling Height                               | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | Increasing Number of Stories for Existing Use             | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
| BUILDING ELEMENTS | Volume/Building                                           | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | Maximizing Volume to Reach Limits by Regulation           | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | Attracting Users of Building Surface                      | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | Balcony                                                   |                                                                                    |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                   | Exterior Space                                            | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
| BUILDING ELEMENTS | Parking Lot                                               |                                                                                    |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                   | Attic                                                     | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |
|                   | Underground Floor                                         | -                                                                                  | - | - | - | - | - | - | - | - | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  |



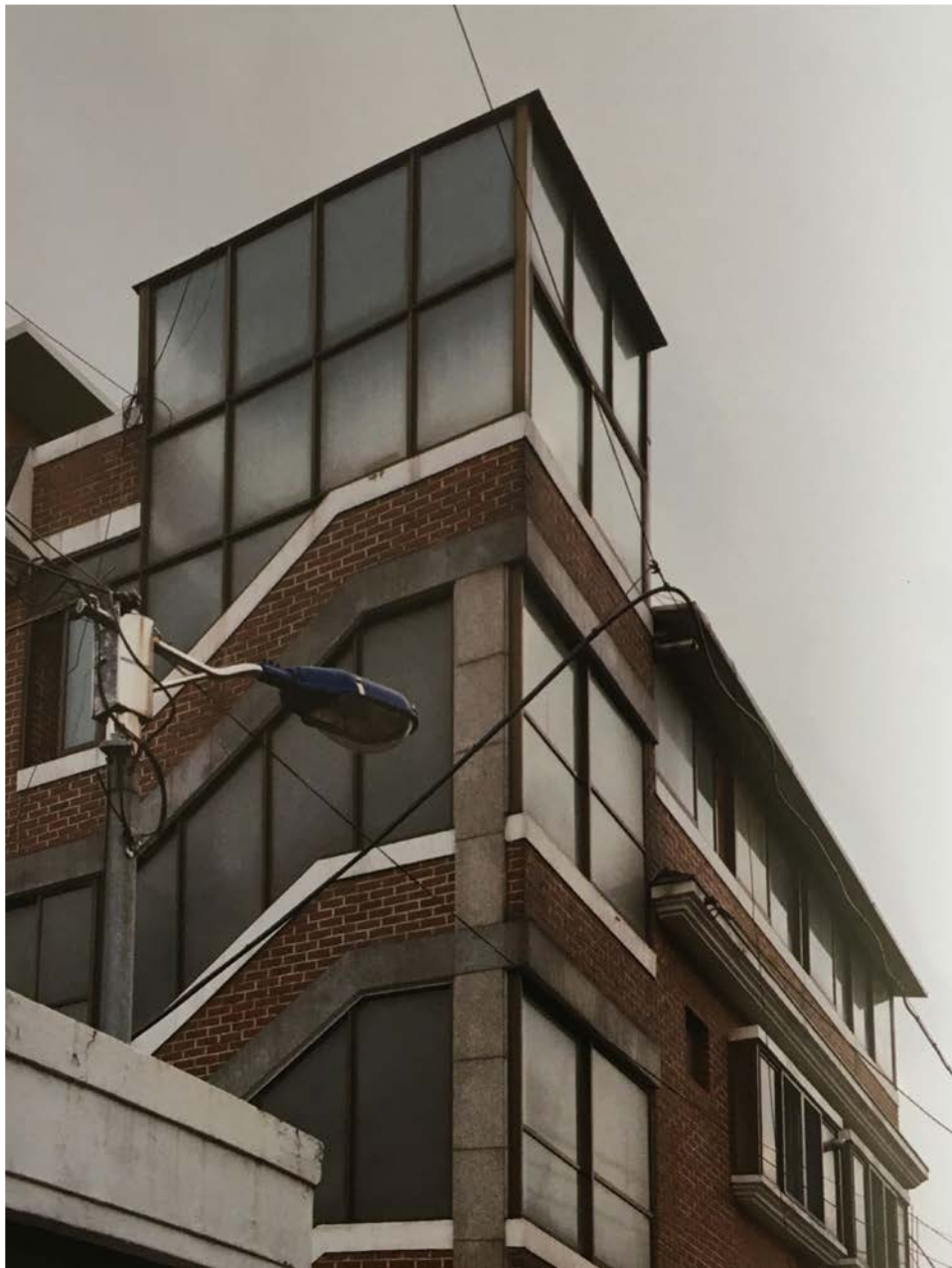
Sung Hong Kim  
The FAR Game, Korean Pavillion, Venice Biennale, 2016.



