

# Documentation of Contributions



# 2019

Digital Landscape Architecture Conference

May 22-25 '2019

Dessau

## 3D Landscape Vision for the future Student poster competition

Your passion is fueled by experimental communication of your work, while exploring the boundaries of digital techniques in landscape architecture! Then My 3D Landscape / **Visions for the future student poster competition** provides you with the opportunity you seek!

As a part of the DLA conference 2019, we are inviting recent graduates and landscape architecture students to showcase their work. Submit your poster with your best 3D (or 4D) landscape architecture work in A1 size (portrait) and get a chance to win cash awards.

The evaluation will be done by the conference participants, and the criteria are

- Innovation and creativity of project described
- Complexity of project
- Layout and level of communication of poster

**Deadline for online submission: 1 May, 2019**

**For details and poster submission: [DLA-conference.com](http://DLA-conference.com)**

Participate in the competition and have the opportunity to listen to and meet leading speakers from around the world:

Dr. Jorg Rekitke (Visiting professor Leibniz University, Hannover)  
Prof. Dr. Carl Steinitz (Casa/ UCL and Harvard University)

The DLA poster competition offers the following awards:

1st prize: 400 € (\*)

2nd prize: 300 € (\*)

3rd prize: 250 € (\*)

(\*) travel grant for Landscape Architecture students currently outside of Saxony-anhalt

**4th to 10th prize: Non cash prize  
All posters will be exhibited and published.**

**Criteria-**

The evaluation will be done online for the cash prizes by 5th of May.

The evaluation of all other posters will be done by conference participants at the poster exhibition.

Supported by



**Hochschule Anhalt**  
Anhalt University of Applied Sciences

DLA | Digital Landscape Architecture

[www.dla-conference.com](http://www.dla-conference.com)

# Documentation of all posters submitted to the DLA 2019 Student Poster Competition

- #01**      **LiLo - Linger & Load**  
Sven-Marvin Sommer  
*Hochschule Osnabrück, Germany*
- #03**      **Sustainable urban development by expanding the green roofs to improve the urban environment quality**  
**Case study: Karaj city in Iran**  
Maral Abolghasemi Moghaddam, Sascha Henninger  
*Technische Universität Kaiserslautern, Germany*
- #04**      **Quarry Texture**  
Lucinda Steurer  
*SUNY ESF, United States*
- #05**      **Martian Scape\_Cosmic Landscape and Astronomical Observatory**  
Maheshika Ekanayake  
*University of Moratuwa, Sri Lanka*
- #06**      **Concept of 5th Ecology**  
Ting LIU  
*Hong Kong*
- #07**      **Healing Fractured Landscape\_Research and Eco awareness Landscape**  
Ishika Aroshana Nanayakkara Godakandage  
*University of Moratuwa, Sri Lanka*
- #08**      **BTC: City of Opportunities**  
Filipa Valenčić, Liza Koštunik, Senta Badovinac Bajuk et al.  
*University of Ljubljana - Biotechnical faculty, Croatia*
- #10**      **Landscape planning for flood mitigation. A case study of Ci Kapundung upper water catchment area, Bandung Basin, Indonesia**  
Medria Shekar Rani  
*The University of Sheffield, United Kingdom*
- #11**      **Urban Agritecture**  
Petra Pečan, Barbara Kostanjšek, Tine Horvat, Darja Matjašec, Nejc Florjanc, Tomaž Pipan  
*Biotechnical faculty, Department of Landscape Architecture, Slovenia*
- #12**      **Augmented reality 2.0: A novel tool for participatory landscape architecture planning**  
Seyed Taher Khalilnezhad  
*Technische Universität Kaiserslautern, Germany*
- #13**      **Intruder's Flow**  
Sena Özant, Nevruz Kurt, Amine Yazar, Ecem Torun  
*Istanbul Technical University, Turkey*
- #14**      **How much landscape is there in the urban planning exhibition hall**  
Xi Lu, Eckart Lange  
*The University of Sheffield, United Kingdom*
- #15**      **Sensor Reed**  
Hadi El-Shayeb, Peggy Wong, Lexi Kalman  
*University of Toronto, Canada*

- #16**      **AR Technologies X Disaster Preparedness**  
Kenya Endo, Chihiro Okajima  
*Free-lance, Japan*
- #17**      **Training concept**  
Claudia Fasold, Ilona Brückner, Uta Stewering  
*Hochschule Osnabrück, Germany*
- #18**      **Opposite Encountre**  
Aynur Gizem yeşilyurt  
*Turkey*
- #19**      **Anforderungen an den BIM-Referenzprozess für Freianlagen**  
Ilona Brückner, Maike Wozniak, Martin Thieme-Hack  
*Hochschule Osnabrück, Germany*
- #20**      **Degradation of pasture lands: A threat to food security+ Sustainable Management of natural resources**  
Asif Ali Riazudeen  
*Hochschule Anhalt, Germany*
- #21**      **Layered Interactive VR Garden - Poster competition**  
Zaixian Piao  
*Seoul National University, South Korea*
- #22**      **A Mixed-Methods Approach to Evaluating Participant Experience in Real and Virtual Environments**  
Evan Gill, Mark Lindquist  
*University of Michigan, United States*
- #23**      **Analog ve Dijital Peyzaj Mimarlığı**  
Elif Oktay, Sevgi Görmüş  
*Turkey*
- #24**      **Lead to Green Lane**  
Wing Yan Ho  
*Hochschule Anhalt, Germany*

*The posters submitted only online and are not part of the exhibition and competition:*

- No 86**      **Landscape as a social change generating tool. Imagining new scenarios in difficult contexts. Healing Garden in Irak**  
Juanita Leal Ochoa  
*Colombia*
- No 95**      **The Hydrophone**  
Aaron Hernandez, Devin Tepleski  
*University of Toronto, Canada*
- No 109**      **“Strangers on a train” - Revalorization of the Post-Industrial Area**  
Joanna Chylak, Daria Banach, Anastasiya Prydachyna  
*Politechnika Krakowska im. Tadeusza Kościuszki, Poland*
- No 114**      **Marstopia (not in the Exhibition)**  
Chuxuan Zhang  
*China*

## DLA Poster Submissions for Student Competition

(PLEASE HAND IN YOUR VOTE BY FRIDAY 14.30)

### RESULT of first Online-Evaluation for receiving the travel grand

26 poster submissions from more than 15 universities around the world.  
Winners that receive one of the three travel grants.

As an interim result with an average of 3-4 reviewers vote on each paper

poster entry # 92 has 5,67 points

poster entry # 85 has 5,33 points

poster entry # 90 has 5,33 point

- The first travel grand of 400 Euro goes to Nanayakkara Godakandage, University of Moratuwa in Sri Lanka
- The second travel grand of 300 Euro goes to Hadi El-Shayeb, Peggy Wong and Lexi Kalman University of Toronto in Canada
- The third travel grand of 250 Euro goes to Sven-Marvin Sommer, Hochschule Osnabrück in Germany

***Congratulations!***

### ACKNOWLEDGEMENT:

#### Online reviewer of this year's DLA posters submission

##### MLA students:

Anna Farb

John Hobbie

Rashmita Jadav

Su Hyun Jun

Mohammad Shamsul Arefin

Mohd Robiul Alam

Raunak Kulkarni

##### JoDLA Board Members:

Dr. Sigi Hehl-Lange

Dr. Stephen Ervin

Prof. Dr. James Palmer

Prof. Dr. Saviour Formosa

Prof. Brian Orland

Dr. Michele Campagna

Prof. Dr. Ian Bishop

Tess Canfield

Prof. Pia Fricker

*Please see this poster displayed at the foyer in building 8 during the DLA and vote for your favorites and meet the authors during the coffee break.*

# 3D - Product design

Development, testing and process optimization with the 3D printer

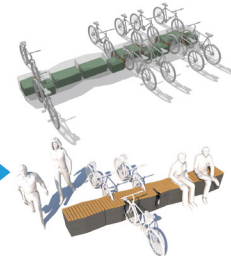
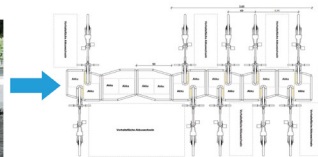
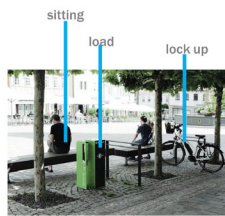
## Lilo - Linger & Load

### 0.

#### The vision

An intelligent solution is needed to be able to use e-bikes. The current solutions do not correspond with the qualities of use of the open space. The qualities of use are sitting on a bench, charging on a charging station, and lock up bicycles on a bicycle frame.

We combine these user needs in a multifunctional module. Lilo contains a technical unit from Velofactor. This is combined in such a way that a higher weather and vandalism protection can be ensured.

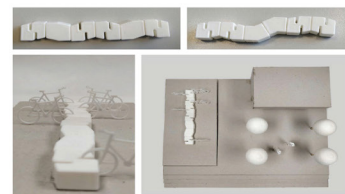
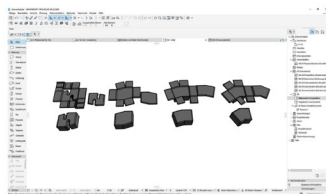


### 1.

#### Prototyping 1:50

After the multiple design test, a simple, modularly expandable design prevailed. The great advantage of this cubature is its multiple use. The shape allows the areas to sit, park and load. The loading and closing units of the wheels is stowed inside for protection.

A first test process on a scale of 1:50 showed that the arrangement can be extended at will by adding angle elements which allows nearly any type of arrangements

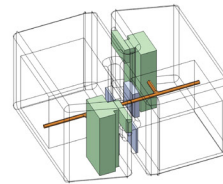
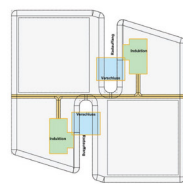


### 2.

#### Technical concept

A challenge was the accommodation of the technical units. In close cooperation with Velofactor, a locking mechanism (blue) and an inductive charging option (green) could be integrated into the module. In addition to fulfilling a demanding design, the technology can now also be set up and protected against vandalism to a large extent.

Bicycle removal and release of the lock is possible via the use of a simple app.

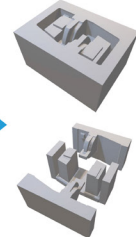
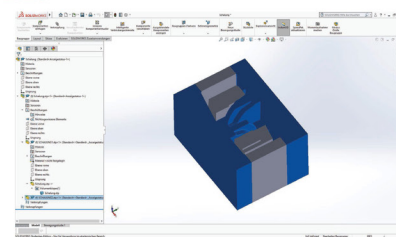


### 3.

#### Formwork concept 1:10

One conceivable implementation of modular construction is the use of concrete.

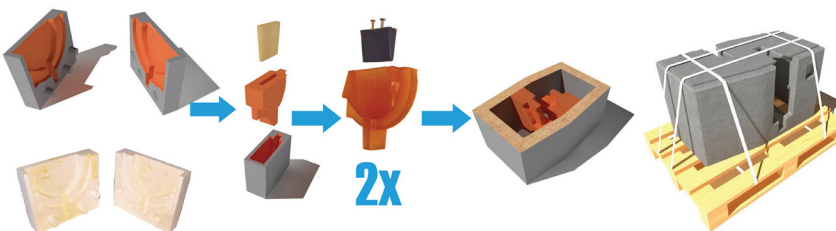
In order to check the manufacturability of the module, a formwork model was developed in a CAD program. Three cores were created taking demoulding factors into account. These can be "pulled" laterally. From this model a silicone casting on a scale of 1:10 could be produced in a first test.



### 4.

#### Process optimization

In order to reduce costs in the production of the moulds, only the casting mould for the technical integration in the 3D printing process is produced. Errors that occur during the printing process are reduced to a minimum. A further advantage is that the casting can be duplicated. The outer mould is built in the classic way with a wooden formwork. The 3D printed casting is then integrated into the respective wooden formwork by means of an inner wedge. With this process, there are no limits to the design of the outer form.



## SUSTAINABLE URBAN DEVELOPMENT BY EXPANDING THE GREEN ROOFS TO IMPROVE THE URBAN ENVIRONMENT QUALITY CASE STUDY: KARAJ CITY IN IRAN



2019  
May 22-25 2019 Dessau

Maral Abolghasemi Moghaddam | Sascha Henninger  
Lehr- und Forschungseinheit Physische Geographie  
Technische Universität Kaiserslautern




### Motivation

Global climate change is a result of urbanization. Urbanization and population growth since the industrial revolution have endangered the natural environment and brought the relationship between human and the environment to a serious discussion. Therefore there is not only the danger of environment destruction but also the future of human life is at risk. Sustainable development could be the carrier of many human wishes and establish a proper relationship between humans and nature. Iran is not spared from this global change and even because of various issues like geographical factors and energy consumption patterns is dealing with environmental problems more than other countries. Karaj is the center of Alborz which is the 31st province in Iran. It is located 34 Kilometers west of Tehran and is 164 square kilometers. Karaj which is now a metropolis in Iran and still growing with a population of about 2000000 people has also the same situation of environmental and urban problems such as heavy traffic and noise and air pollution. There are some factors that have turned Karaj into a metropolis like geographical location, good summer weather and low prices of land and housing in comparison with Tehran and industrial towns around it.

A practical solution for Karaj to achieve the goals of sustainable urban development is **green roofs**.

The purpose of this project is the introduction of green roofs as a strategy for sustainable urban development particularly in Karaj.




### Objectives

According to section 19 of the National Building Regulations of Iran concerning energy saving and the benefits of green roofs on energy saving, green roofs can also act in line with national building policies.

- provide a general overview of benefits associated with green rooftops
- Identify the problems which green roofs can reduce
- Identifying the role of green roofs in providing community space and aesthetics
- Identify the barriers to implementation of green roofs in Karaj

### General Overview

Karaj was a beautiful garden city around 50 years ago with a simple infrastructure but suitable for needs of 14000 people which was its population. Over the past 40 years, population influx from all over Iran to Karaj was followed by urban crisis and physical development of the city. In result Karaj is not anymore a green city and has many problems. Because of mentioned reasons, it seems that green roofs are a practical solution to many of these problems. In this project, I want to choose a sample area based on results from envi-met which has the most environmental problems and design green roofs for the area. Then simulate the area covered with green roofs with envi-met to check the results. It is estimated that through this project, the environmental problems of the selected area would decrease and this would be a step toward sustainable urban development in Karaj.




### Phasing

This project will be conducted in three phases:

**Phase 1** Environmental sustainability assessment of Karaj based on environmental and consumption data. In 2017, the average per capita green space in cities in Iran was 7.5 m<sup>2</sup>. Karaj had just 6 m<sup>2</sup>. The number suggested by World Health Organization is 9m<sup>2</sup>. Also the air quality index in Karaj in December 2017 was 157 for PM2.5 which goes in unhealthy level of health concern. Then I am going to use a local framework for my assessment which is a combination of CSD's theme indicator framework and a goal based framework.

**Phase 2** Based on the relation between built area volumes and green spaces in 12 districts of Karaj, 5 regions have been chosen in different city areas each at least 1 square kilometers. These areas have been simulated with Envi-met for a summer day 21st of June 2017. There would also be a simulation for a winter day. The parameters evaluated with envi met are: air temperature, relative humidity, surface temperature, wind speed and pmv which stands for predicted mean vote model. About Envi met: envi met is a 3d numerical simulation model which is able to calculate the microclimate and air quality in urban structures and open spaces.


**Phase 3** The next step would be to create Karaj environmental strategic plan according to obtained results from envi met simulations to make use of green roofs. Based on the proposed program specific criteria for green roofs construction on future and existing buildings would be suggested and green roofs would be designed in a sample neighborhood.



