

Live.game

2016-Present

Live.game is a platform to collate conversations about contemporary living, to broaden its audience and to promote architectural solutions and social enterprise to address the opportunities and problems therein. It attempts to *construct an agency* for cumulative, collaborative and research-led architecture. The effort was borne, gestated and given flesh by the work of graduate researchers of Nahmad-Bhooshan Studio at the Architectural Association Design Research Laboratory (AADRL). It is curated and guided by Alicia Nahmad and Shajay Bhooshan. This short exhibition provides a peek into the avenues and issues being considered.

Live.game is most digital

Live.game is pro human
Live.game is most communal

Live.game is pro data
Live.game is most analytic

is pro robots
is most intelligent

is pro market
is most user-choice

is pro solutions
is most-equipped

is pro-history
is most cumulative

is pro collaboration
is most disruptive

The four year research-project is motivated by the following observations

- Digital design and fabrication technologies is maturing with significant progress being made in computational architectural design¹, computational geometry², structural design³, robotic manufacture⁴ etc.
- Social, economic and political conditions in large, high-productivity cities such as Tokyo, London, New York etc. have evolved⁵⁻⁷. Thus, the market conditions are now suitable⁸ to engender a demand for mass customised housing^{9,10}

The two observations together yield the premise of the research: developing real-estate solutions for contemporary living in high-productivity cities are a prime avenue for application of the maturing domain of digital architecture and fabrication. A roadmap of the effort so far is summarised below.

Revising the *Maison Domino*: a new tectonism (2016-17)

2015 marked the centennial year of the invention of arguably the most influential architectural *diagram* – Le Corbusier's *Maison domino*. One of its principal contributions was the folding of technological sanguinity and attendant world of opportunities of the time within a discourse of architecture. In the first year of research, we recognised the opportunity to revise the diagram - to fold in new and rapidly maturing technologies of digital design and fabrication and to seek a new *tectonism* providing a wider, performance-based vocabulary to address the complexities of the 21st century.

A tinder for housing and subscription living (2017-18)

In 2002, the seminal AADRL(2002) project of RAMTV¹¹ and the foretelling article of Patrik Schumacher¹², together outlined the need and detailed the mechanisms of achieving a community focussed architecture – recasting social condenser ideas from the 1930s in the new century. In the second year, we set out to renew and upgrade the conversation with new found capacities and technologies above. The resulting proposals ranged from co-housing for long-term communities and co-living solutions for short-term communities.

Negotiated solutions and game-mechanisms (2018-19)

In the third year, we extended the enquiry to the socio-economic dynamics that might be enabled and *played* within a housing architecture: questioning by design, if central planning and policy can be minimised in favour of enterprise and dynamic social negotiation, and thus evolving a robust, socially and economically successful architecture. Technologically, we began to adapt the game-theoretic foundations of user-choice and negotiations, along with gaming and *digital-twin* technologies.

Acquire, design, deliver (ADD)– integrated solutions for urban densification (2019-2020)

Significant debate and resource – political, economic and technological – is devoted to the twin issues of affordable and mass, high volume housing. Invariably this entails new, sprawl developments, satellite cities, large corporate stake-holders etc. Alternatively, or complementarily, there is the necessary, sustainable and vibrant model of urban densification with digitally empowered, small and medium entrepreneurs – consumers, architects, developers, contractors, tradespeople etc. This involves far greater variables and thus a tight fit for data-driven and game technologies to **acquire** physical and social information of sites and consumer communities, digital technologies to **design** for the briefs so acquired and robotic manufacturing to efficiently **deliver** the design solutions. The effort has to be multi-disciplinary and collaborative.

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Image Name: *0_ANV_SB.jpg*

Studio Nahmad-Bhooshan AADRL, Revising the Maison Domino, 2020

A new tectonism for domestic architecture



Image Name: *1_ANV_SB.jpg*

Studio Nahmad-Bhooshan AADRL, La Masonry Domino, 2019

A new tectonism for domestic architecture. Layer-based 3D printing of concrete and other similar materials lends itself well to renewing a formal language of masonry based domestic architecture. Shown here is an attempt to use the formal language to house live-work, co-housing communities.