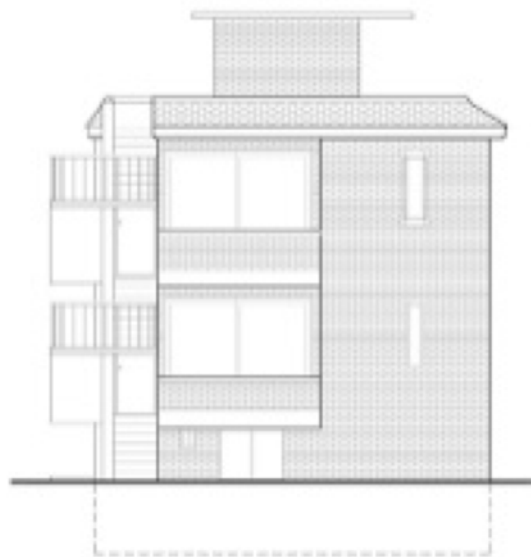
Sung Hong Kim  
The FAR Game, Korean Pavillion, Venice Biennale, 2016.



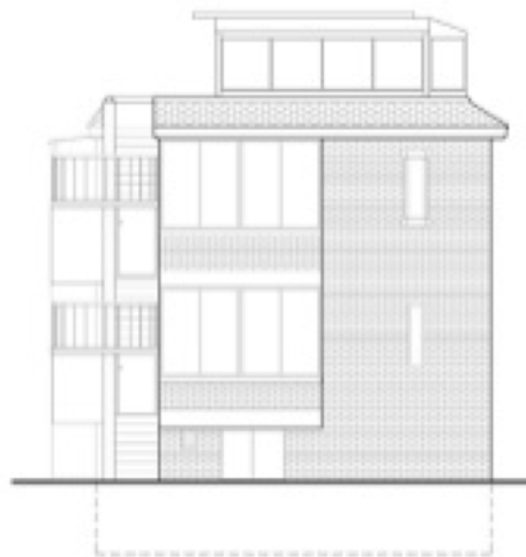
Seung Woo Back  
Multi-family house *Dasedae jutaek*, 4327 Houses, 2014



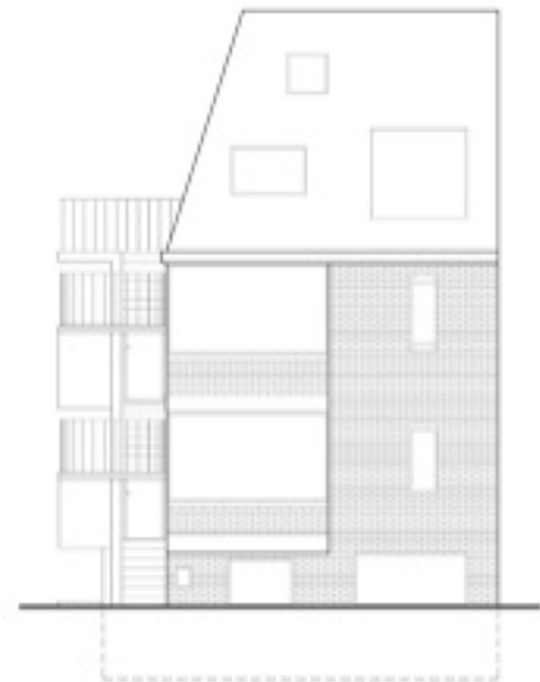
Seung Woo Back  
Multi-family house *Dasedae jutaek*, 4327 Houses, 2014