1. University area
2. Jahanshahr area
3. Mehrshahr area
4. Kalak area
5. Fardis area

### Green Roofs Impacts on Cities

- Ecological
  - Maintaining biodiversity and habitat creation
  - Improve the ecological-biological urban quality
- Climatic
  - Adjust the heat island effect in the city
  - Cooling effect
- Urban environment quality
  - Improving air quality
  - Noise reduction
  - Reduce the runoff volume from rainfall
  - Increase water quality and prevent from pollution
  - Reduce the effects of electromagnetic radiation
- Economic- Cultural
  - Extend the operation life period of the roof
  - Insulator
  - Recreation and Health
  - Energy saving
  - Create additional green space



**Sustainable urban development by expanding the green roofs to improve the urban environment quality; Case study: Karaj city in Iran**  
Maral Abolghasemi Moghaddam, Sascha Henninger  
Technische Universität Kaiserslautern, Germany



**Quarry Texture**  
Lucinda Steurer  
*SUNY ESF, United States*

**MAHESHKA EKANAYAKE**  
UNIVERSITY OF MORATUWA, SRI LANKA

**MARTIAN SCAPE**  
COSMIC LANDSCAPE AND ASTRONOMICAL OBSERVATORY

FOR THOUSANDS OF YEARS HUMAN KIND HAS BEEN OBSERVING AND RECORDING THE PATTERNS CREATED BY THE APPARENT MOVEMENT OF CELESTIAL OBJECTS AGAINST THE BACKGROUND OF THE SKY. IN LANDSCAPE APPROACH SKY WATCHING IN ANCIENT LOCAL AND FOREIGN CULTURES WAS OFTEN AIDED BY THE MARKING OF THE GROUND WITH BUILT FABRICATIONS OF DIFFERENT MATERIALS, MORPHOLOGIES AND SCALES. THESE INTERVENTIONS WERE CONNECTING A STATIC LOCATION ON EARTH WITH "MOVING" EVENTS IN THE SKY.

THIS EVERY PIECE OF ARCHAEOASTRONOMICAL SITES DOES REVEAL THAT THE PEOPLE DO HAD A CONNECTION WITH THE SKY WITH THE INTERPRETATIONS IN THE LANDSCAPE. THIS WOULD BE MORE THAN A CONNECTION BUT IT WOULD BE A "SENSATION" OF COSMOS WHICH EFFECT HUMAN MENTALLY, PHYSICALLY AND SPIRITUALLY!

THE COSMIC CONNECTION WAS SACRED POWERFUL PHENOMENA WHICH RAISE THE SENSE OF INFINITY BEYOND THE EARTH AND WHICH SUPPORT THE SPIRITUAL PRACTICE HUMAN TO MIND HEAL THEMSELVES ALIGNED WITH COSMIC ENERGY.

BUT, IN CONTEMPORARY WORLD WITH ADVANCED TECHNOLOGICAL DEVELOPMENT "HUMAN" TEND TO VISUALLY EXPERIENCE THE CONNECTION ANCESTORS HAD WITH LACKING OF COSMIC SENSORY EXPERIENCE. BECAUSE, IN COMPETITION "TRAPPED" WORLD HUMAN CUT THE TRUE CONNECTION WITH SKY VAULT PERCEIVING THEIR INFORMATIVE "HORIZONTAL PLANE" FORGETTING POWERFUL "VERTICAL PLANE".

THEREFORE PROJECT PROPOSED TO, MEANINGFULLY RE-IMPLEMENT ANCIENT LESSONS TO ENHANCE THE HUMAN-SKY SENSORY CONNECTIVITY THROUGH "SOFT" TEMPORARY COSMIC SENSATION LANDSCAPE AMALGAMATING COSMIC SENSORY DESIGN INNOVATIONS AS AN APPROACH TO ENHANCE LANDSCAPE SKY CONNECTIVITY.

THE PROJECT IMPLEMENTATION WAS PROPOSED TO **USSANGODA** (6°06'00"N 80°59'22"E / 6.10000°N 80.98944°E) SRI LANKA. THE SITE COMPRISES OF SEVERAL MYTHOLOGICAL BELIEVES SUCH AS ALIENS SPOTTING, METEOR STRIKE AND KING RAVANAS SHIP LANDING. MOREOVER, SITE IS A TYPICAL SHOWCASE OF "PLANT MARS" WITH UNIQUE VISTAS DUE TO SERPENTINE GEOLOGICAL AND ECOLOGICAL CHARACTER. HIGH SKY VISIBILITY OF THE SITE OCCURRED BY ITS RARE "CONVEX" LANDSCAPE FORM ALTOGETHER WITH LOW DEGREE OF LIGHT POLLUTION AND LOW DEGREE OF CLOUD COVER.

**CONCEPT "AN ANTHROPOCOSMIC LANDSCAPE"**  
"TUNED" HUMAN IN TO COSMOS THROUGH LANDSCAPE - ACQUIRING "SPIRITUAL PROGRESSION OF LANDSCAPE GEOMETRY POINTS" TO CONVERT THE HUMAN HORIZONTAL PERCEPTION IN TO VERTICAL PERCEPTION.

## THE MARTIAN SCAPE

COSMIC LANDSCAPE AND ASTRONOMICAL OBSERVATORY

DESIGN LAYOUT

9 0 0 1 f

USSANGODA

S R I L A N K A

**PLANTING CONCEPT**

**CAMOUFLAGE THROUGH ENCROACHMENT**  
USSANGODA IS AN ECOLOGICAL SENSITIVE AREA. THEREFORE, THE PLANT SPECIES IS PROPOSED TO NATURALIZED AND TO ADAPT IN THE PROPOSED DESIGN SPACE.

**MATERIAL CONCEPT**

**CAMOUFLAGE THROUGH WEATHERING**  
THE SERPENTINE FLORA WHICH IS GROWN IN IRONED MIXED SOILS WILL GROW IN THE STRUCTURES FINISHED USING CORROSIVE IRON PLATES AND WOODS AS A SUPPORT FOR PLANT CAMOUFLAGING AND NATURALIZING.

**LIGHTING CONCEPT**

**CAMOUFLAGE THROUGH SCATTERING**  
THE PEAK DECLARED AS A DARK SKY PRESERVE IN THE MASTER PROPOSAL LEVEL TO ZERO THE LIGHT POLLUTION. NO UP LIGHTING OR LIGHT RESPASS TO THE SKY VAULT OR THE ECOSYSTEM.

COSMIC SPHERE

COSMIC RING

COSMIC POINT

COSMIC CENTER

The light studies with "Circular" pattern "Mars" like.

The upper "Observatory" deck. The Coastal "Observatory" would all same bridge "The Center of the Sun" due to its reflection.

The center ring facilitates the angle across of the user and "look" to the ring while experiencing progression of looking to the "Architectural" towards the sky.

Cosmic ring deck uses in angle direction to expose towards the sky in a sloped sky approach.

The center ring bridge sky with the point cliff in center. Apply of your "Cosmic Ring" (Planet Center).

The roof top was designed by inspiring the geometries of the "Architectural" to provide "vertical" light view experience.

The Entry environment towards USSANGODA Cosmic Landscape. The Landscape amalgamates the horizontal perception of sky acting as a "shadow scape".

After Cosmic sphere the User will direct towards Martian exploring point. Which user encounter a form of Alien ship hit on a rusty ground by convincing like in an extra-terrestrial space. The angled ring and solar alignment indicator will enhance the angled cosmic perception of user.

The Rock alignments direct the path way towards the elevated climax point of the cliff in the end the universal stones horizontally connect user to the endless sky which can observe the sun rise and dawn and star alignments in one point.

Architectural space proposed to empower the education through sensation. The Astronomical center consist with an Exhibition hall, planetarium to enhance the education on the Astronomy. The top roof of the circuit act as an Abstract celestial landscape.

**CONCEPT REALIZATION**

"Tuned human in to cosmos" through identification of "landscape geo points" using theories of:

- Geometry** (Alignment of elevated points in the landscape-Lay line)
- Astronomical Alignment** (Linking Brightest stars in most seen constellations with landscape Lay Line)

Elevated point 1-22.5m  
Elevated point 2-7.5m

**DESIGN FORMULATION**  
Progression of sacred geometries in geo points for "Cosmic shift"

THE SPHERE → THE CIRCLE → THE POINT

Sphere symbolized the holistic human and the circle (2d version of sphere) represent the human focusing to the cosmos. The shrinkage of circle into point emphasize the focused cosmic human.

Horizontal human in to Vertical Human through geometrical plane perception.

HORIZONTAL → ANGLED → VERTICAL

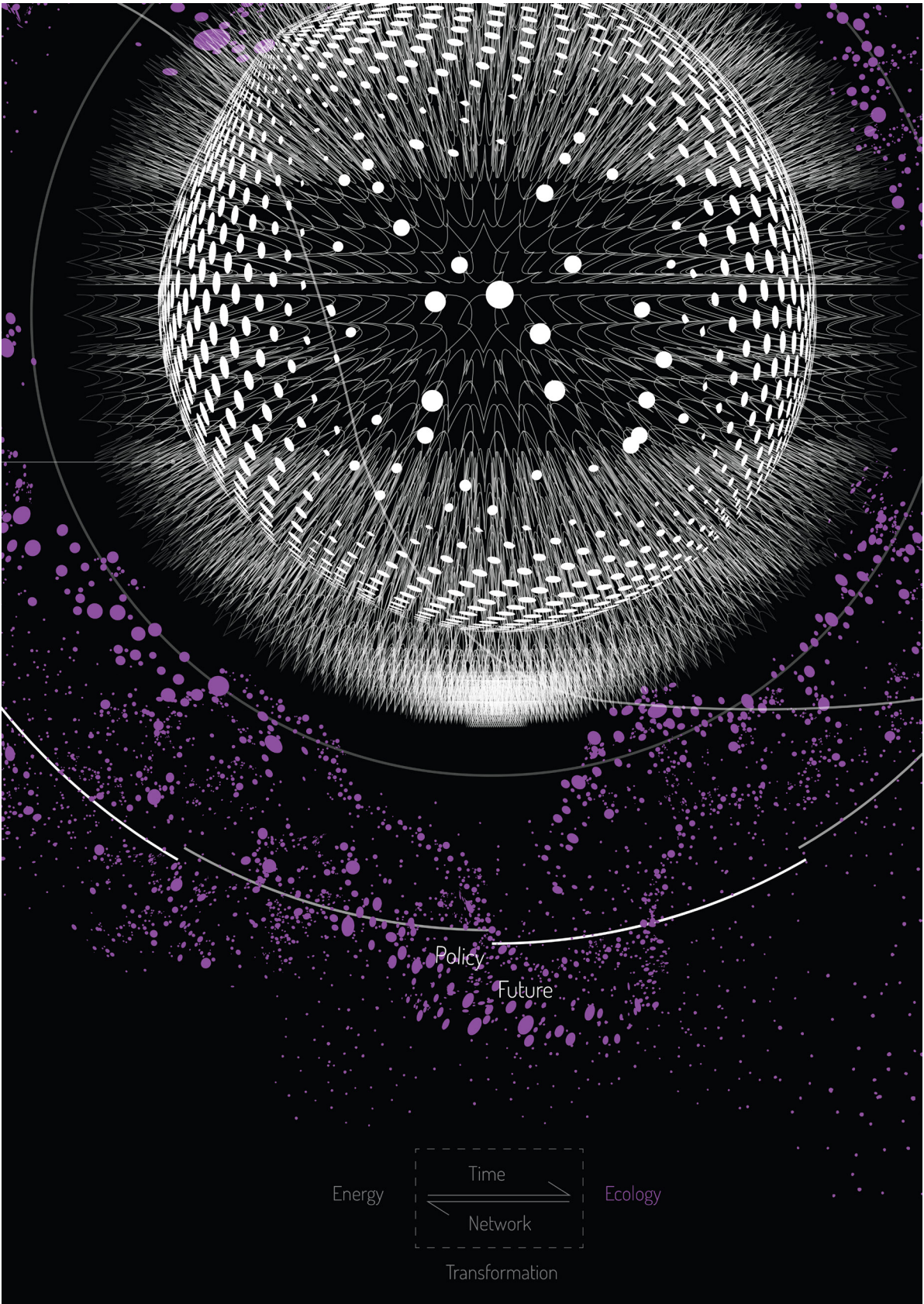
Combination of Sacred geometries and perception planes with USSANGODA landscape to create progressive cosmic space.

COSMIC SPHERE → COSMIC RING → COSMIC POINT

Application of cosmic spaces into geo points to landscape, sky space progression. Cosmic center created through collecting all geometries.

**Martian Scape\_Cosmic Landscape and Astronomical Observatory**  
Maheshika Ekanayake  
University of Moratuwa, Sri Lanka





**Concept of 5th Ecology**  
Ting LIU  
*Hong Kong*

N.G.ISHIKA AROS HANA  
ishikaroshana@gmail.com  
Ishika Aroshana Nanayakkara

**RESEARCH AND ECO AWARENESS  
LANDSCAPE  
@ GALGAMA ,BANDARAGAMA**

Construction of Expressways are the most emerging development tendency in Sri Lanka. With these development activities, there are a lot of environmental and social issues started. As a third world country, general society appreciate the urbanization by ignoring the environmental imbalance. Project formulate to build an awareness among the people about the sustainable land use practice and environmental impact/ Mitigation measures due to the rapid urbanization within Sri Lanka. It also work as a prototypical landscape for restore the existing degraded land forms caused by urbanization. Project work as a research and recreational landscape that improve the resilience factor of rapid development within Sri Lanka.

Project mainly formulate under two stages. Within the first stage of the project general public involve to recover the damage by restoring the disturbed land. After the first stage is finished, A part of land convert in to experiential and recreational landscape that demonstrate how the restored landscape looks like and give the awareness and the knowledge about importance of proper land use with care.

**Project Goals:**

- Restore the existing landscape
- Build awareness among the public
- Create a sustainable landscape
- Improve the resilience factor of rapid development

**Stages:**

- STAGE 1: Restore the existing landscape
- STAGE 2: Build awareness among the public

**Concept of the design** express the idea the planet earth comes long way within 4.5 Billion years by converting into different formations and different formations of organisms. In the present Human are the main key-stone specie within planet, we responsible for the land use changes, and its effects. And more importantly responsible for make the changes more sustainable and environment friendly way. Finally Design give awareness and practice about the **"Human- natural harmonious co-existence"**. That will greatly benefit to the country sustainability.

**Major design considerations**

- Create the steps, ramps and decks with respect to the existing formations, maximum usages of existing ground formations.
- Solids and voids of rock excavation holes create the aesthetics with the observation flat forms. Experience the negative spaces.
- Observation flat form with the isometric view of expressway and surrounding landscape flat form also contain the earlier landscape character by the graphical presentation.
- The facility building create with giving priority to the environment, the structure with minimum disturbance to the existing geological formations.
- The vegetation proposal highly consider the water existence of the site, because of the disturbance to the rock the water retaining capacity reduced.
- The facility building create with giving priority to the environment, the structure with minimum disturbance to the existing geological formations.