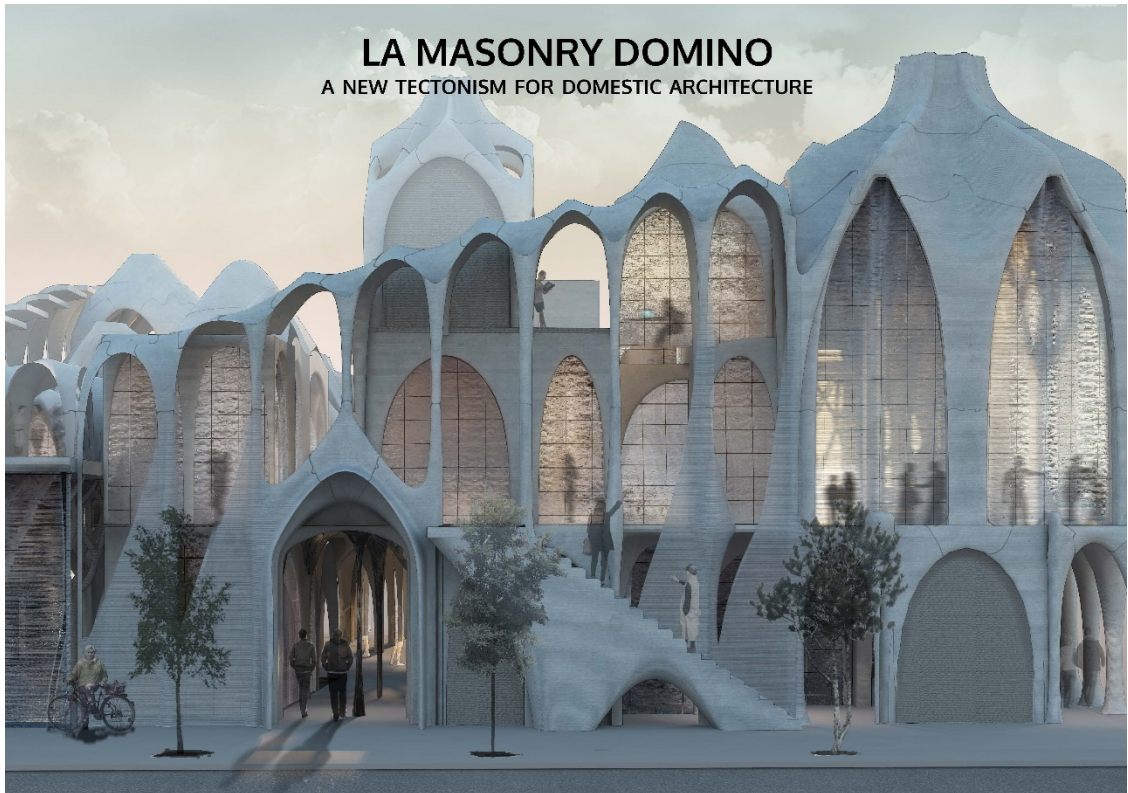


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Studio Nahmad-Bhooshan AADRL, La Masonry Domino, 2019