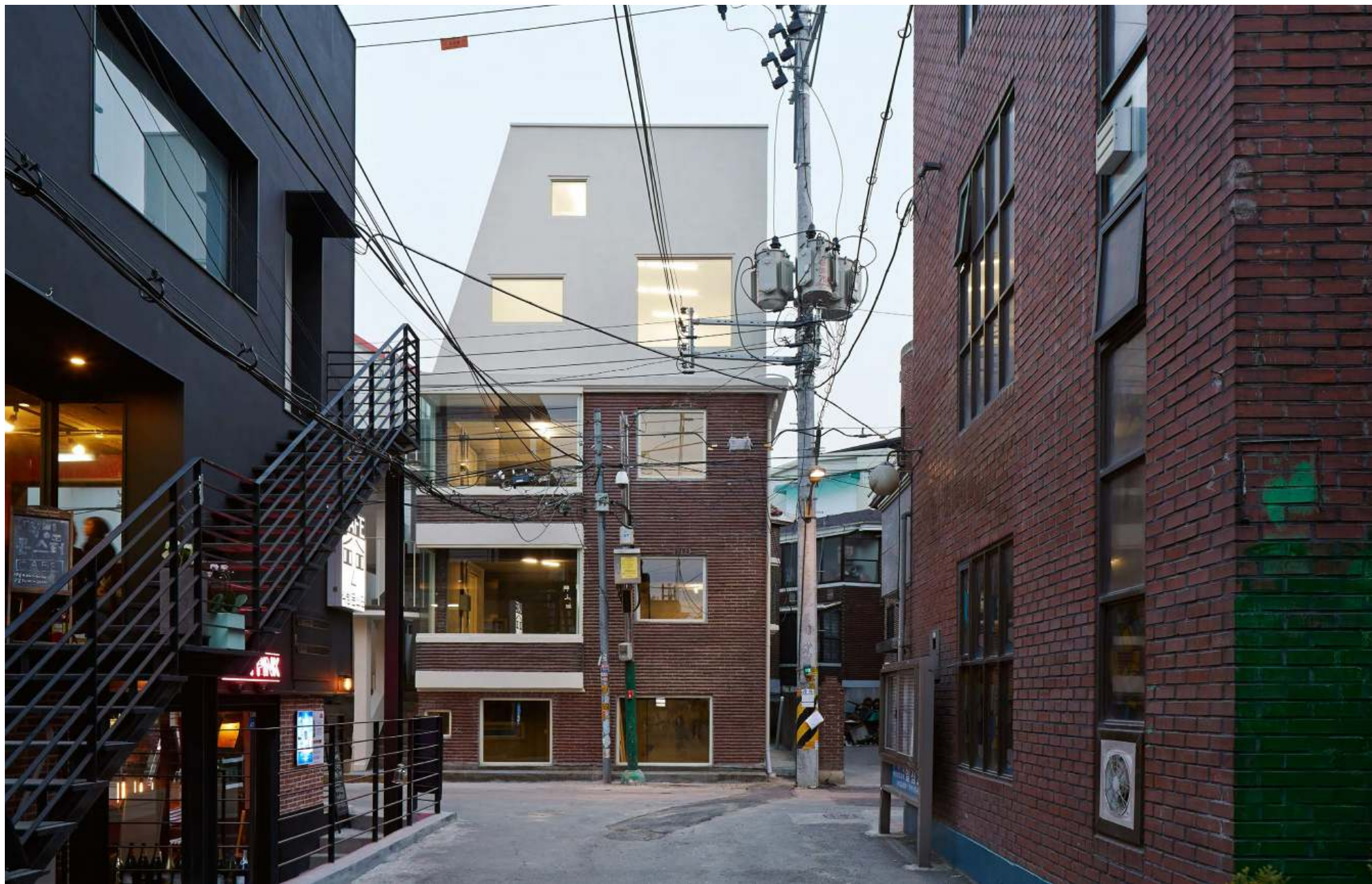
ORIGINAL FORM



ILLEGAL EXTENSION BY USER



LEGALIZATION AND REMODELING



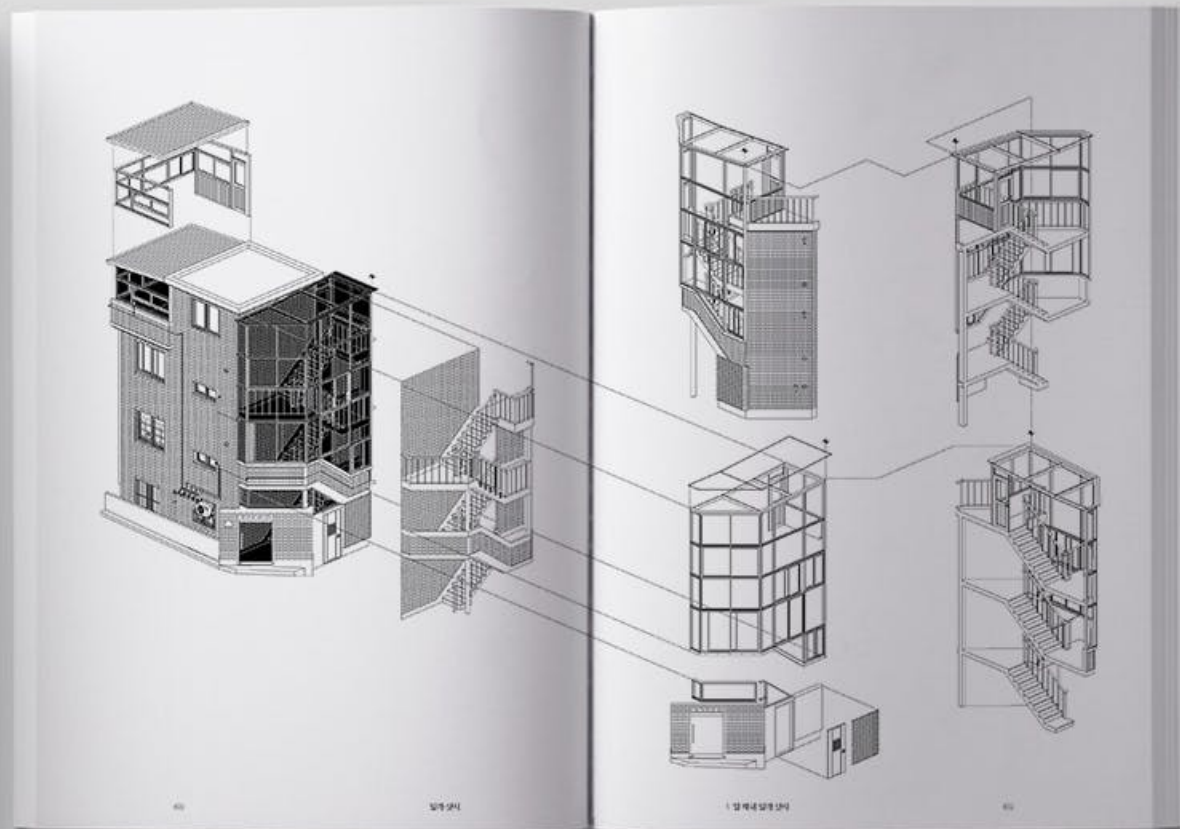
Isak Chung, co.lab  
Yeonnam Red Brick House, Yeonnam dong, Mapo-gu, 2016