## HEALING FRACTURED LANDSCAPE

"LAND USE AND LAND COVER CHANGES ARE OF PROFOUND NATURE, WHICH AGGRAVATED LOGICALLY THE ENVIRONMENTAL IMPACT OF QUARRY ACTIVITIES. THIS DIRECTLY IMPACTS BASIC HUMANITY WORLDWIDE. (D.L.A. GLOBAL SUSTAINABILITY FORUMS FOR THE YEAR 2020)

**HARMONIOUS CO-EXISTENCE**

CONCEPTION OF THE DESIGN EXPRESS THE IDEA THE PLANET EARTH COMES LONG WAY WITHIN 4.5 BILLION YEARS BY CONVERTING INTO DIFFERENT FORMATIONS AND DIFFERENT FORMATIONS OF ORGANISMS. IN THE PRESENT HUMAN ARE THE MAIN KEY-STONE SPECIE WITHIN PLANET, WE RESPONSIBLE FOR THE LAND USE CHANGES, AND ITS EFFECTS. AND MORE IMPORTANTLY RESPONSIBLE FOR MAKE THE CHANGES MORE SUSTAINABLE AND ENVIRONMENT FRIENDLY WAY. FINALLY DESIGN GIVE AWARENESS AND PRACTICE ABOUT THE "HUMAN-NATURAL HARMONIOUS CO-EXISTENCE". THAT WILL GREATLY BENEFIT TO THE COUNTRY SUSTAINABILITY.

**CONSTRUCTION OF EXPRESSWAYS ARE OF MOST SIGNIFICANT DEVELOPMENT TENDENCY IN SRI LANKA. WITH THESE DEVELOPMENT ACTIVITIES, THERE ARE A LOT OF ENVIRONMENTAL AND SOCIAL ISSUES STARTED. AS A THIRD WORLD COUNTRY, GENERAL SOCIETY APPRECIATE THE URBANIZATION BY IGNORING THE ENVIRONMENTAL IMBALANCE. PROJECT FORMULATE TO BUILD AN AWARENESS AMONG THE PEOPLE ABOUT THE SUSTAINABLE LAND USE PRACTICE AND ENVIRONMENTAL IMPACT/ MITIGATION MEASURES DUE TO THE RAPID URBANIZATION WITHIN SRI LANKA. IT ALSO WORK AS A PROTOTYPICAL LANDSCAPE FOR RESTORE THE EXISTING DEGRADED LAND FORMS CAUSED BY URBANIZATION. PROJECT WORK AS A RECREATIONAL AND RECREATIONAL LANDSCAPE THAT IMPROVE THE RESILIENCE FACTOR OF RAPID DEVELOPMENT WITHIN SRI LANKA.**

**PROJECT FORMULATION**

DESIGN FORMULATE ACCORDING TO THE CONCEPT OF "HUMAN NATURE HARMONIOUS CO-EXISTENCE". WITHIN THE CONSTRUCTION PHASE OF THE PROJECT GENERAL PUBLIC INVOLVE TO RECOVER THE DAMAGE BY RESTORING THE DISTURBED LAND. AFTER THE FIRST STAGE IS FINISHED, A PART OF LAND CONVERT INTO EXPERIENTIAL AND RECREATIONAL LANDSCAPE THAT DEMONSTRATE HOW THE RESTORED LANDSCAPE LOOKS LIKE AND GIVE THE AWARENESS AND THE KNOWLEDGE ABOUT IMPORTANCE OF PROPER LAND USE WITH CARE.

**STAGE ONE**

RESTORE THE EXISTING LANDSCAPE

**STAGE TWO**

BUILD AWARENESS AMONG THE PUBLIC

**DESIGN DEVELOPMENT**

IDENTIFY THE POTENTIAL AND IMPACT ZONES

DECLARE BOUNDARIES AND SELECT THE ZONES FOR RESTORATION

IDENTIFY EXISTING GEOLOGICAL FORMATIONS

DESIGN FORM DEVELOPMENT WITH EXISTING GEOLOGICAL FORMATIONS

**DESIGN LAYOUT**

**MASTER PROPOSAL**

- 1. BLOOMING THEATER**
- 2. REFLECTION STRETCH**
- 3. THIN STRIP OF SKY**
- 4. SCATTERED PEAK**
- 5. SCATTERED LADDER**
- 6. PRECIOUS HUB**
- 7. TESSELLATION TERRACE**
- 8. WALK TO WILD**
- 9. MOSAIC WATCH**
- 10. COMMUNITY FOREST**

**BLOOMING THEATER**

**THIN STRIP OF SKY**

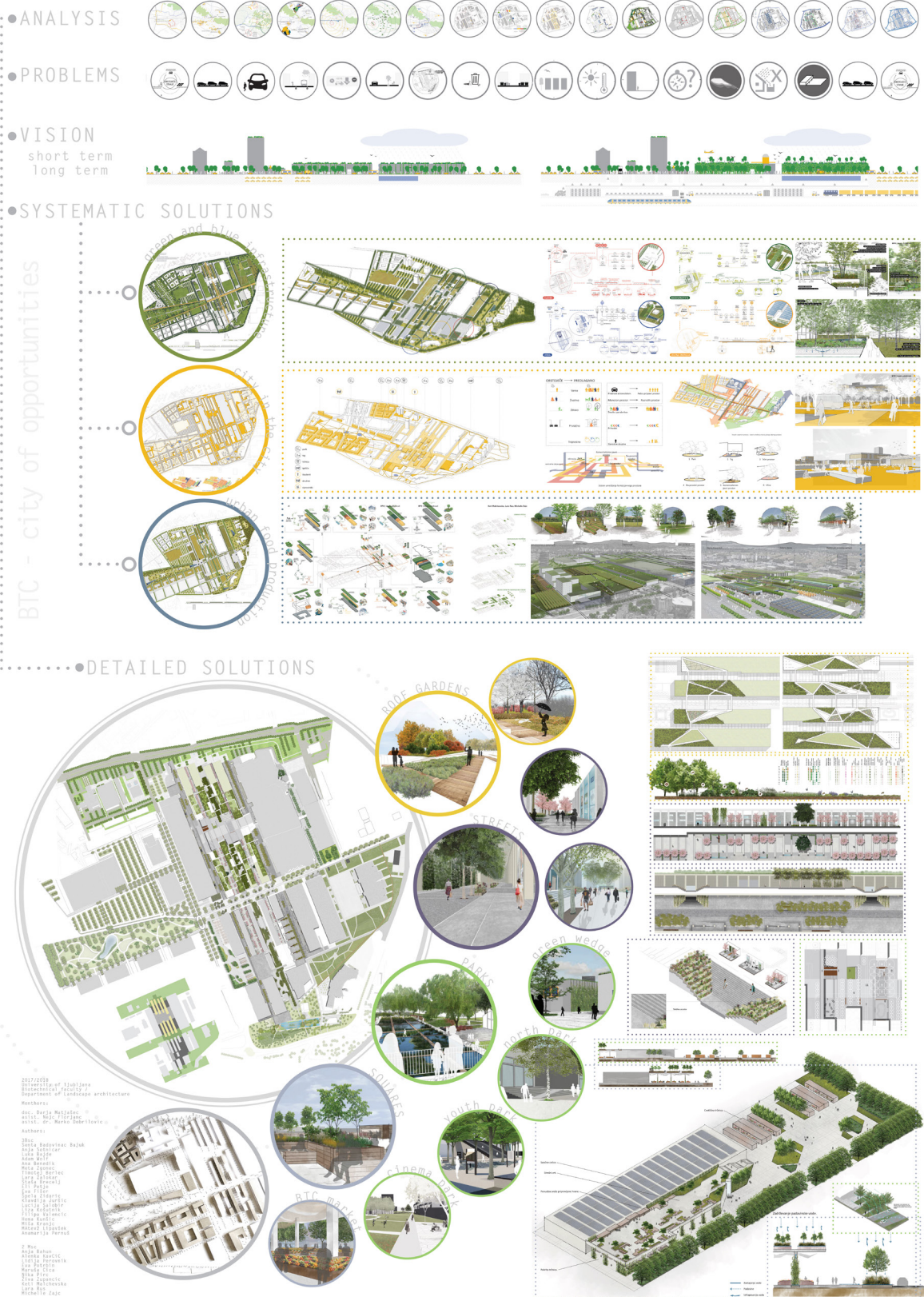
**TESSELLATION TERRACE**

**REFLECTION STRETCH**

**SCATTERED PEAK**

**MOSAIC WATCH**

**Healing Fractured Landscape\_ Research and Eco awareness Landscape**  
Ishika Aroshana Nanayakkara Godakandage  
University of Moratuwa, Sri Lanka



## BTC: City of Opportunities

Participant names are on the facing page

University of Ljubljana - Biotechnical faculty, Croatia

# #07

## **Authors:**

Senta Badovinac Bajuk  
Anja Setničar  
Luka Bajde  
Adam Wolf  
Ana Benedik  
Meta Zgonec  
Timotej Berlec  
Lara Zalokar  
Staša Brecelj  
Eli Petje  
Eva Fišer  
Špela Zidarič  
Klavdija Juršič  
Lucija Salobir  
Liza Košutnik  
Filipa Valenčič  
Hema Kunšič  
Miša Kranjc  
Matevž Lipavšek  
Anamarija Pernuš  
Anja Bahun  
Alenka Kavčič  
Lidija Perovnik  
Eva Potrbin  
Maruša Čiča  
Nika Pirc  
Živa Zupančič  
Keti Malchevska  
Lara Rus  
Michelle Zajc

## **Mentors:**

Doc. Darja Matjašec  
Asist. Nejc Florjanc  
Asist. Dr. Marko Dobrilovič

## **BTC: City of Opportunities**

Participant names are on the facing page

*University of Ljubljana - Biotechnical faculty, Croatia*

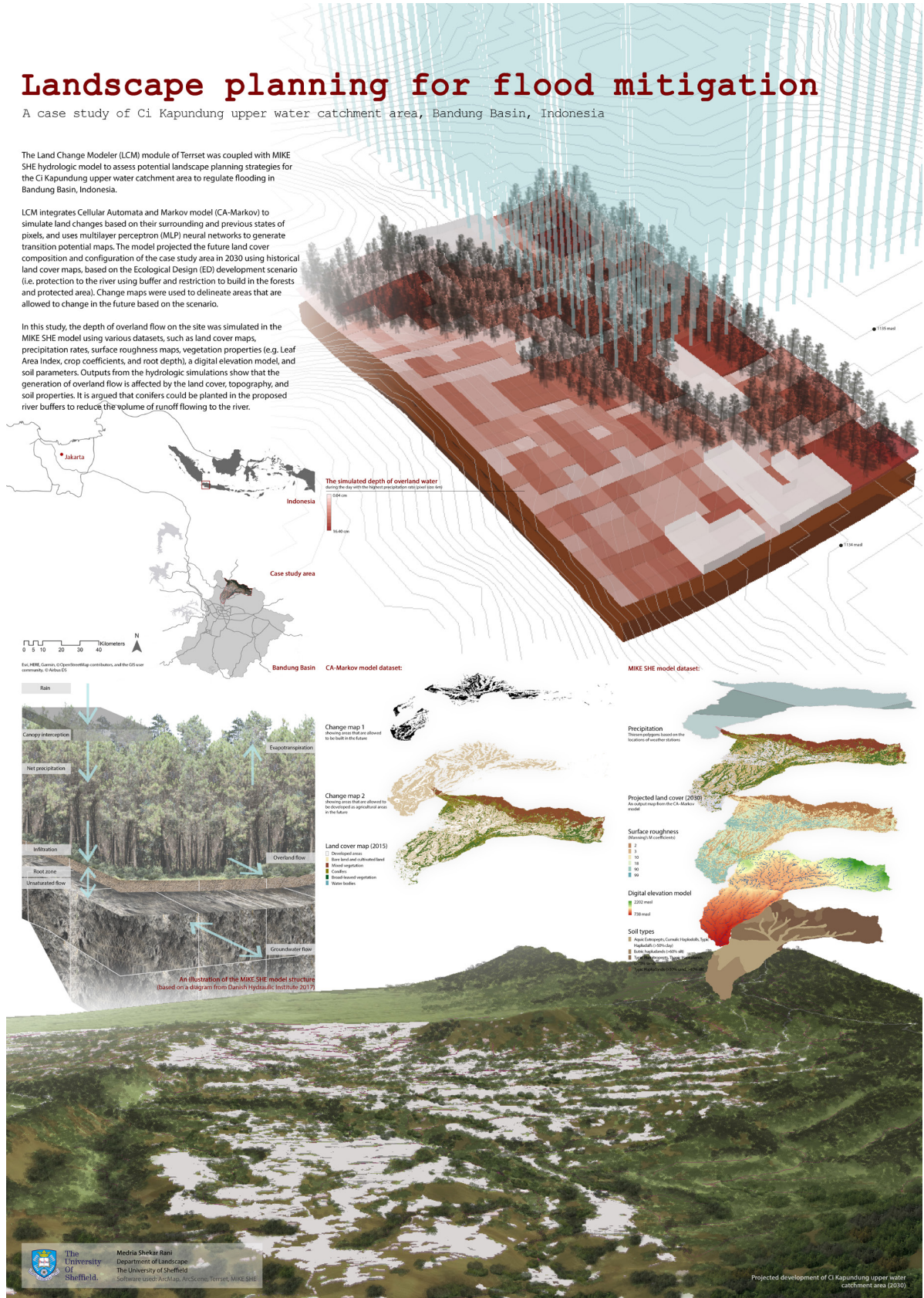
# Landscape planning for flood mitigation

A case study of Ci Kapundung upper water catchment area, Bandung Basin, Indonesia

The Land Change Modeler (LCM) module of Terreset was coupled with MIKE SHE hydrologic model to assess potential landscape planning strategies for the Ci Kapundung upper water catchment area to regulate flooding in Bandung Basin, Indonesia.

LCM integrates Cellular Automata and Markov model (CA-Markov) to simulate land changes based on their surrounding and previous states of pixels, and uses multilayer perceptron (MLP) neural networks to generate transition potential maps. The model projected the future land cover composition and configuration of the case study area in 2030 using historical land cover maps, based on the Ecological Design (ED) development scenario (i.e. protection to the river using buffer and restriction to build in the forests and protected area). Change maps were used to delineate areas that are allowed to change in the future based on the scenario.

In this study, the depth of overland flow on the site was simulated in the MIKE SHE model using various datasets, such as land cover maps, precipitation rates, surface roughness maps, vegetation properties (e.g. Leaf Area Index, crop coefficients, and root depth), a digital elevation model, and soil parameters. Outputs from the hydrologic simulations show that the generation of overland flow is affected by the land cover, topography, and soil properties. It is argued that conifers could be planted in the proposed river buffers to reduce the volume of runoff flowing to the river.



Landscape planning for flood mitigation. A case study of Ci Kapundung upper water catchment area, Bandung Basin, Indonesia

Medria Shekar Rani

The University of Sheffield, United Kingdom

## URBAN AGRITECTURE

DRIVER OF THE CITY CHANGE

### 1 valorisation

**GREEN THE CITY**

product dispersion

### 2 possible solution

### 3 IMPLEMENTATION

#### NEW MARKET PLACE

### 4 ORGANISATION OF THE AREA

#### STARTS CITY CHANGE

### 5

#### PAST INDUSTRIAL AREA vs. NEW OPPORTUNITIES

A PLACE TO LIVE FOR 50,000 PEOPLE

1.800.000 m <sup>3</sup>	12 GWh	2.800 T	750.000 m <sup>2</sup>	68 %
PAVED AND REUSED 100% RECYCLING	RENEWABLE ENERGY	LOCALLY PRODUCED AND PROCESSED FOOD	RESIDENTIAL BUILDINGS	MORE GREEN SURFACE
100% RECYCLING	100% RECYCLING	100% RECYCLING	100% RECYCLING	100% RECYCLING

### 6 new city

#### ECOREMEDIATION PARK

### 7

### 8 effects of agriculture in urban areas

### 9

**from plan to reality**

### 10 COMPONENTS

"Urban Agritecture" is a base concept for the newly established sustainable community in Sao Paulo, which is based on interdependent processes of food production for community's and external use, efficient transport of goods and people, recycling of waste and reusing of water. All these processes are supported by upgrading the infrastructure and retrofitting the existing buildings. The main design idea is twofold. Firstly to preserve most of the existing building stock in order to support local identity among people living and working in the area and secondly, to upgrade this stock with predefined structure types that are composed either of residential, production, processing or service units. By mixing the production, public and housing uses, we are providing sustainable long-term strategy based on new job opportunities, strong links between producers and consumers, and lowering the disparities between the rich and the poor.