A new tectonism for domestic architecture

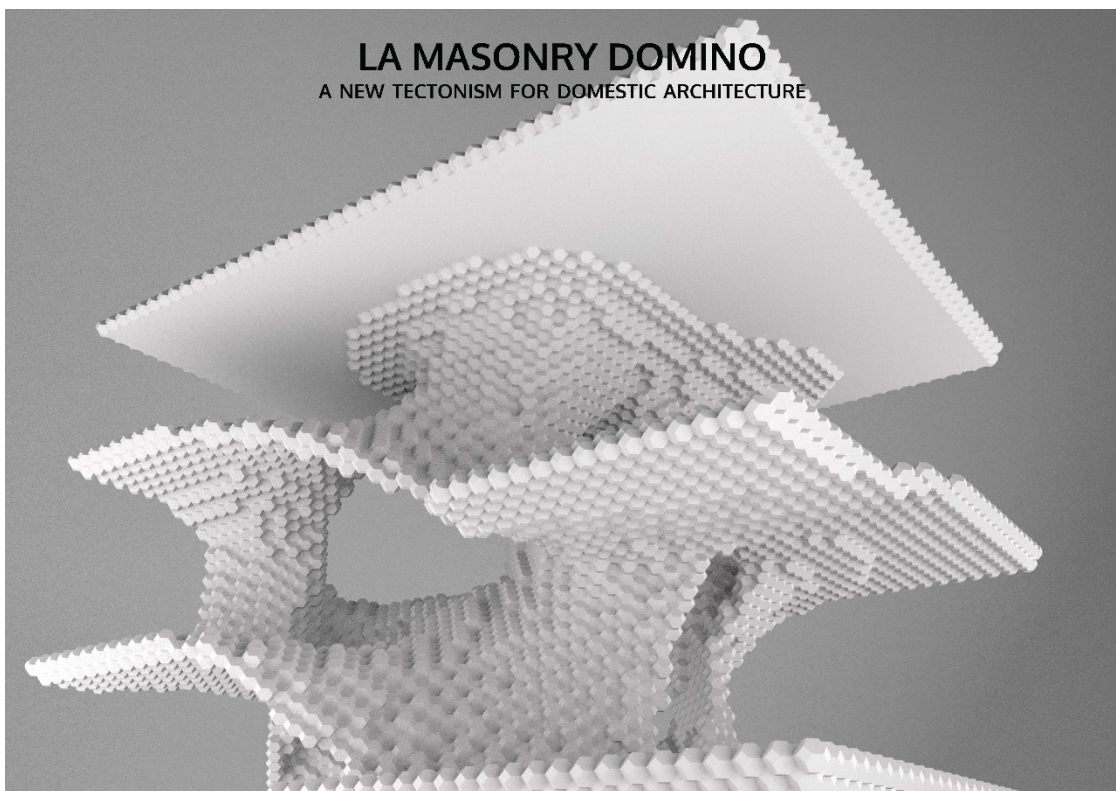


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Studio Nahmad-Bhooshan AADRL, La Masonry Domino, 2019

A new tectonism for domestic architecture.



Image Name: 4_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Stackitect, 2019

Physics of Jenga, pre-fab and infill. The computational framework consisting of 'rational' agents, choices for actions within an environment and a manufacturing technology can support multiple and entirely varied instantiations.