Sae Min Oh  
Interrobang, Cheongdam-dong, Gangnam-gu, 2015



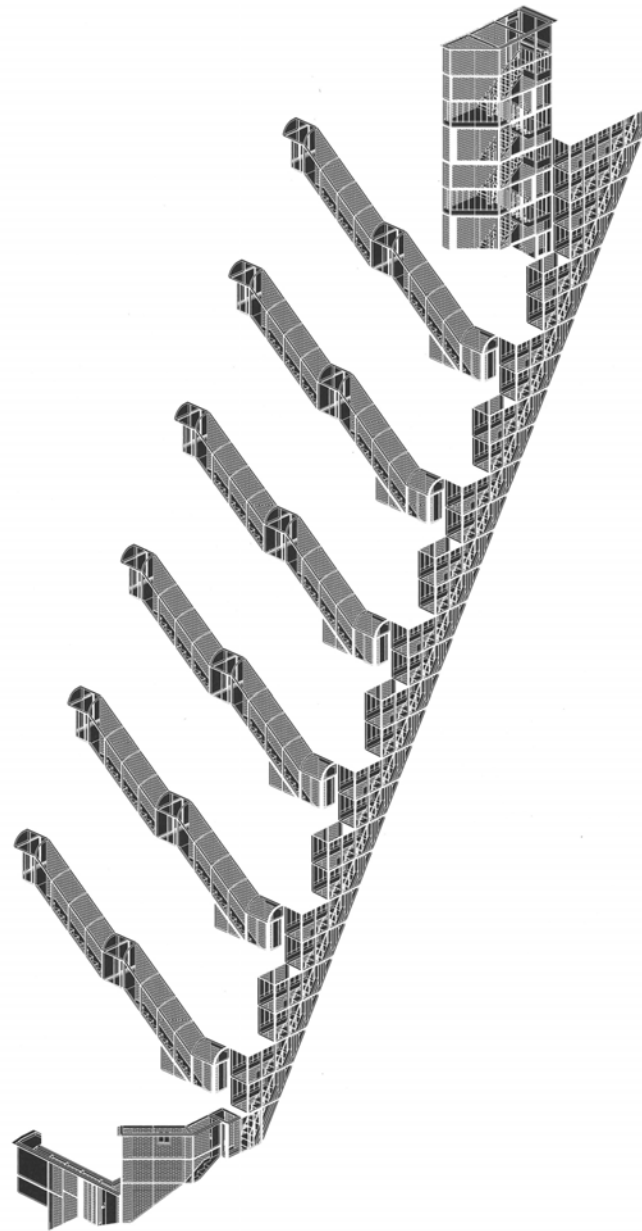
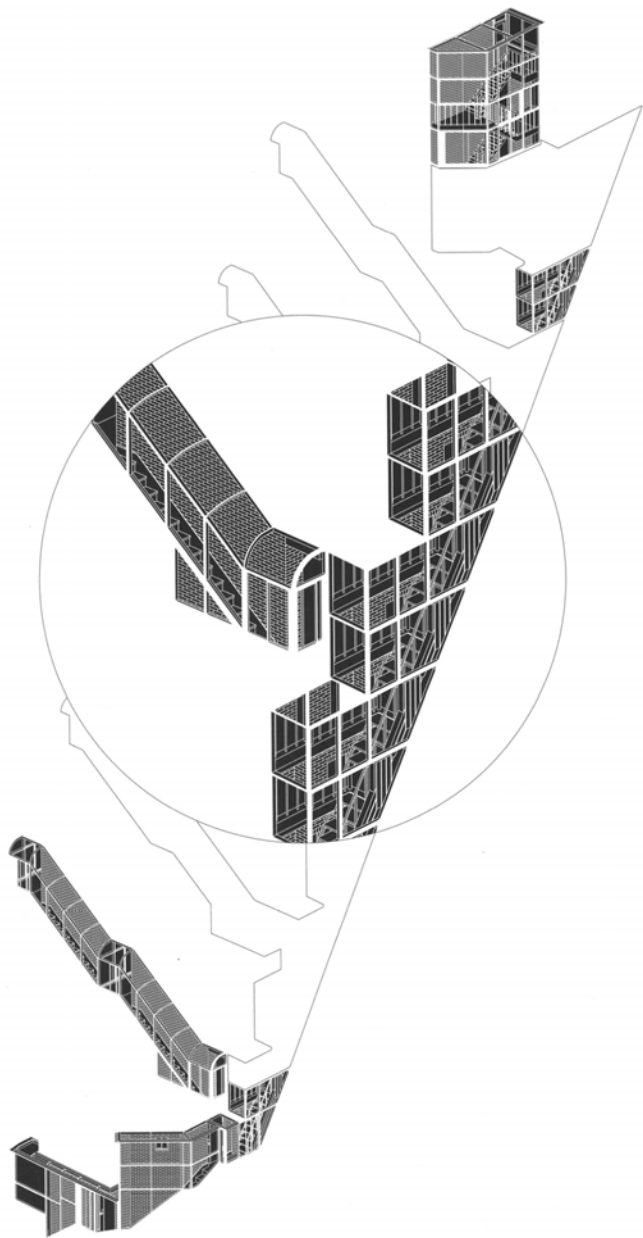
SsD  
Songpa Micro Housing, Songpa-dong, Songpa-gu, 2015