The area's green system consists of individual and community gardens, which are placed mainly on roofs. Other open spaces in the green system are retention areas transformed into parks with retention basins, public and private orchards, vast tree avenues and meadows. Due to the emphasis on providing green spaces, the great increase of green areas has a significant impact on improving microclimate and air quality in the area and its surroundings. It also creates the spirit of the community, and for the people to be physically active and engaged in the living process of the whole area. The transport infrastructure in the community is understood as a technology of the second order, secondary to the social benefits of the green system and therefore placed under the ground. Here digitally controlled trains deliver products, goods and waste between interchange points, from where they are moved by elevators on the ground floor or transported on trucks for further distribution. A great emphasis is also put on waste and water recycling. This means that organic waste is stored in digesters, where it is treated with bacteria and transformed into biogas and fertilizers. Retention basins and accommodation basins near the Pinheiros river form a system, where wastewater is treated. In this way, stormwater and wastewater can be purified completely for drinking or to be used as irrigation water for food production zones.

## Urban Agritecture

Petra Pečan, Barbara Kostanjšek, Tine Horvat, Darja Matjašec, Nejc Florjanc,

Tomaž Pipan

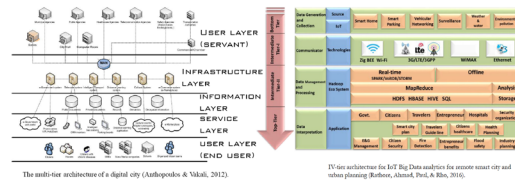
Biotechnical faculty, Department of Landscape Architecture, Slovenia

# AUGMENTED REALITY 2.0

## A NOVEL TOOL FOR PARTICIPATORY LANDSCAPE ARCHITECTURE PLANNING

### ABSTRACT

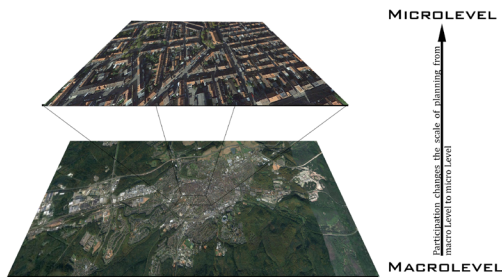
Participatory planning and designing is one of the social sustainability dimensions in which people and stakeholders propensity and preferences will be realized to define some criteria for environmental intervention. Stakeholders' participation in the planning process can be implemented by different means, changing from distributing the questionnaire to holding a communicative meeting led by planners and similar experts. However, these kinds of tools and techniques have not far-reaching access to the total society to reflect their social attitudes. Emerging communication technology brings about new capabilities of engaging stakeholders and laypeople in urban and environmental planning. New advances, such as Information and Communication Technology (ICT) and Augmented reality, provide extensive and easy participation of people in environmental planning and design. In this presentation, the potentiality of Augmented reality 2.0, an integrated tool combined of augmented reality and web 2.0, in



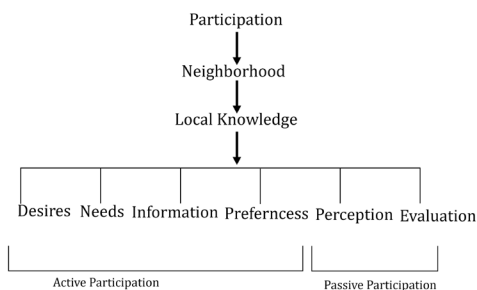
The multi-tier architecture of a digital city (Anthopoulos & Ntall, 2012).

TV-era architecture for IoT: Big Data analytics for the smartest smart city and urban planning (Rathore, Ghosh, Puri, & Bha, 2016).

### MEANING OF PARTICIPATION IN URBAN PLANNING

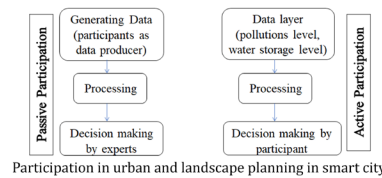
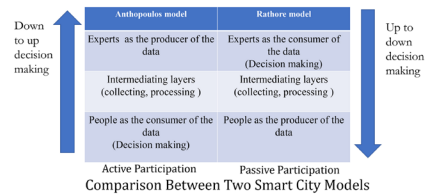


Based on the literature review participation in urban planning should change the process of the planning from more procedural process to a process more concentrated on context and content. Such an approach requires to begin the process from the micro level and from there reach to a macro level. This means that participatory planning has a more local attribute than regional and national meaning, participation in urban planning means understanding and discovering what people think and know about their local and neighborhood.



### PARTICIPATORY PLANNING IN THE SMAERT CITY

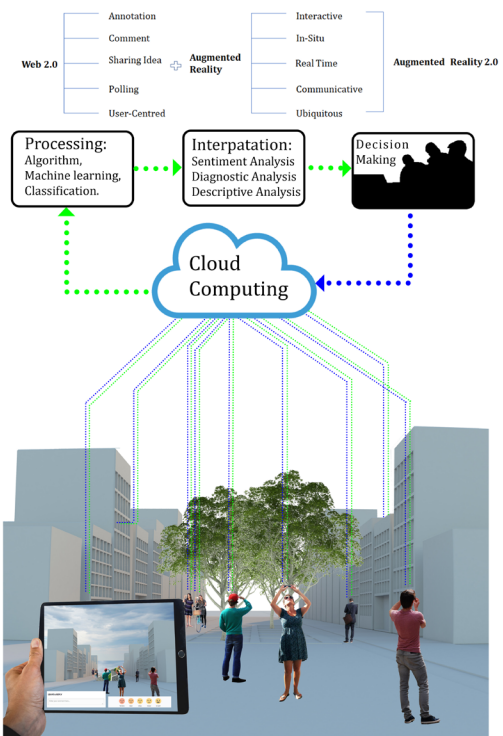
Rathore describes a model of the smart city with four-tier architecture which provides a useful framework for applying in e-participatory environmental planning. In this model in the first tier data generates and collects from various resources. The second and third tiers are two the intermediate layer that transmitting and processing the collected data respectively. In the last tier, the data interpreted in order to use the result and producing reports. Anthopoulos represents another model of the smart city in which smart city and urban planning are responding in an interactive, beneficial, and supportive interrelation. Based his argument the smart city architecture consists of four different layers that are: user layer, service layer, infrastructure layer and data layer.



Participation in urban and landscape planning in smart city

### AUGMENTED REALITY 2.0

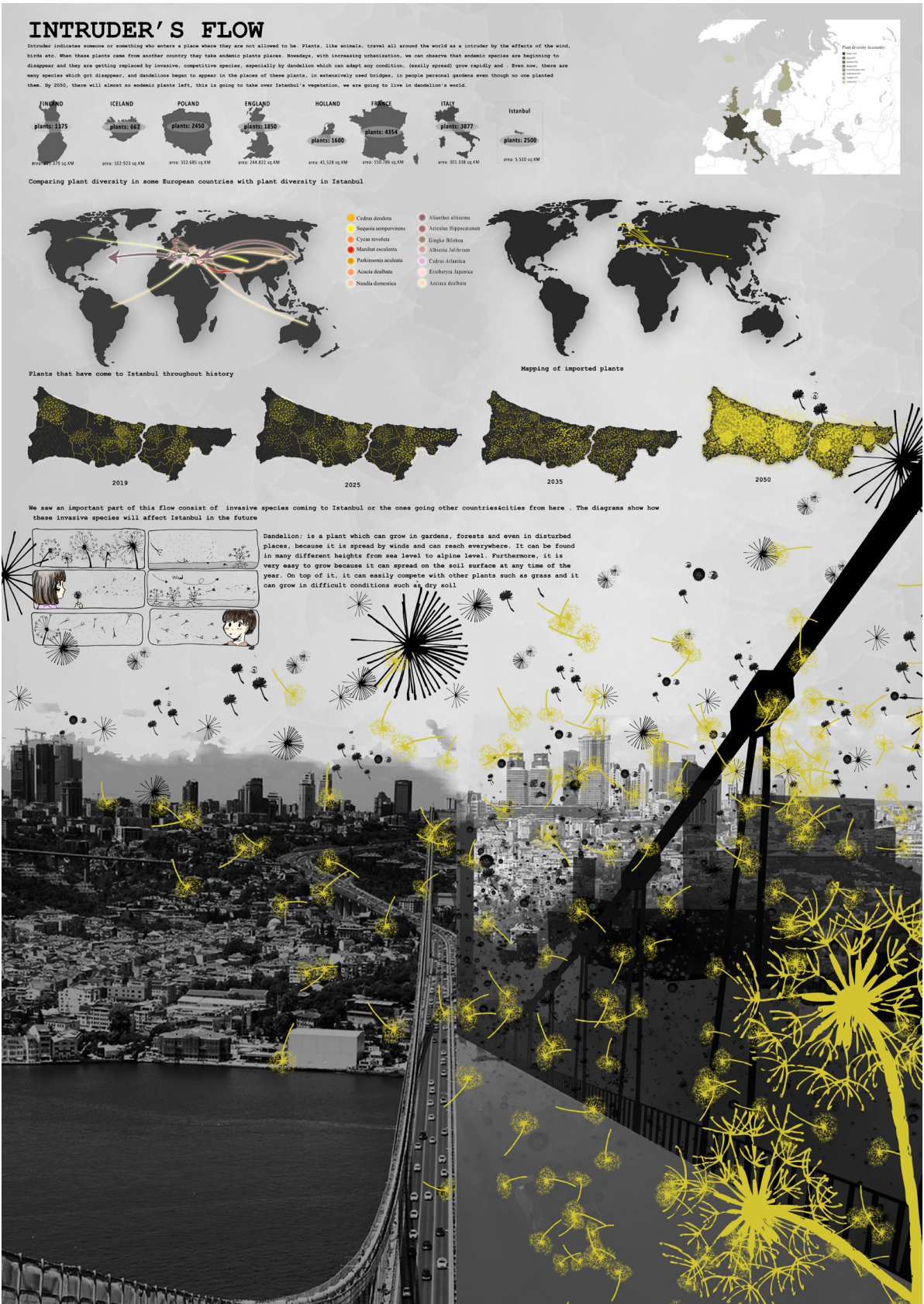
Augmented reality 2.0 is an integrated tool composed of augmented reality and web 2.0 which is many advantages to engage people in the planning process.



## Augmented reality 2.0: A novel tool for participatory landscape architecture planning

Seyed Taher Khalilnezhad

Technische Universität Kaiserslautern, Germany



## Intruder's Flow

Sena Özant, Nevruz Kurt, Amine Yazar, Ecem Torun

Istanbul Technical University, Turkey



DLA 2019

## HOW MUCH LANDSCAPE IS THERE IN THE URBAN PLANNING EXHIBITION HALL?

XI LU, ECKART LANGE DEPARTMENT OF LANDSCAPE ARCHITECTURE, THE UNIVERSITY OF SHEFFIELD, UK

### Aim

The urban planning exhibition halls (UPEHs) in China function like museums for urban planning to help the general public understand the past, present and future culture and development of a specific geographical area. Landscape plays a crucial role in the urban planning system. This raises the question of how much landscape there is in UPEHs. This poster aims to understand the presentation of landscape as a theme in the UPEHs.

### Method

The Guangzhou UPEH ( Fig. 1) with an exhibition area of 19400 m<sup>2</sup> was selected as a case study. Each exhibit was assigned a number and categorised according to its content related to landscape. A random selection of 30 participants were observed during their visiting. Their sequence of visiting and time duration of each exhibit were recorded.

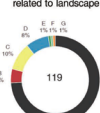
### Results

It was found that exhibits showing overall pictures of landscape, architecture and urban planning reached great popularity. But less attention among both visitors and curators was paid to the 'pure' landscape. There is, therefore, a definite need for an increased focus on landscape in UPEHs.

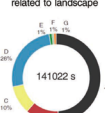
#### 1) How much landscape is there in the UPEHs?

Among the 119 exhibits, there are 32 exhibits overall, in which landscape is addressed. 29 of them cover contents like history and theory of landscape (A), landscape design (B), landscape planning and ecological restoration (C). They are presented in conjunction with architecture and infrastructure elements. Only 3 exhibits (E, F & G) focus on the 'pure' landscape aspect.

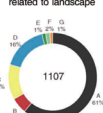
Number of exhibits related to landscape



Duration of time related to landscape



Frequency of Visit related to landscape



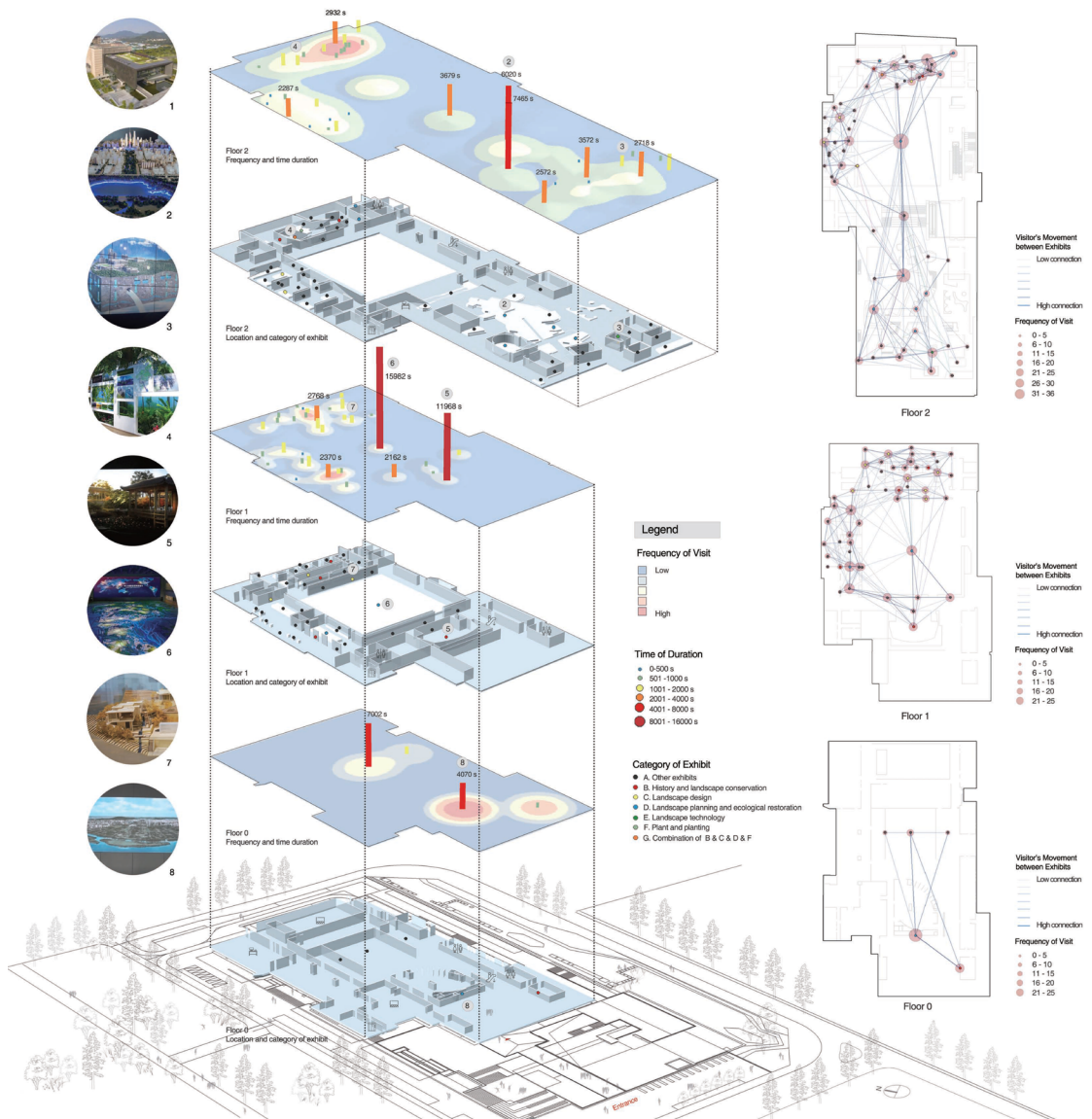
● A. Other exhibits ● B. History and theory of landscape and landscape conservation ● C. Landscape design  
● D. Landscape planning and ecological restoration ● E. Landscape technology ● F. Plant and planting ● G. Covering B & C & D & F

#### 2) How much time do visitors spend on exhibits related to landscape?

Exhibits covering contents of history and theory of landscape and landscape conservation (A) and landscape planning and ecological restoration (C) reached better holding power. Their presentation forms of videos and interactive displays have possibly resulted in higher visitor engagement and time consumption (see Fig.5, 6 & 8).