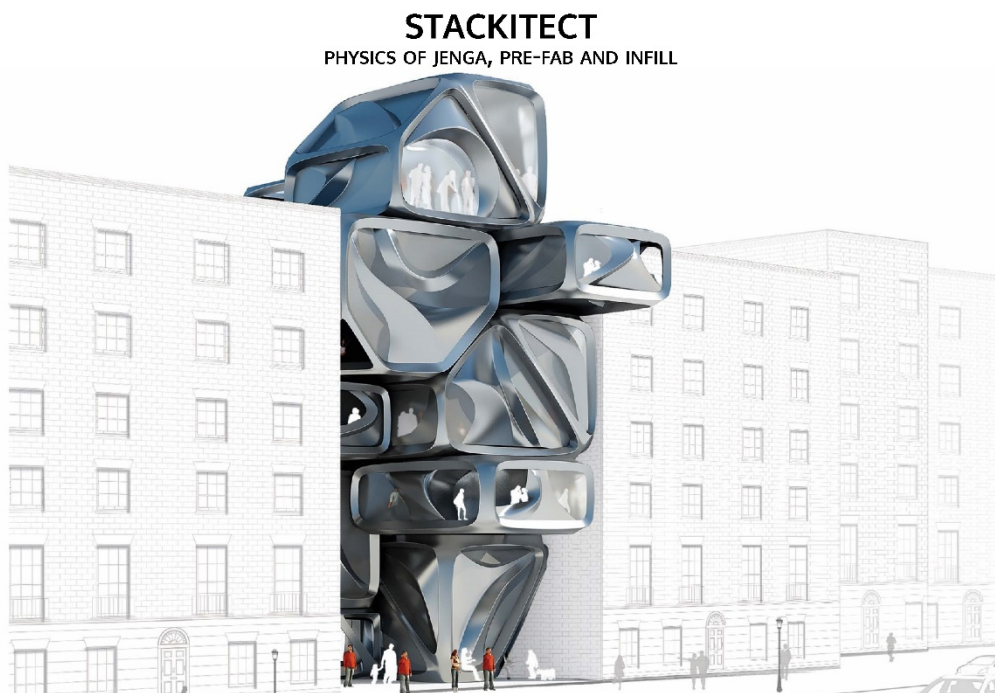


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Studio Nahmad-Bhooshan AADRL, A tinder for housing, 2019

AI for spatial organising communities. The game framework could be customised to multiple types of communities. Shown here is an attempt to use the framework to resuscitate live-work housing types, longer-term tenancies and co-housing communities in London. In this case the arrangement of houses and work units relate to the strong communal ties and synergies between professional trades.

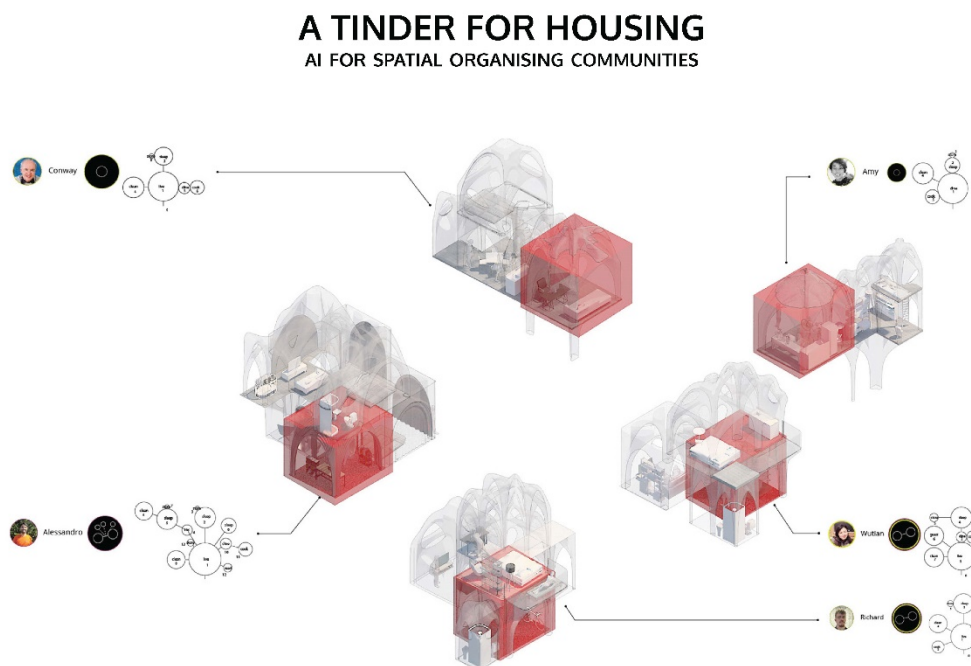


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Studio Nahmad-Bhooshan AADRL, Own nothing access everything, 2019

Subscription living for short-term knowledge communities. The game framework could be customised to multiple types of communities. Shown here is an attempt to use the framework to organise subscription service communities, who would like to “own nothing and access everything”. A critical aspect of such communities are chance encounters and interactions between professionally synergetic users. The attempt was to measure and improve chance encounters based on probable daily schedules of users.