Taeheon Kwon  
Villa Chassis, 2020



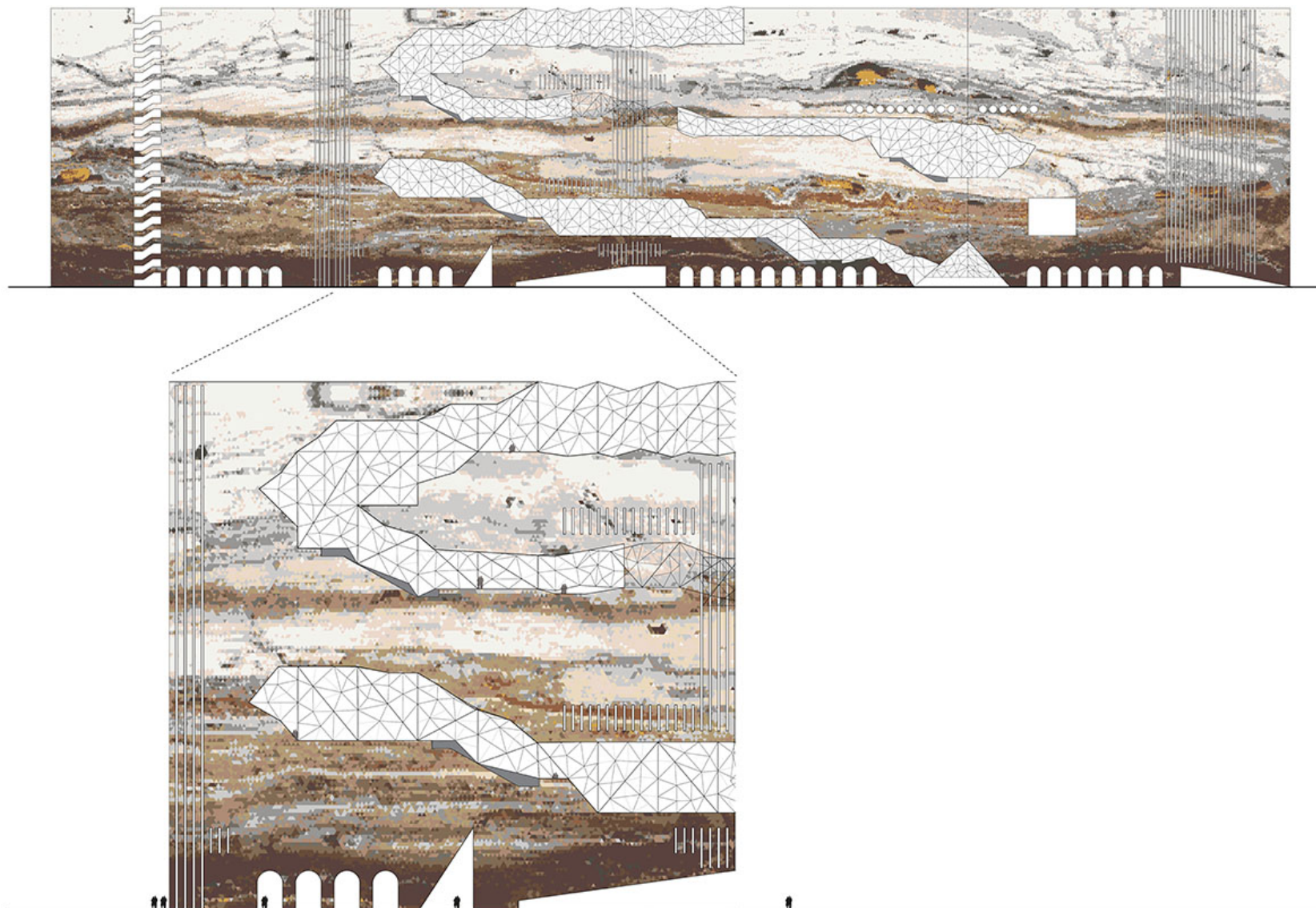
Taehoon Kwon  
Villa #9, Mallijae-ro, Villa Chassis.