#### 3) Do people take notice of exhibits associated with landscape?

Frequencies of visiting category B, C and D were higher. While the aspects of landscape technology (E) and plant and planting (F) were more or less neglected.



How much landscape is there in the urban planning exhibition hall  
Xi Lu, Eckart Lange  
The University of Sheffield, United Kingdom

### Sensor Reed

The Sensor Reed calls attention to sediment as an essential resource in the San Francisco Bay Area. In response to rising sea levels, sediment is needed to support and develop wetland ecosystems along the urban coastline. The Reed aims to bring awareness to sediment by rendering sediment movements visible to a larger public.

LED lights represent suspended sediment from a gradient of red to blue with red signaling turbid water and blue representing clear waters. Whether deployed in a group or individually, the lights visually represent turbidity and the impacts of sediment in a coastal condition. The sensor is bluetooth enabled to allow for communication of sensor data to a GSM enabled station. Data from the station can be transmitted through a cell connection to a server to allow for researchers and the public to access the sensor data. Solar panels are used to power the sensor to allow for long term deployment.

The sensor can be deployed in a variety of coastal edges such as marshes, saltgrass beds and at the mouth of rivers to monitor and represent sediment movement through water. The sensor is designed to be easily installed and moved; the dimensions of the sensor connection are set to standard pvc pipe sizes to allow for simple height modification in order to adapt to different environmental conditions. The sensor can also be equipped with interchangeable caps including a drone visible top to facilitate data mapping according to the sensors precise geographic location.

PART NAME	DESCRIPTION	QUANTITY
ADAFRUIT FEATHER NRF32 BLUEFRUIT LE	FEATHER	1
MIRROE 1060 SMOKE CLICK BOARD	SENSOR	1
MIRROE 1060 PRECISIONY SENSOR	SENSOR	1
ELIMIGRAPHIC HP	SOLAR PANEL	8
BOTHWAKER	BATTERY	1
INDUSTRIAL DIGITAL TECH LED STRIP	LED STRIP	1
ADAFRUIT AUDIO FX CLICK BOARD	SOUND BOARD	1

**SCHEMATIC**

**INTERCHANGEABLE TOPS**

- STANDARD
- CARDINAL
- SECCHI DISK

**SENSOR WHEEL**

**SENSOR**

- BACKSCATTER SENSOR
- PCB
- CLEAR RESIN OVERMOLD
- CLEAR PLASTIC

**BACKSCATTER DIAGRAM**

MAX 10105

**EDEN LANDING**

**SAN PABLO BAY**

**SAN FRANCISCO BAY**

**TURBID WATERS**

**CLEAR WATERS**

## Sensor Reed

Hadi El-Shayeb, Peggy Wong, Lexi Kalman  
 University of Toronto, Canada

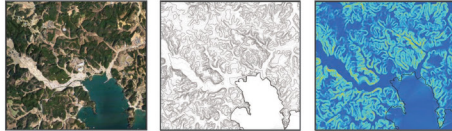
## AR Technologies X Disaster Preparedness

Enhancing Awareness and Social Resiliency through Community Engagements

Chihiro Okajima, Kenya Endo, Tokyo, Japan



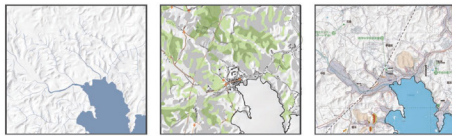
Landslides, flooding (Kurashiki, Southwestern Japan in July, 2018) and Tsunami (Tohoku coastline in 2011)



Aerial Image

Topography (Contour 2.10m)

Slope

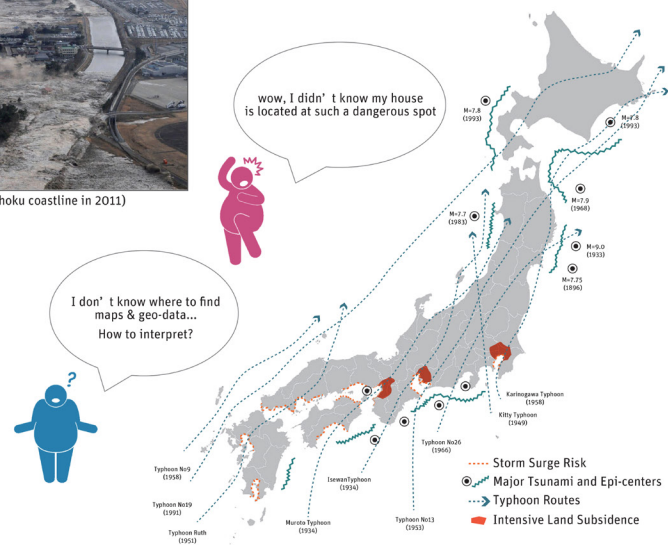


Hydrology

Landuse, Vegetation

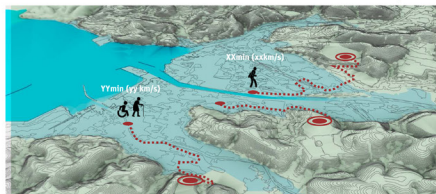
Hazard Map

Ministry of Land, Infrastructure, Transport and Tourism 2006. "Current Status and Challenges of Coast"  
[http://www.mlit.go.jp/rives/shinagikai\\_blog/kaijoun\\_hoens/01/index.html](http://www.mlit.go.jp/rives/shinagikai_blog/kaijoun_hoens/01/index.html) (accessed April 30, 2019).  
 Japan's Disaster Photos, Credit: Kyodo/via REUTERS  
 Aerial / GIS data of Utsu. Source: Google Earth, Geospatial Information Authority of Japan, Town of Minami Sanriku

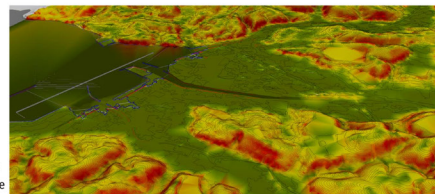


Core of the project is to integrate **Augmented Reality (AR)** technology with **Landscape Planning**, to further expand the visibility, applicability and scalability of geo-spatial information.

For example, AR can help us understand our surrounding environment more than ever from disaster preparedness point of view. Enhancing risk awareness will increase community's social resiliency.



Flooding and tsunami simulation can represent different water levels. Designated evacuation centers and their routes can be overlaid to the AR visualization to understand the evacuation process within the community.



Site topography analysis can identify steep sloped areas within the community, so that to understand landslide-prone areas. Overlay of city's hazard map, vegetation and soil maps can enhance the accuracy of such risky areas.

## AR Technologies X Disaster Preparedness

Kenya Endo, Chihiro Okajima

Free-lance, Japan

## Training concept BIM qualification for landscape architects - developed based on Autodesk Revit



### PROBLEM OBJECTIVE METHODOLOGY

**PAST:**  
frequent deadline and cost failure

- BMVI-STEP-BY-STEP-PLAN FOR DIGITAL PLANNING AND CONSTRUCTION (2015)**  
BIM introduction for public projects
- BIMUS DECREE (16.01.2017)**  
BIM method in public building construction projects with construction costs more than 5 million €. (green, without additional costs)

about 4% of landscape architects use BIM or are planning a BIM implementation in their office  
 about 40% have heard about BIM  
 about 16% have dealt with BIM methods yet

**The BIM method needs to be learned.**  
 > Training of the present personnel.

Development of a training concept for BIM qualifications for landscape architects dedicated to planning exterior areas with the BIM-software Autodesk Revit

Development of certain training fields

First sighting of existing training methods

Development of learning targets

Development of a detailed step-by-step script

All lessons include:

- clear definition of learning targets
- reliable time specification
- start files and outcome files
- video training

### OUTCOME - LESSONS

#### 1 BASIS DETERMINATION

step 01 - Insert CAD-basis  
 step 02 - Setup of coordinate system  
 step 03 - Setup of surrounding buildings  
 step 04 - attachment of an external building file

#### 2 GENERATION OF THE TOPOLOGY

step 05 - generation of the topology through the definition of points  
 step 06 - generation of the topology through the import of a DWG file

#### 3 LANDSCAPING AND LETTERING

step 07 - Terrain modelling  
 step 08 - Determination of the property line  
 step 09 - Lettering of the contour lines  
 step 10 - Sectioning  
 step 11 - Adding level marks  
 step 12 - Calculation of the material removal and application

#### 4 STREETS AND PATHS

step 13 - Creation of subregions  
 step 14 - Adding building zone  
 step 15 - Creation of paths with different constructions  
 step 16 - Adding surround

#### 5 WALLS AND HEDGES

step 17 - Building a wall  
 step 18 - Changing of the wall construction and wall type  
 step 19 - Creation of a hedge

#### 6 STAIRS AND RAMPS

step 20 - Buildings stairs  
 step 21 - Building a ramp

#### 7 HANDRAILS AND FENCES

step 22 - Building handrails  
 step 23 - Building a fence

#### 8 ADDING EXTERIOR COMPONENTS

step 24 - Adding items of equipment

#### 9 QUANTITY TAKE-OFF

step 25 - Compiling a component list  
 step 26 - Creating plant design

#### APPENDIX: COLLECTION OF LANDSCAPE COMPONENTS ONLINE LIBRARIES

### CONCLUSION AND OUTLOOK

**Conclusion**

The presented training concept is a first approach for a basic BIM-Training for landscape architects. It includes self-learning tools.

More trainings are needed for advanced topics concerning

- how to solve specific planning task like drainage
- how to structure templates for complex projects
- how to integrate attributes
- how to organize BIM-objects for facility management of open space
- how to collaborate with other trades

This requires more specific tools for landscape architects in commercial BIM software.

More component families for landscape architecture are need.

The usability of other commercial software beside Revit should be tested.

**Outlook**

It will take some time to established BIM-methods in landscape architecture.

- BIM progresses step by step
- Landscape architecture should deal with BIM
- Starting with small and clear projects
- Learning by doing
- Developing own workflows

Specific training concepts for landscape architects can stimulate the process of implementation.

Database oriented planning creates a better understanding of planning concepts. So BIM-methods should be integrated in education of landscape architects.

The lessons are now part of the course „Building Information Modeling“ for bachelor students or landscape architecture at University of Applied Science Osnabrück.

So the program is tested and evaluated in practice. On this basis the training concept is going to be enhanced and improve.

**Created by:**

M.Eng. Claudia Fasold  
 claudia.fasold@gma.de  
 master thesis 2018  
 Hochschule Osnabrück

**Guided by:**

Dr. Ilona Brückner  
 i.brueckner@hs-osnabrueck.de

Prof. Dr. Uta Stewering  
 u.stewering@hs-osnabrueck.de

Training concept  
 Claudia Fasold, Ilona Brückner, Uta Stewering  
 Hochschule Osnabrück, Germany

## OPPOSITE ENCOUNTER ELEVATION GAMES

ISTANBUL TECHNICAL UNIVERSITY  
FACULTY OF ARCHITECTURAL  
DEPARTMENT OF LANDSCAPE ARCHITECTURE

2018-2019  
FALL SEMESTER  
GRADUATION PROJECT  
İZMİR GEDİZ BASIN, MAVİŞEHİR

PROF.DR.HAYRİYE ESRAH TÜNCÜY  
ASSOC.PROF.GÜLŞEN AYTAÇ  
LECT.DR.ERBU ERBAŞ GÜLER

ASSOC.PROF.DR.ELİF KISAR KORAMAZ  
M.SC.VOLKAN TAŞKIN  
PROF.DR.ADNAN KAPLAN

RESS.ASİST.ARZU GÜREL  
RESS.ASİST.ÇİSEM DEMİREL  
PREPARED BY AYNUR GİZEM YEŞİLYURT/020130504

### WHERE IS THE PROJECT SITE



### IN İZMİR SCALE

#### URBANIZATION



#### TOPOGRAPHY



#### BASINS

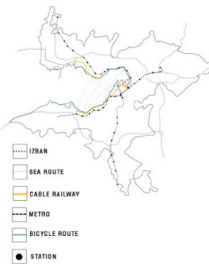


### URBAN GROWTH



### IN URBAN SCALE

#### TRANSPORTATION



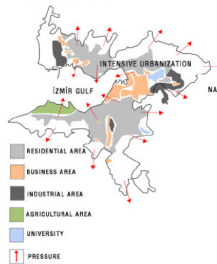
#### ROADS



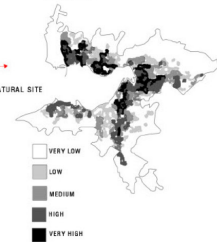
#### GREEN AREA



#### PRESSURE AND LAND USE

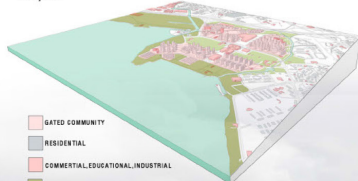


#### SPATIAL RISK

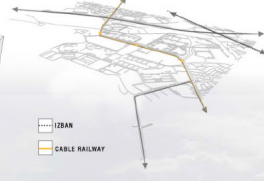


### IN MAVİŞEHİR SCALE

#### MAVİŞEHİR



#### CONNECTION



#### GREEN AREA



#### BUILDING DENSITY



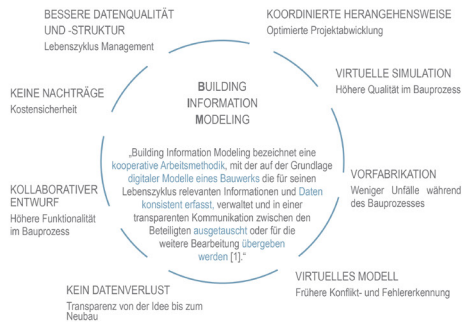
Opposite Encountre  
Aynur Gizem yeşilyurt  
Turkey

## ANFORDERUNGEN AN DEN BIM-REFERENZPROZESS FÜR FREIANLAGEN



HOCHSCHULE OSNABRÜCK  
UNIVERSITY OF APPLIED SCIENCES

### BIM - DEFINITION UND VORTEILE



Die Vorteile des Building Information Modeling [nach 2]

### PROBLEMSTELLUNG

Nur 2,09 % von 186 befragten Landschaftsarchitekten planen den Umstieg auf BIM, rund 1,57 % haben BIM bereits in ihrem Unternehmen implementiert [3].