OWN NOTHING, ACCESS EVERYTHING

SUBSCRIPTION LIVING FOR SHORT-TERM, KNOWLEDGE COMMUNITIES

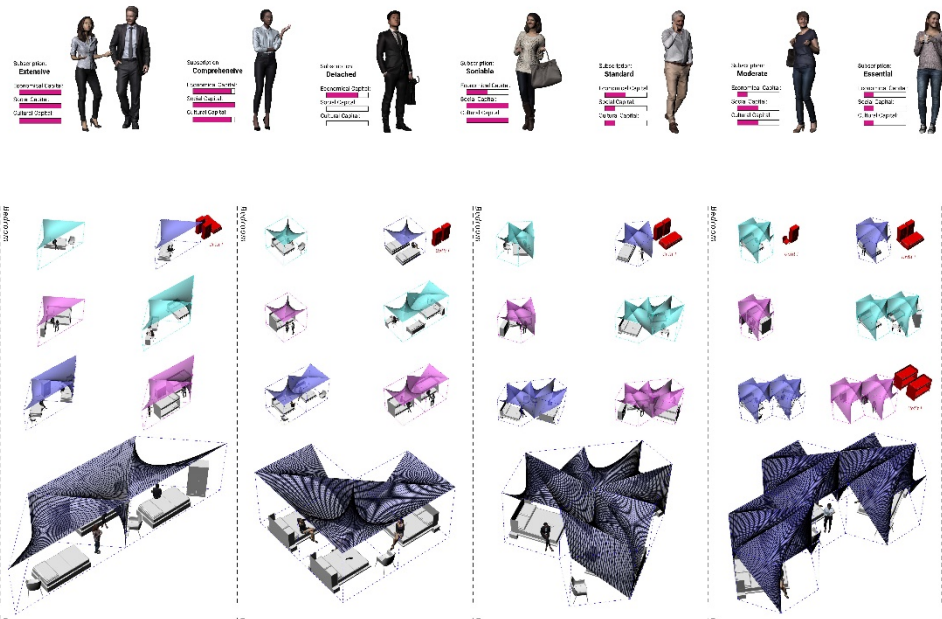


Image Name: 7_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRl, Own Nothing Access Everything, 2019

Taking the chance out of change meetings. The game framework could be customised to multiple types of communities. Shown here is an attempt to use the framework to organise subscription service communities, who would like to “own nothing and access everything”. A critical aspect of such communities are chance encounters and interactions between professionally synergetic users. The attempt was to measure and improve chance encounters based on probable daily schedules of users.

OWN NOTHING, ACCESS EVERYTHING

TAKING THE CHANCE OUT OF CHANCE MEETINGS

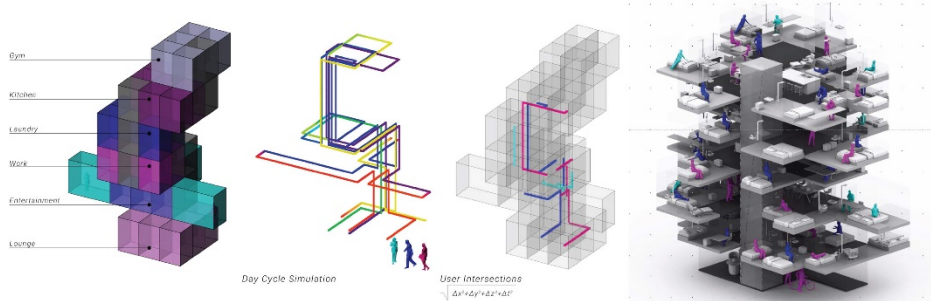


Image Name: 8_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Games To Play, 2019

The rapidly evolving game technologies allow for unprecedented levels of realism that can be incorporated into game-play, including physics. Shown here is a real-time rendered screenshot from a game.



Image Name: 9_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Acquire-Design-Deliver, 2019

The community building game begins by constructing player profiles and inputting spatial and social interaction preferences. Subsequently, additional choices can be made whilst exploring the spatial choices.



Image Name: *10_ANV_SB.jpg*

Studio Nahmad-Bhooshan AADRL, Acquire-Design-Deliver, 2019

Computer generated view of an outcome from a particular instance of game-play, showing the variety of unit sizes and formal expressions which nonetheless exhibit efficiencies in manufacturing due to digitised manufacture and assembly



Image Name: 11_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Player profiles and splash page of game, 2019

The community building game begins by constructing player profiles and inputting spatial and social interaction preferences. Subsequently, additional choices can be made whilst exploring the spatial choices.