Taecheon Kwon  
By-product, Villa Chassis.



OMA  
Galleria, Gwanggyo, 2020



OMA  
Galleria, Gwanggyo, 2020



MVRDV  
Seoullo 7017 Skygarden, Seoul, 2017



MVRDV  
Seoulo 7017 Skygarden, Seoul, 2017



Preston Scott Cohen  
Kandor Architecture, 2017

## Important Dates

Fall, 2021

### *Studio Introduction*

Sep 21

### *Phase I: Learning Seoulness + GAN*

Sep 22-Oct 18

### *Phase II: Coding Urban Block*

Oct 19-Nov 15

### *Phase III: Before and After*

Nov 16-Dec 6

### *Phase IV: Representation*

Dec 7-20

### *Final Review*

Dec 21

### *Studio trip to Seoul*

Feb or Apr

The Studio theme spans the entire academic year of 2021/22. Accordingly, there will be continuity between the fall and spring semester, but each semester can be followed independently. Prior programming experience is not required.

Dates are subject to change.

## Team

Media x Design Laboratory

Prof. Jeffrey Huang

Christina Doumptioti, Christoph Holz,

Mikhael Johanes, Frederick Kim,

Gianna Ledermann, Alex Sadeghi

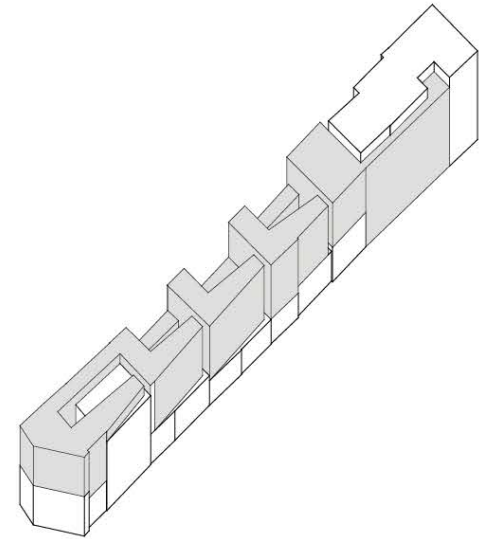
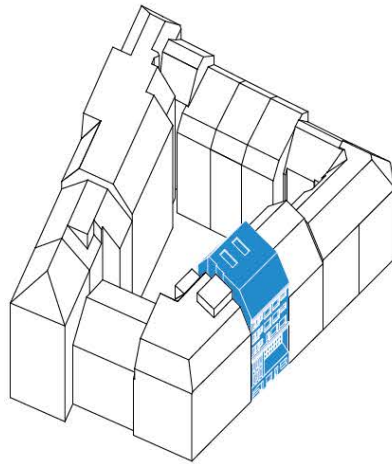
## Partner