Ab 2020 werden deutschlandweite Großprojekte des Hochbaus ab einem Volumen von fünf Millionen Euro auf ihre BIM-Kompatibilität geprüft [4].

Es besteht die Gefahr, dass die Planung von Freianlagen von fachfernen Planern übernommen wird, die bereits Erfahrungen im Umgang mit BIM vorweisen können.

### METHODIK



### ZIELSETZUNG

- Erstellen eines Handlungsleitfadens für BIM-Prozesse bei der Abwicklung von Freianlagen
- Bedarf aufdecken, Forschungsfragen formulieren, groben Ablauf- bzw. Prozessplan aufstellen (Überblick für den Anwender)

Wer hat wann wem welche Informationen in welcher Detailtiefe und in welchem Dateiformat zu übergeben?



### ERGEBNIS: BIM-REFERENZPROZESS

Die zugrunde liegende Literatur umfasst sowohl nationale als auch unternehmensspezifische Standards. Diese bilden eine Art Leitfadens zum Umgang mit der Methode BIM. Berücksichtigt wurden folgende Quellen:

- PAS 1192-2:2013 der British Standard Institution,
- Common BIM Requirements 2012 [Finland],
- Singapore BIM Guide V2-2013,
- National BIM Standard 2015 [USA],
- DIN EN ISO 29481-1:2016,
- BIM Referenz-Bau-Prozesse für Deutschland 2017,
- Deutsche Bahn AG: Roadmap-BIM 2017 und
- Siemens Real Estate: BIM-Gesamprozesslandkarte 2017.

Der entwickelte BIM-Referenzprozess bezieht sich auf ein öffentliches Bauvorhaben mit unterschiedlichen Akteuren (Auftraggeber, BIM-Manager, BIM-Koordinator, Landschaftsarchitekt, Fachplaner, Unternehmer und Lieferanten/Hersteller).

Um die vollen Möglichkeiten des BIM-Prozesses aufzuzeigen zu können, ist ein big open BIM-Anwendungsfall dargestellt. Dies ermöglicht es jedem Fachplaner, in einer auf seine Bedürfnisse angepassten Software zu arbeiten. Die Herausforderung dieses Anwendungsfalles besteht im barrierefreien Austausch der Modellinhalte.

Die Aufgaben der an der Abwicklung von Freianlagen beteiligten Akteure werden im BIM-Referenzprozess in sogenannten Swim-Lanes (horizontal) dargestellt. Sie sind im Projektverlauf des BIM-Prozesses an die Leistungsphasen der HOAI (vertikal) angelehnt.

Zu den üblichen Beteiligten kommen beim BIM-Referenzprozess der BIM-Manager und der BIM-Koordinator hinzu. Der Manager ist hauptsächlich für das Kommunikationsmanagement zuständig. Der Koordinator ist für die technische Umsetzung der Planungsleistungen im Modell verantwortlich.

#### Auftraggeber-Informations-Anforderungen [AIA]

Bei der Zusammenstellung der AIA ist die Softwarelandschaft des Auftraggebers maßgebend. Daher kann hier nur eine Übersicht der Inhalte gegeben werden, die in den AIA zu berücksichtigen sind. Zudem kann die Definition der AIA je nach Phase, beteiligten Akteuren, Anzahl der Teilprozesse etc. sehr aufwendig sein, somit ist es sinnvoll, diese gemeinsam mit den Akteuren, Anm. d. Verf.] zu erstellen, zu teilen und wiederzuverwenden [5].

### AUSSCHNITT LEISTUNGSPHASE 6 UND 7

Zur Validierung des BIM-Referenzprozesses wurde schwerpunktmäßig ein Leistungsverzeichnis aus dem digitalen Modell abgeleitet (s. Exkurs). Es sind die Leistungsphasen 6 und 7 zu betrachten (s. Abb. 1), in denen die Vergabeunterlagen aus dem Modell generiert werden.

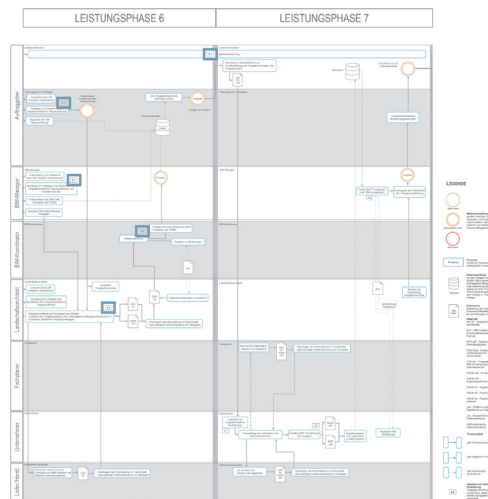


Abbildung 1: Ausschnitt BIM-Prozesslandkarte, Lph 6 und 7 - Abwicklung des BIM-Projektes während der Vergabe

### TEXTLICHE ERLÄUTERUNG: BEISPIEL LPH 6

Die Planungsmethode BIM ermöglicht folgende Prozesse in der Abwicklung der Vergabe von Freianlagen:

1. Zur Vorbereitung der Vergabe wird das Vergabeverfahren der Bauausführung festgelegt. Ebenso werden AIA vorbereitet. Der Auftraggeber wird dabei von der Vergabestelle und dem BIM-Manager unterstützt.
2. Aus dem Ausführungsmodell wird basierend auf der Verknüpfung von Objekten mit dynamischen Baudaten ein intelligentes Kurztext-LV erstellt. Dies wird durch zusätzliche Software möglich. Das Kurztext-LV wird exportiert und mit Hilfe einer Branchensoftware vervollständigt (s. Exkurs).
3. Bei der Kollisionsprüfung prüft der BIM-Koordinator das Modell auf die Vergabefähigkeit. Hier erfolgt gemeinsam mit dem Auftraggeber die Entscheidung, ob das Modell zur Vergabe freigegeben wird. Andernfalls werden 2D-Pläne zur Vergabe aus dem Modell abgeleitet.

### FORSCHUNGSBEREICHE

Zur weiteren Validierung des BIM-Referenzprozesses in den Leistungsphasen 6 und 7 sind folgende Forschungsfragen näher zu betrachten:

- Welche Vorgaben/Informationen muss das Modell zur Vergabe bereitstellen?
- Was ändert sich konkret durch den BIM-Vergabeprozess im Vergleich zur konventionellen Vergabe?
- Welche BIM-Kompetenz müssen die Akteure bei der Vergabe nachweisen?
- ...?

### FAZIT: BIM-REFERENZPROZESS

- Der erarbeitete BIM-Referenzprozess gibt Fachplanern einen Überblick zu BIM-Prozessen für Freianlagen.
- Durch eindeutige Definition der Übergabemodi bieten sich Potenziale, Prozesse zu verschärfen und damit die Wirtschaftlichkeit eines Unternehmens zu beeinflussen.
- Problematisch für Unternehmen sind hohe Schulungs- und Implementationskosten. Daher muss die Planungsmethode BIM fester Bestandteil in der Lehre werden.
- Um die Anwendung der Planungsmethode durchgängig zu gewährleisten, sind weitere Untersuchungen erforderlich.

### EXKURS: TESTLAUF DBD-BIM PLUG-IN

Das DBD-BIM Plug-In der fdata GmbH wird auf die Anwendbarkeit für Freianlagen getestet. Hierbei soll überprüft werden, ob verschiedene Objekte problemlos erstellt und in einem Kurztext-LV in einer Branchensoftware weiterbearbeitet werden können.

#### Vorgehen:

1. Überprüfen der Objekte auf ihre IFC-Übertragbarkeit mit einem IFC-Viewer
2. Mapping oder manuelles Verknüpfen der Objekte mit Dynamischen Bau-Daten (DBD) - Bemusterung (Abb. 2)
3. Aufstellen der Baukosten nach Leistungsbereich oder nach DIN 276
4. Automatisierte Prüfung der bemusterten Objekte auf Vollständigkeit und Logik
5. Daten übernehmen, Objekte markieren und ins GAEB-Format exportieren
6. Überprüfen der übertragenen Daten auf Vollständigkeit und Anwendbarkeit

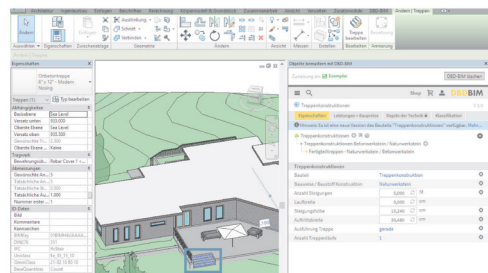


Abbildung 2: Automatisches Ableiten von Bauteilinformationen „Trepp“ durch direktes Mapping

### FAZIT: TESTLAUF DBD-BIM PLUG-IN

Das DBD-BIM Plug-In der fdata GmbH für Revit ist eine nutzerfreundliche Erweiterung der Software-Landschaft für die konsistente Anwendung der Methode BIM.

Neben der einfachen Anwendung unterstützen ausgearbeitete Funktionen das Erstellen eines LVs auf der Basis von 3D-Objekten. Trotzdem besteht Handlungsbedarf:

- Erweiterung der Datenbank des Plug-Ins (insb. Vegetation)
- Übertragen der Funktion der „Abzugsflächen“ von vertikalen auf horizontale Flächen für die Anwendbarkeit von Übersetzungregeln

Maika A. Wozniak, M.Eng.  
Anforderungen an den BIM-Referenzprozess für Freianlagen, 06/2018  
Masterthesis Hochschule Osnabrück, 2018. Betreuung: Dr. Ilona Brückner, Prof. Martin Thieme-Hack  
Hochschule Osnabrück, Oldenburger Landstraße 24, 49090 Osnabrück

Kontakt  
l.brueckner@hs-osnabrueck.de  
Maika\_Wozniak@posteo.de

**Untersuchungsgebiet:**

Republik Armenien mit einer wichtigen Rolle in Bezug auf Geschichte und Geschichte. Die ersten Kulturen, die Christianity akzeptieren, mit klaren vier Jahreszeiten und zehn verschiedene Arten von Landschaftszonen und ihre besondere Flora und Fauna sind sehr bedeutender Bereich mit seinen eigenen Problemen, für mich ist es ein Potenzial.



**Wie funktioniert es?:**

Armeniens 70% des Einkommens stammen aus der Landwirtschaft mit Weideland und Grasland, mit der Landwirtschaft ein wesentlicher Bestandteil ihres Lebens.

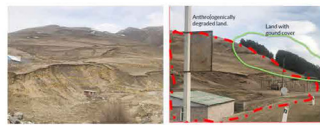
**Funktioniert es gut?**

Die Erosion war ein ernstes Problem, sie haben den Boden degradiert Untersuchung in Armenien, ich fand sie zwei Probleme.

- 1 | Überweiden
- 2 | Anthropogener Abbau



Eine typische armenische Landschaft



Weitere Untersuchungen in Tavush Marz-Armenien Oct.2018-Marz.2019

- Tavush marz von Armenien liegt im nordöstlicher Teil des Landes.
- 1 | Tavush Marz ist 2704 km<sup>2</sup> und nimmt 9,1% von Armenien.
  - 2 | Die Stadt Yevan ist die Hauptstadt des Marzars
  - 3 | 60% des jährlichen Bruttoertrags von Tavush Marz besteht aus Landwirtschaft.
  - 4 | Etwa 70% der Marzbevölkerung ist in der Landwirtschaft tätig
  - 5 | Der Bergbau war in der Region Lori ein ernstes Problem, da eine ernsthafte Gefahr besteht durch Arsen- und Kupferabfälle

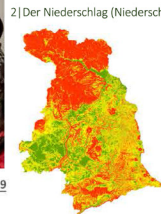
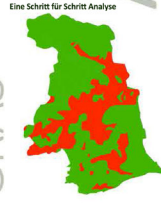
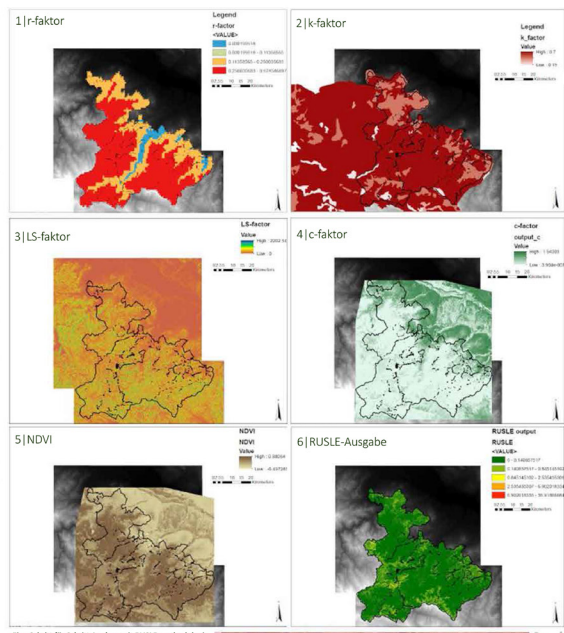


ÜBER TAVUSH

**Degradation of Pasture lands:**  
A threat to food security  
+  
**Sustainable management of Natural resources**  
A step towards Geo-design

Author:  
Asif ali Riazudeen  
Master of Landscape Architecture  
Anhalt University of Applied sciences  
06406 Bernburg, Germany

# ARMENIEN



TAVUSH MARZ

**RUSLE-Methode zur Bewertung der Erosion:**

Soil loss  $a = r * k * l * c * p$   
r-Rain/Run-off, k-soil erodibility factor  
l-slope, c-Ground cover, p-Constant(Patches of land)

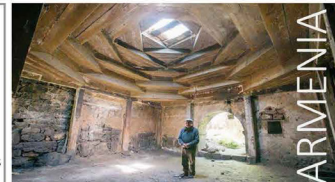
# GEHGARD



**Was braucht Armenien?:**

- 1 | die Zusammenarbeit von Experten aus den Bereichen Landschaft Designer, Umweltextperten, Naturliebhaber.
  - 2 | Der Aufstieg von NGOs, um Geld von mehreren Förderorganisationen zu erhalten
  - 3 | Landwirte in Bezug auf die Landwirtschaft zu sensibilisieren
  - 4 | Um strikte Umwelt- und Naturschutzgesetze zu schaffen, um die Umwelt zu schützen vorhandene Natur.
- Was ich vorschlage:**  
Zurück zu den natürlichen Anbaumethoden ist der beste Weg, um Land zu gewinnen mehr in Richtung Nachhaltigkeit.

Maschinen, Sprinkler und moderne landwirtschaftliche Methoden werden in der Tat sein hilfreich für die Landwirte, erhöht aber wiederum das Risiko der Aufnahme fossiler Brennstoffe, Zum Beispiel werden die Sprinkler Wasser mit Salz besprühen, das Wasser trocknet + verdunstet, aber das Salz bleibt in. Das Ackerland wird zu einem Salzhof.



# ARMENIA

## Degradation of Pasture lands: A threat to food security+ Sustainable Management of natural resources

Asif Ali Riazudeen  
Hochschule Anhalt, Germany

# LAYERED INTERACTIVE VR GARDEN

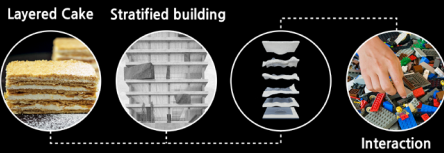
Seoul National University  
Graduate School of Environmental Studies  
Department of Landscape Architecture  
PIAO ZAIXIAN

3D Landscape Vision for the future  
DLA 2019

## Introduction of Project

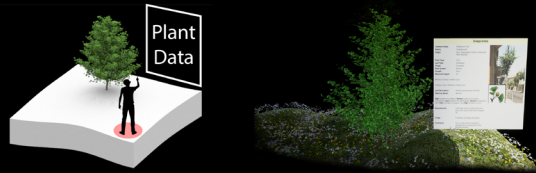
This project is a work done in the Virtual Landscape Design Techniques course. It is the core of the class to experience the realm of virtual reality (VR) through the class and to experiment with the method of utilizing it as a tool of the new landscape design. Each of students made a VR garden of 20 meters by 20 meters. Through the design of the VR garden to explore the differences and advantages of the application of VR design methods and existing design methods.