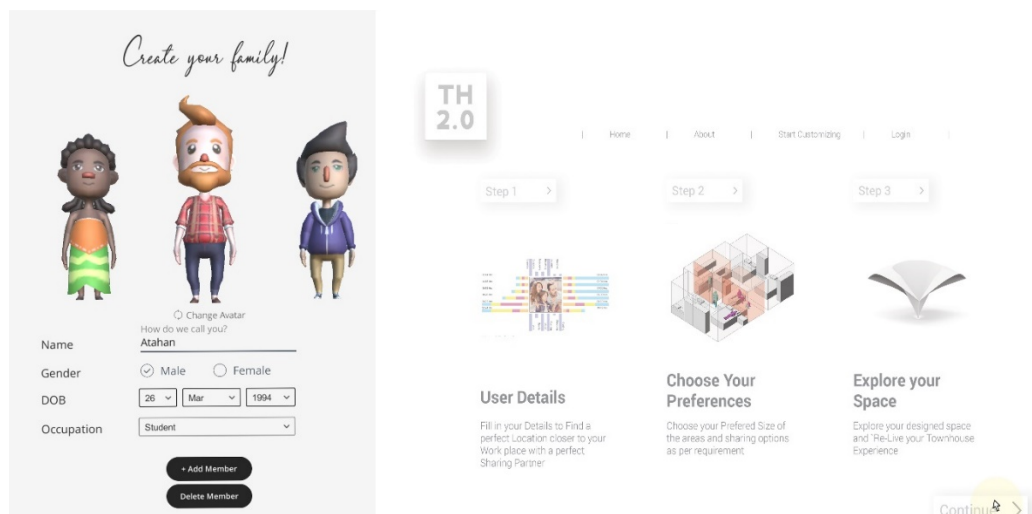


Image Name: 12_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Compatible user types and options related to spatial layout, 2019

For matching sets of compatible families and other user-types, several arrangements of shared common spaces and private spaces are possible, based on compatibility features and user

preferences. Here two options of a central shared space and a dis-jointed shared space are shown.



Image Name: 13_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, View of game-state with multiple players, 2019

A plausible state of the game after multiple players have made both physically related choices and social interaction choices such as sharing some spaces, exchanging others etc.

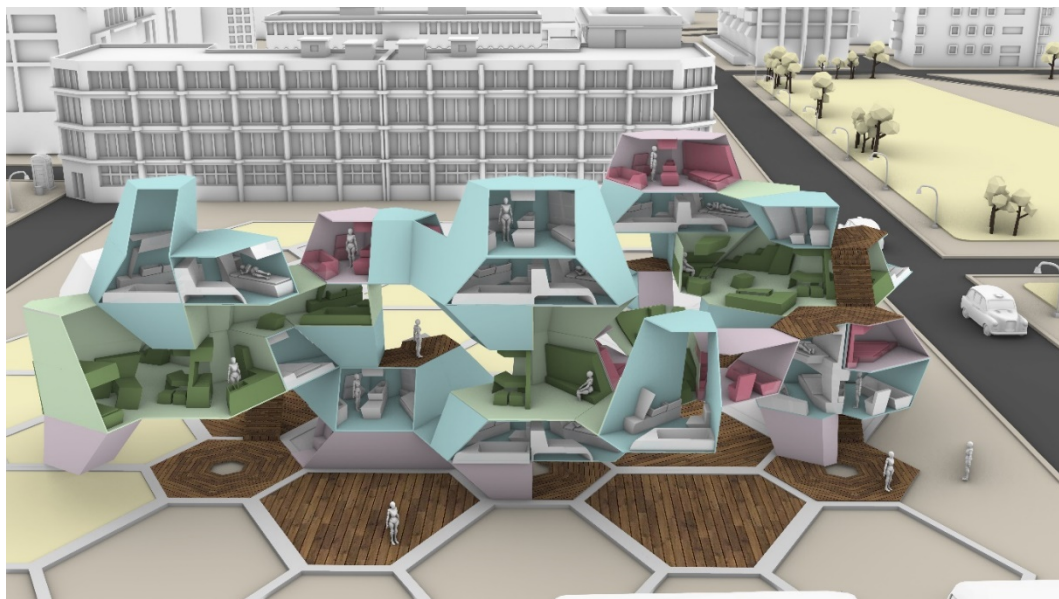


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Studio Nahmad-Bhooshan AADRL, Augmented Reality feature, 2019