Hanyang University

Prof. Jae Kim

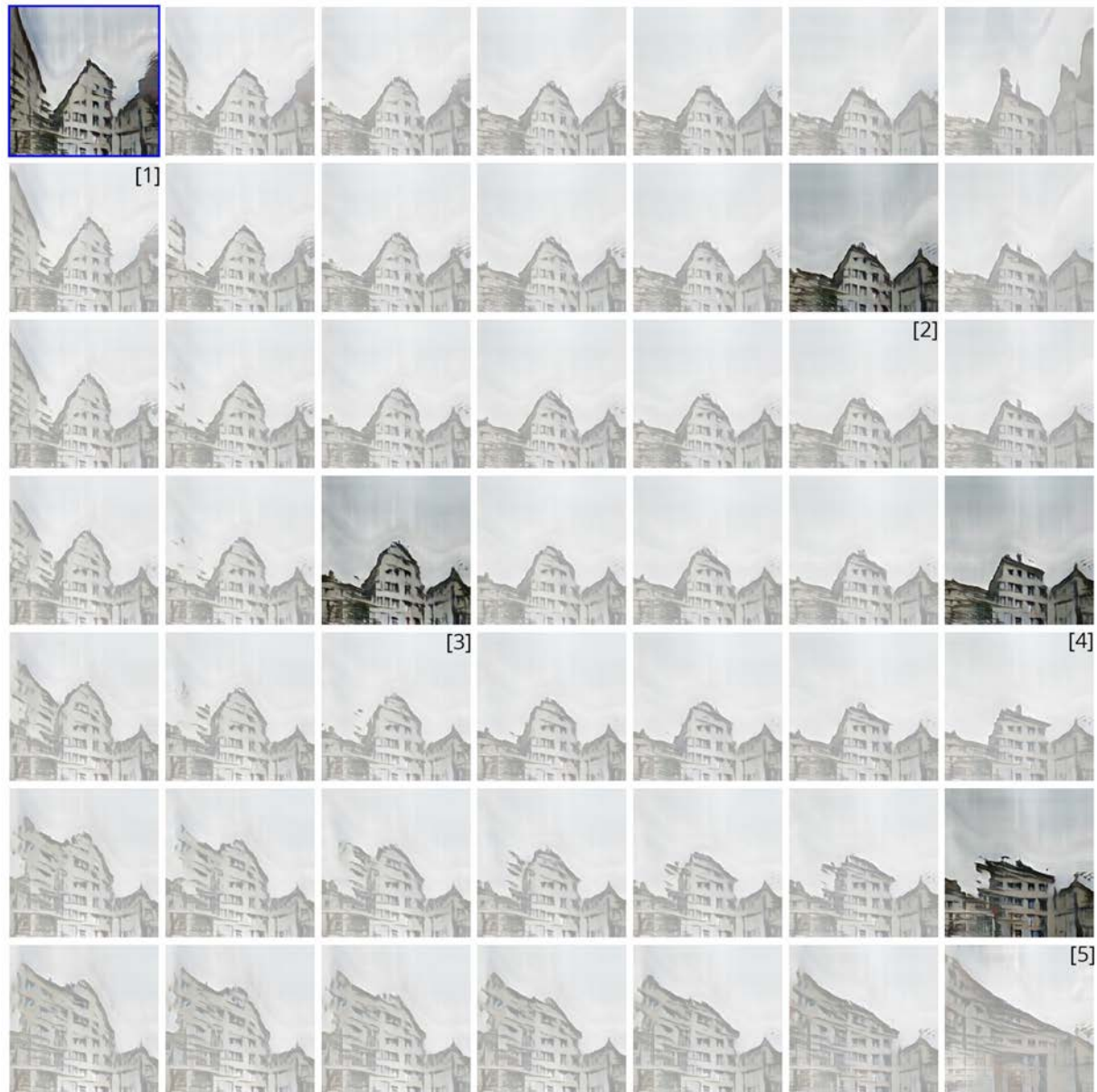
Prof. Minjung Maing

SPOA

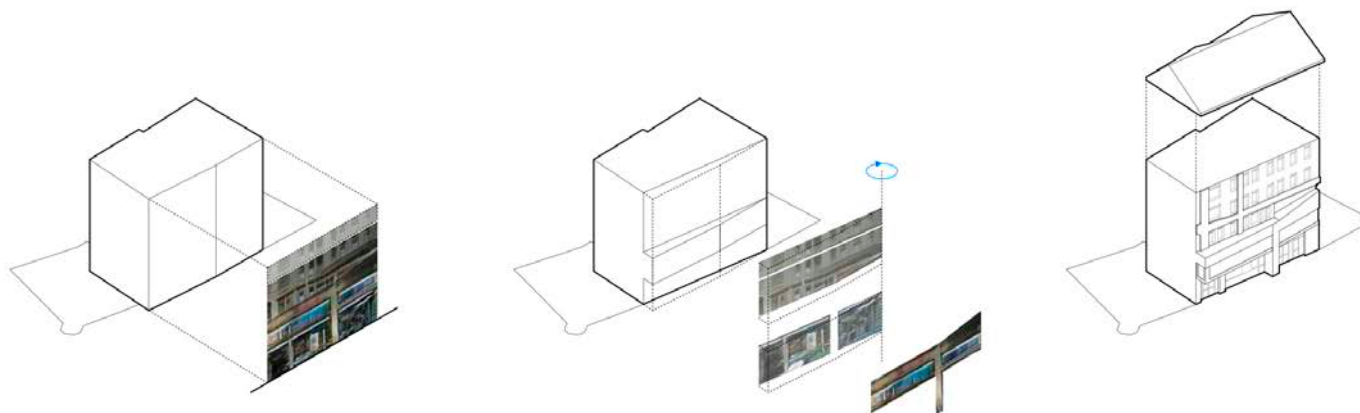


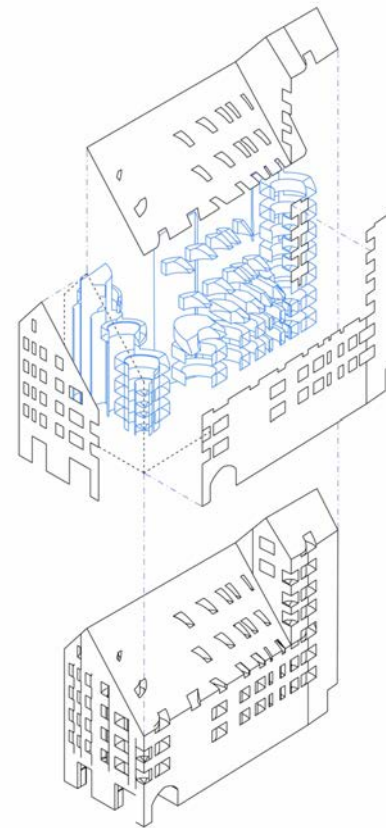