## Design Concept



Through the layers of cakes, the floors of the building to get the idea of layered terrain, and based on the interaction design

## Landscape Information Model (LIM)

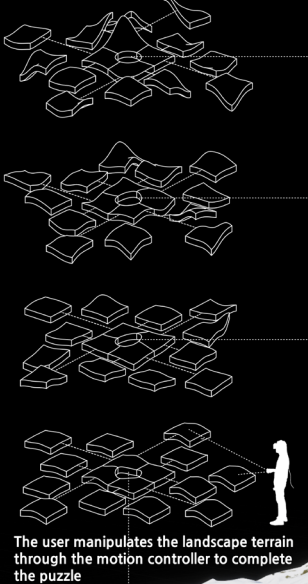


Information about the plant will be provided as the user approaches the plant. More information about the landscape is also available.

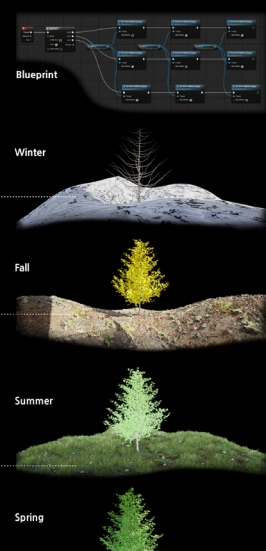
## Software Used



## Landscape Puzzle



## Change



Create a variety of interactive functions with BLUEPRINT scripting in the unreal engine. Users can change the season, materials, etc. in the VR environment.

## 3D Point Cloud Data

Use radar for 3D scanning of terrain and plants



Layered Interactive VR Garden - Poster competition  
Zaixian Piao  
Seoul National University, South Korea



# A Mixed-Methods Approach to Evaluating Participant Experience in Real and Virtual Environments

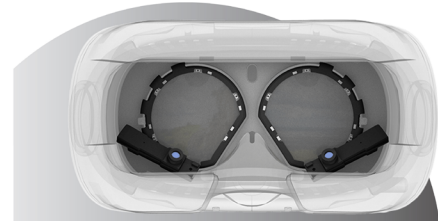
Evan Gill, Mark Lindquist **M** | SEAS SCHOOL FOR ENVIRONMENT AND SUSTAINABILITY UNIVERSITY OF MICHIGAN

## Abstract

Successful remediation and design interventions for a landscape require the buy-in of stakeholders and future users of that landscape in order to have long-term sustainability. 3D visualizations are a powerful tool to help establish a sense of place to a diverse user group. Research suggests that visualizations combined with additional sensory stimulation can result in a higher sense of presence and understanding of these 3D visualizations. To create a more immersive visual experience, it is first essential to understand how users perceive and observe landscapes. This research will use empirical methods to evaluate the effect on gaze direction of auditory stimuli comparing a virtual and real landscape. The working hypothesis is that perceived realism, presence and understanding of a virtual landscape can be enhanced using auditory stimuli. This research will utilize head mount display (HMD) virtual reality technology, Eye-tracking Metrics (ETM), and biosensors (galvanic skin response (GSR) and EEG) to collect physiological data that can be compared to participants' perceptions of landscapes.



Pupil Labs Eye-Tracker with World Camera



HTC VIVE with Pupil Labs Eye-Tracker



## Research Questions

1. Is landscape subjective preference altered by the addition of audio stimuli?
2. Is the sense of presence of a real landscape comparable to that of a virtual 3D model?
3. Can Eye-Tracking data be used to determine the sense of presence and realism of a 3D and 4D-virtual model?
4. Do physiological indicators corroborate self-reported measures of landscape experience and cognition in real and virtual environments?



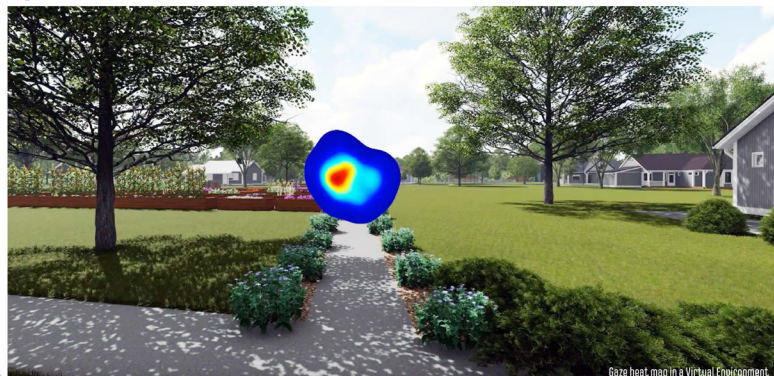
VR Immersion Tests

## Research Design

**Proposed Research Design:** The research will use an experiment to evaluate how altering soundscapes contributes to subjective and objective landscape experience in virtual environments

### Main Goals:

1. Investigate and validate the use of physiological variables as measures of perception, immersion, and presence
2. Investigate how the manipulation of a soundscape impacts the effectiveness of the virtual environment



Gaze heat map in a Virtual Environment.



Gaze heat map in a Virtual Environment.

## Key References

- Berto, R., Massaccesi, S., & Pasini, M. (2008, June). Do eye movements measured across high and low fascination photographs differ? Addressing Kaplan's fascination hypothesis. *Journal of Environmental Psychology*, 28(2), 185-191. doi:10.1016/j.jenvp.2007.11.004
- Draper, J. V., Haber, D. B., & Usher, J. M. (1988). Telepresence. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 40(3), 354-375. doi:10.1518/001872088779591386
- Lindquist, M. W. (2014, August). *The Impact of Sound on Virtual Landscape Perception*. Retrieved from <http://etheses.whiterose.ac.uk/6675/1/M%20Lindquist%20PhD%20Thesis.pdf>
- Sanchez-Vives, M. V., & Slater, M. (2005, May). From presence to consciousness through virtual. *Nature Reviews Neuroscience*, 8(4), 332-339. doi:10.1038/nrn1651

### Programs Used:

- AutoDesk InfraWorks 360
- Pupil Labs Suite
- Unity Game Engine

# A Mixed-Methods Approach to Evaluating Participant Experience in Real and Virtual Environments

Evan Gill, Mark Lindquist

University of Michigan, United States

ROTA MALATYA REGIONAL ROUTE PLANNING AND INTERACTIVE DESIGN FOR DESTINATIONS AND TOURISM OPPORTUNITIES

### LOCATION

TR81 Region consists of Malacca, Klang, Baniang and Turukel provinces. TR81 The province of Malacca is 12.3.5 km and it is located between 38 34' and 39 03' north latitudes and 38 45' and 39 03' east longitudes. Arguvan district of Malacca is 64 km away from the east. Arguvan, in the west, Heikimhan, Swas and Divig districts in the north. Arguvan district center has been changed twice because of permanent place shift. The new settlement is 2 km away to the north. It is generally covered in terms of surface forms, while the north and high mountains have a plateau characteristic.

### NATURAL DATA ANALYSIS

When the inclination of the Arguvan is evaluated, the South of the area forms inclined and very sloping areas, while the northern part of the area is steep. Difficulties of nature trekking, cycling areas for plateau visits are shaped according to the data obtained.

According to the data of the town of Arguvan, the most dominant group looks at the South East that covers 81% of the entire area. These data will be used in the selection of the nature spots, carrying etc. activities and the cruise area to be formed for Arguvan.

The most dominant height group in the study area is the range of 1443-1543 meters covering 13.2% of the whole area. The route design and the degree of difficulty of the traces followed will be shaped according to the obtained data.

### TOPOGRAPHIC ANALYSIS

When we look at the topographic situation of the Arguvan, it starts with the Karakaya dam at an altitude of 684 meters and continues until the Yamada at 2723 meters, some of which are on the Arguvan border. When the villages are bordered to the Karakaya dam, it is observed that the plains are dense and these plains constitute important agricultural lands. Considering the places where the elevation increases, it is seen that important highlands and animal husbandry were carried out.

### Natural and Cultural Route

The natural and cultural route is connected to the Yama Mountain ski resort in the north direction and the continuity of the route is ensured. At the same time the route will continue with the natural and cultural value of Sivaz after the 'Yovcaik' resort.

The natural and cultural route is connected to Sivaz by the 'Yovcaik' Bridge in the northeast direction and the continuity of natural and cultural values is ensured.

The natural and cultural route is connected to Sivaz via the Karakaya dam in the south and the continuity of the route was provided by Harput.

Planning strategies have been developed by considering the cultural and natural heritage of the district in the route planning work of Arguvan district. Other principles of planning are the existing agricultural pattern of the district and the presence of erosion affecting district development. While the agricultural pattern was the most important indicator of the past recognition of the town of Arguvan, this value is now disappearing. The route, which is designed in this direction, is a route that blends the geological situation and culture, and the topographic structure of Arguvan contributed to diversity. The scattered values within the boundaries of the district are designed with a holistic route construction with network characteristics. Linear, circular and network routes are designed as a whole when creating maps.

- Settlements
- Faith points
- Cultural value
- Endangered flora
- Natural and cultural route
- Side route
- Wheat route
- Folk song and faith
- Side route

### Natural and Cultural Route

Its history, culture, nature and Arguvan can be explored. Arguvan's mountains, meadows, areas, tumuli and Karakaya dam form the starting point of the route. You can visit the people who formed from the ruins of the Arguvan center and can see in the first agricultural museum of Malacca. You can meet the manufacturer of the instrument only in Arguvan and you can proceed on the route and join the production. The visit to Sivaz is the archaeological site of Cavuape, the Karakaya tumulus and the visit of the Shan Sultanate constitute the ongoing destinations of the route. The historic Yovcaik bridge allows you to observe the Yovcaik Bridge to visit Arguvan. The route starting with Karakaya Dam shows a rural landscape with experiencing the life of Calmek and Sivaz. Pasa as an altitude of 2000 meters. After visiting the highlands, you can go skiing by following the route to Yama Mountain and you can stay here and visit Sivaz.

### Wheat Route

In the fertile soil, traces of wheat were followed by visiting points. The route along the Karakaya dam follows the trail of the wheat while the dam is accompanied along the route. On the ongoing route, fish can be caught from the points where angling is made. The next stop in Sivaz will be the Karakaya meadows. You can see the Arguvan plains through the wheat fields on the route. The next stop is the Upper Sivaz mountain and the Horumtan Tarsak. When you come to Cavuape, you can visit the archaeological site of Cavuape, the Karakaya tumulus I-II, the Yovcaik tumulus I-II and the Kozak tumulus. You can go to Balik Lake after you spend your time in Kuzak, which is your next stop, and you can take some pictures in lavender gardens and you can participate in lavender collection activities. The Black Mountain will be the next stop you want to visit, so you can visit the ruins of the village and see the ruins of the past mill. The last stop will be the Leverage archaeological site and you can rest in the rest areas by reaching Karakaya.

### Turku-Faith Route

You can start with a visit to Calil Abbas to visit the Isac and Turku route for Arguvan, a culture where faith and folk are intertwined. The Holy Dede tomb in the Isac Village is the second stop to visit. On the way to visit Karakaya, you can feel the benefits blended with folk songs. On the way to visit Karakaya, you will meet the Dede Dede with the folk song. When you go to the Isac Calil Sack museum and Emir Dede visit in Sivaz, you can get the opportunity to listen to Arguvan folk songs around here. You can continue the route as a witness of how Arguvan changed the melody between Kozak and Sivaz. You can visit Balik Lake (Sacred Fish) when you travel from Sivaz to Sivaz. If you wish, you can visit the Karakaya Tumulus, Adalige Tumulus, Yovcaik Tumulus I-II, Kayabas tumulus I-II and Cavuape Archaeological site. From here you can go to Anasica visit with the songs of Arguvan. After visiting Kozak, visit Arguvan to visit the museum, you can spend some time here and you can join to the production from the other workshop which is made only in Arguvan and produced by traditional methods. You can buy these souvenirs by asking for a souvenir. If you can make your visit to Sivaz, you can join the International Arguvan Turk Festival and spend two days in this atmosphere.

### EVENT CALENDAR

The activities of the district and the activities included in the route planning are included at the same time.

**Analog ve Dijital Peyzaj Mimarlığı**  
 Elif Oktay, Sevgi Görmüş  
 Turkey

proposal for Green Lane Training Center. The light is proposed in the circulation so the people can see the circulation at night and it has indirect light for the tree so the people will be aware of the trees.

## ENTRANCE



Entrance is for welcoming and attraction. I proposed bamboo and green wall for welcome the guest. I proposed rain garden to collect the rain and the water can be recycle to use for plants.

## BARBECUE AREA



Barbecue area is the gathering area for people to relaxation and gathering. I proposed in this location because the location between Lemonarium and Training center. It is a connection between this two building.

## MEDICINE BOX



Medicine box is a box to show different kinds of medicine plants. Armenia has different kinds of medicine plants. Green lane Training center purpose is to educate people so it is a good platform for them to exhibit different plants.

## KITCHEN + TEA GARDEN



Kitchen garden is located next to Kitchen. It is convenience for the people to collect what they need for cooking. Tea garden is located next to tea house so it is easy for people to collect the tea and enjoy there.

## RED LISTED PLANT ZONE



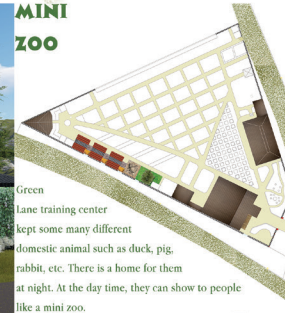
Armenia has so many rare and endangered plants. Red listed plant zone is a platform to exhibit the plants. Green lane Training center also can experiment the new plants and educate the people.



## MASTER PALM



## MINI ZOO



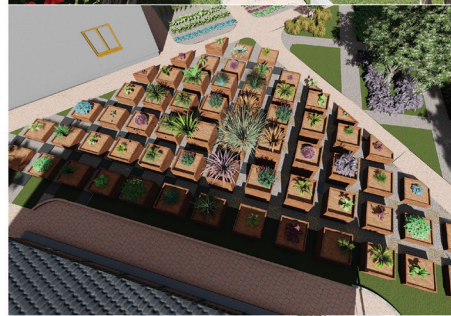
Green Lane training center kept some many different domestic animal such as duck, pig, rabbit, etc. There is a home for them at night. At the day time, they can show to people like a mini zoo.

## STAGE



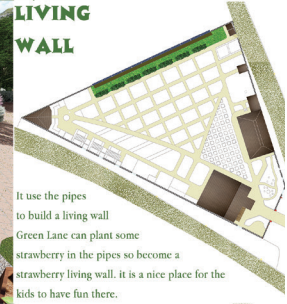
Green Lane Training center always need to organize some talk and speech for education and training purpose. It is a outdoor place for people to enjoy the talk and sunshine at the same time.