Players have choice of choosing a location for their game-play, as also the possibility of playing the game in Augmented Reality.



Image Name: 15_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Sample from vast combinatorial space of options, 2019

Example of the multitude of plausible combinatorial options that can emerge from gameplay, each of which is viable to be manufactured using digital fabrication technologies.

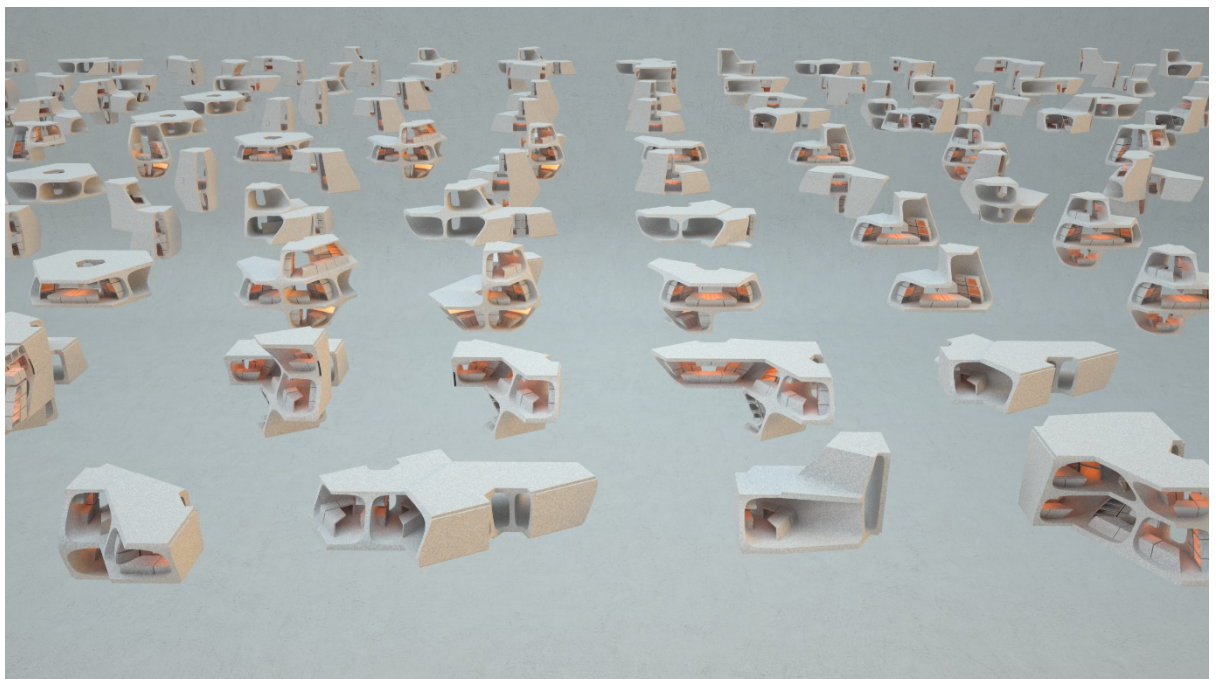


Image Name: 16_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Sample from potentially vast combinatorial space of options, 2019

A 'cost' can be attribute to each of the various game transactions between human players and non-human players such as the environment and the collective community. The image shows the emergence of network effects – as the game progress peer-to-peer transactions increase (shown in color) and the collective community costs or investments decrease (shown in black)