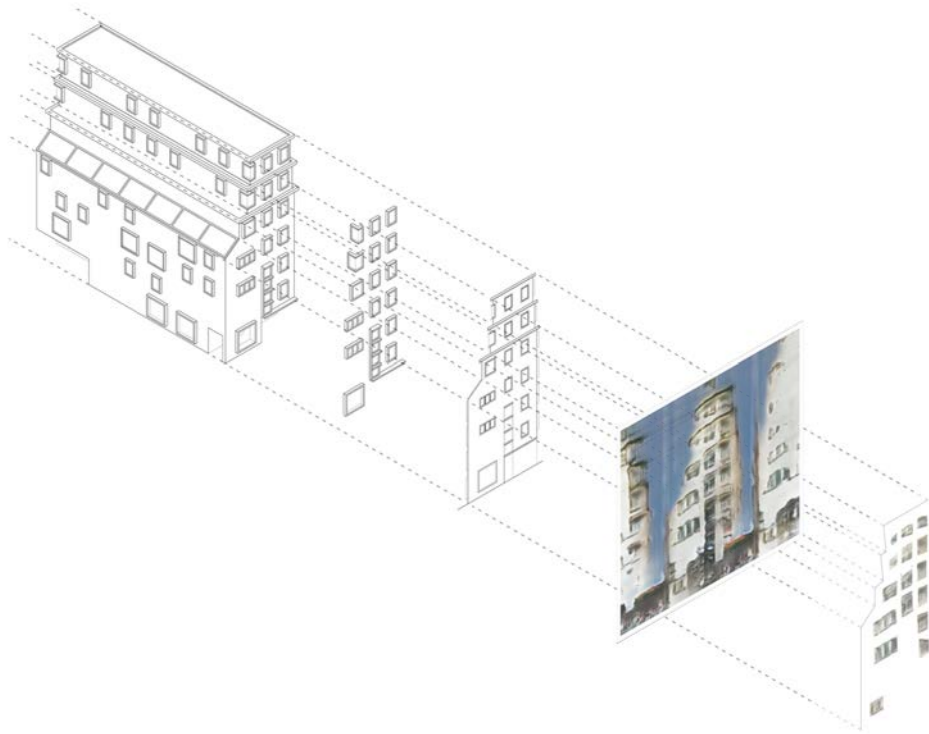






MxD Lab, Atelier Huang, EPFL  
 Latent Space: the Becoming of Architecture, Deep City Zürich, 2020.





MxD Lab, Atelier Huang, EPFL  
Entangled Parameters, Deep City Zürich, 2020.