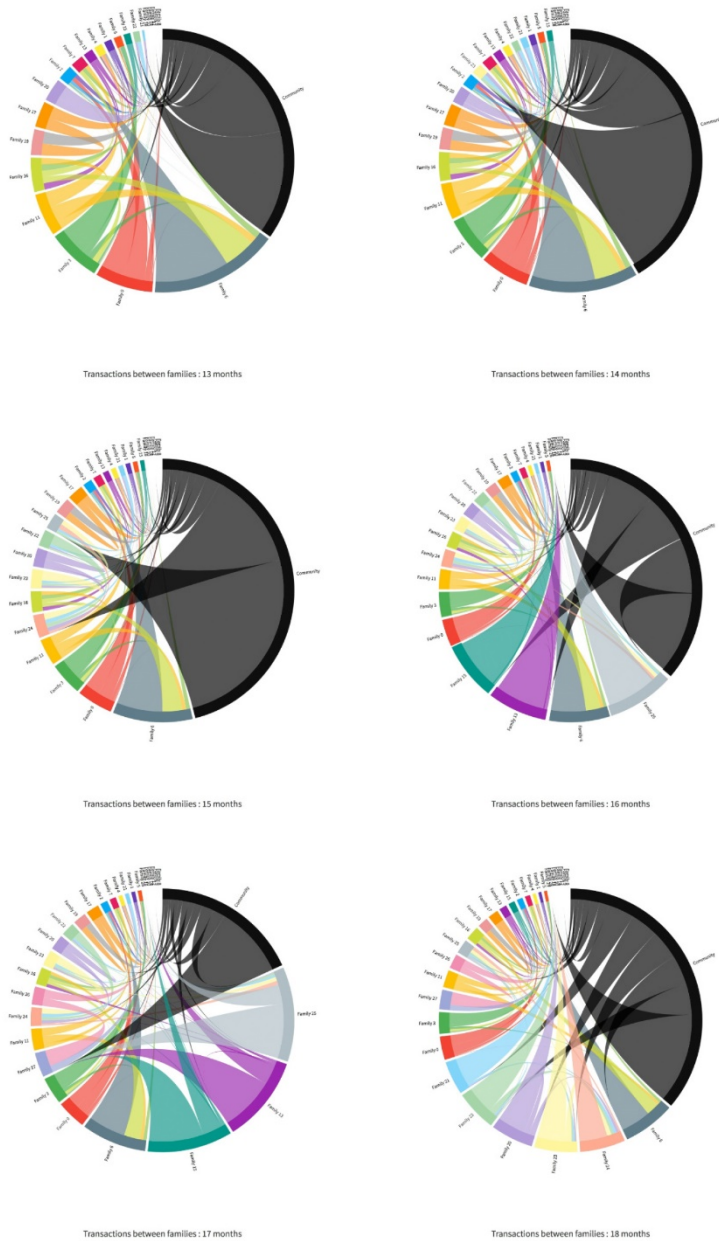


Image Name: 17_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Instantiation of game-framework, 2019

The computational framework consisting of 'rational' agents, choices for actions within an environment and a manufacturing technology can support multiple and entirely varied instantiations. Shown here is the framework applied to a site in a leafy area in South London and proposed manufacturing method shown is large format 3D printing with polymers.



Image Name: 18_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Digital fabrication technologies and formal languages, 2019

Each digital fabrication technology offers its own formal language – a feasible set of curvatures, joinery details etc. Shown here is the formal language of ruled surfaces supported by Robotically Hot-wire cut formworks that can be hardened or cast against. As imposed by the cutting procedure using a hot-wire, this language consists entirely of hyperbolic, conic and cylindrical curvatures



Image Name: 19_ANV_SB.jpg

Studio Nahmad-Bhooshan AADRL, Large scale prototype of a game-outcome, 2019

One of the outcomes from a particular instance of game-play was physically realised using the commercialised technology of Robotic Hot Wire cutting offered by Odico Robotic Formworks(r). This technology is now available as a 'factory-in-a-box' that can be shipped to various locations. The foam being light-weight also provides logistical advantages, apart from insulation properties.