## ORCHARD



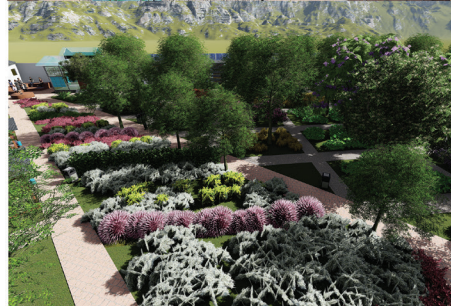
Orchard is seem like a heaven. It has different kinds of fruit tree such as apple tree, pear tree, cherries tree etc. The people can pick up whatever fruit they want.

## LIVING WALL



It use the pipes to build a living wall. Green Lane can plant some strawberry in the pipes so become a strawberry living wall. It is a nice place for the kids to have fun there.

## PLANTS HOSPITAL



It is a place to let people can storage their plants if they go for long trip. Green Training center staffs have so many experience to take care of plants so they will response to take care of it. If the plant sick, people also can seek for help from them.

It seems

I hope that I

Lead to Green Lane  
Wing Yan Ho  
Hochschule Anhalt, Germany

## *Landscape*

Social Change - Generating Tool



*Imagining new scenarios in difficult contexts*

Healing Garden. Irak.

Author: Juanita Leal Ochoa

**Landscape as a social change generating tool. Imagining new scenarios in difficult contexts. Healing Garden in Irak**

Juanita Leal Ochoa  
Colombia

## THE HYDROPHONE

By: Aaron Hernandez & Devin Tepleski

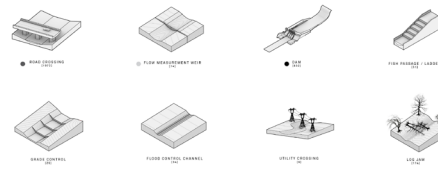
Software: Autodesk Fusion 360, Autodesk Eagle, Max/MSP/Jitter, ArcGIS Pro, Rhino 3D, Adobe Creative Suite

Developed for a studio entitled "Longitudinal Landscapes: Mud, Monitoring, and Mobilization" working within the Autodesk Resident program, The Hydrophone is a custom sensor technology that monitors sediment bed load in fluvial systems and has potential for public interaction through the amplification and visualization of underwater sound. The studio focused on identifying sites and strategies for design that support reconnecting the San Francisco Bay Area's tributaries to its baylands (the marshes and mudflats that host important ecologies, retain carbon, and protect communities along the bay) through innovative use of inexpensive and accessible technologies for the design of novel monitoring infrastructure. The device uses hydrodynamic force to hug the bottom of the river, reading the vibrations of sediment particles as they pass over its surface through a piezo microphone installed in the device. As a proof of concept, it is a fully functional hydrophone with an optional Arduino-controlled depth sensor component. The prototype was exhibited in an interactive display at Autodesk Toronto where visitors were able to release particles atop an abstracted landscape model. The released "sediment" would trigger visualizations programmed in Max/MSP/Jitter in real-time as it passed over the device.

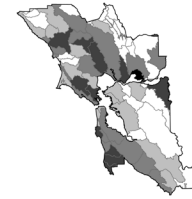
Next steps are to calibrate a Max/MSP/Jitter FFT script that gates the frequencies of real-time audio based on the premise that the audio profiles can be used to identify particle sizes. Similar studies by Mathieu Marinneau et al<sup>1</sup> of the USGS show promise for the technology and may have implications on the way we manage riverine landscapes.

<sup>1</sup> https://www.researchgate.net/publication/312211114\_Sediment-Induced-Acoustic-Signatures-for-Particle-Size-Determination  
<sup>2</sup> https://www.researchgate.net/publication/312211114\_Sediment-Induced-Acoustic-Signatures-for-Particle-Size-Determination  
<sup>3</sup> https://www.researchgate.net/publication/312211114\_Sediment-Induced-Acoustic-Signatures-for-Particle-Size-Determination

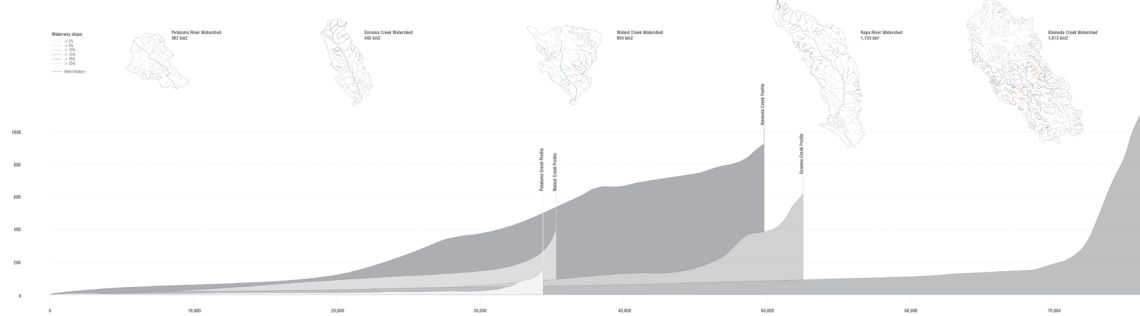
## SAN FRANCISCO BAY AREA UPPER FLUVIAL OBSTRUCTION INDEX



## WATERSHEDS WITH MOST OBSTRUCTIONS PER AREA UNIT



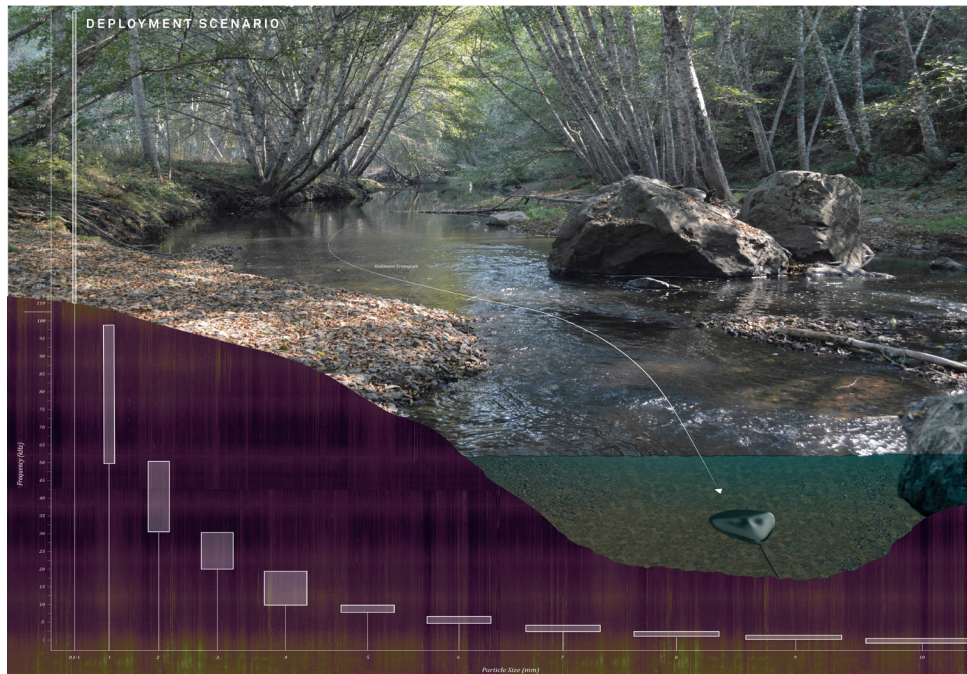
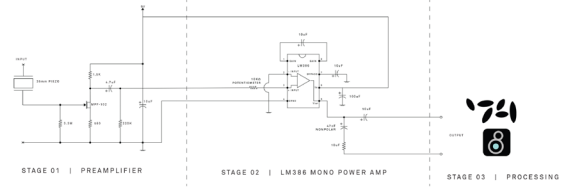
## WATERSHED ANALYSIS



## DETAIL DRAWINGS OF DEVICE



## SCHEMATIC



**The Hydrophone**  
 Aaron Hernandez, Devin Tepleski  
 University of Toronto, Canada

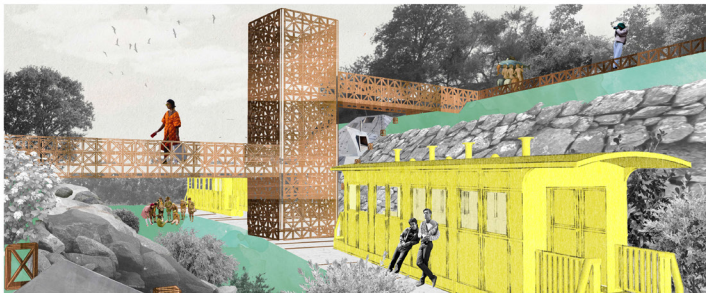
# No 109



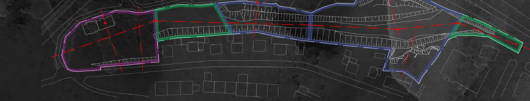
## -STRANGERS ON A TRAIN- REVITALIZATION OF THE POST-RAILWAY AREA

AUTORS: DARIA BANACH, JOANNA CHYLAK, ANASTASIYA PRYDACHYNA

CRACOW, POLAND



## -FUNCTION SCHEME- SC. 1:2000



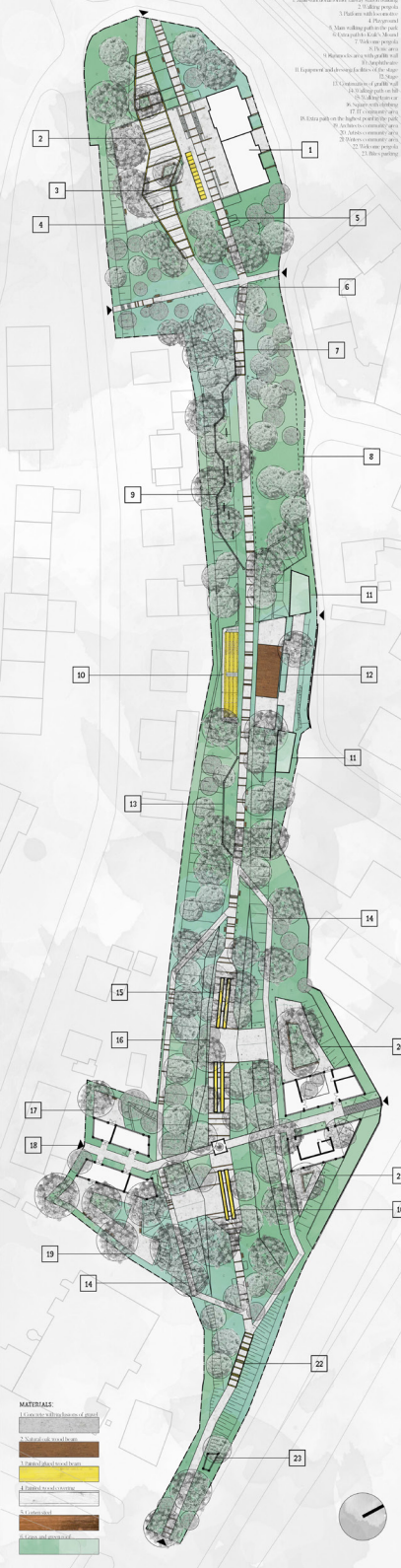
### LEGEND OF FUNCTION SCHEME

- main axis
- extra axis
- visual roads
- entrance to the site
- zones
- welcome zone
- green boundary zone
- communities zone

## -MASTER PLAN- SC. 1:500

### LEGEND: FOR MASTER PLAN OBJECTS AND SPOTS:

1. 30m high wall with perforated facade
2. Yellow pergola
3. Yellow bench
4. Main walking path
5. Concrete wall
6. Yellow pergola
7. Yellow bench
8. Yellow pergola
9. Yellow bench
10. Yellow pergola
11. Yellow bench
12. Yellow pergola
13. Yellow bench
14. Yellow pergola
15. Yellow bench
16. Yellow pergola
17. Yellow bench
18. Yellow pergola
19. Yellow bench
20. Yellow pergola
21. Yellow bench
22. Yellow pergola



### MATERIALS:

- 1. Concrete
- 2. Yellow metal
- 3. Yellow metal
- 4. Yellow metal
- 5. Yellow metal
- 6. Yellow metal
- 7. Yellow metal
- 8. Yellow metal
- 9. Yellow metal
- 10. Yellow metal
- 11. Yellow metal
- 12. Yellow metal
- 13. Yellow metal
- 14. Yellow metal
- 15. Yellow metal
- 16. Yellow metal
- 17. Yellow metal
- 18. Yellow metal
- 19. Yellow metal
- 20. Yellow metal
- 21. Yellow metal
- 22. Yellow metal

## “Strangers on a train” - Revalorization of the Post-Industrial Area

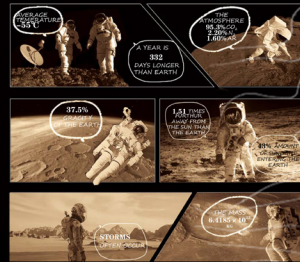
Joanna Chylak, Daria Banach, Anastasiya Prydachyna

Politechnika Krakowska im. Tadeusza Kościuszki, Poland

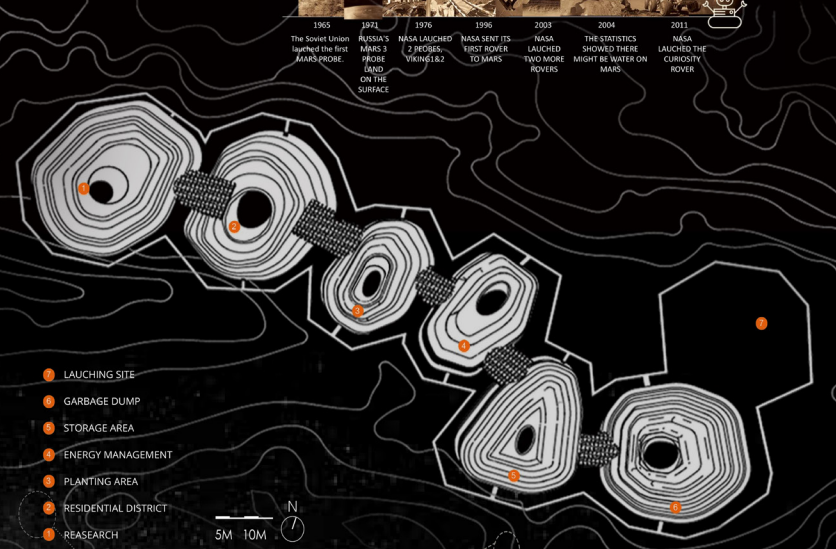
# MARSTOPIA

Due to the extreme weather change on Earth, people might need a new habitat in the future. Since 1965, the explorations of Mars has never stopped and people keep imagining the life on Mars in many movies and books. With the high-speed development of technology, moving to Mars might be a plan that can be realized. Based on the conditions on Mars and the basic need of living, this Thesis propose a possible plan for people to live on Mars and to implement the constructions using the original materials on Mars through some advanced technology.

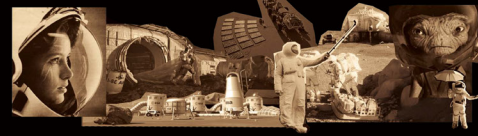
## CONDITIONS ON MARS



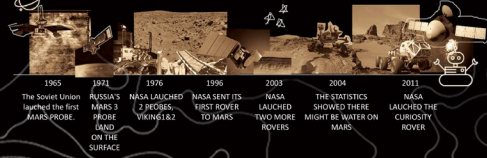
## THE PLAN OF THE SITE



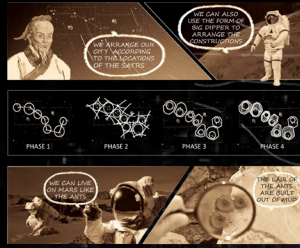
## IMAGINATIONS OF PEOPLE



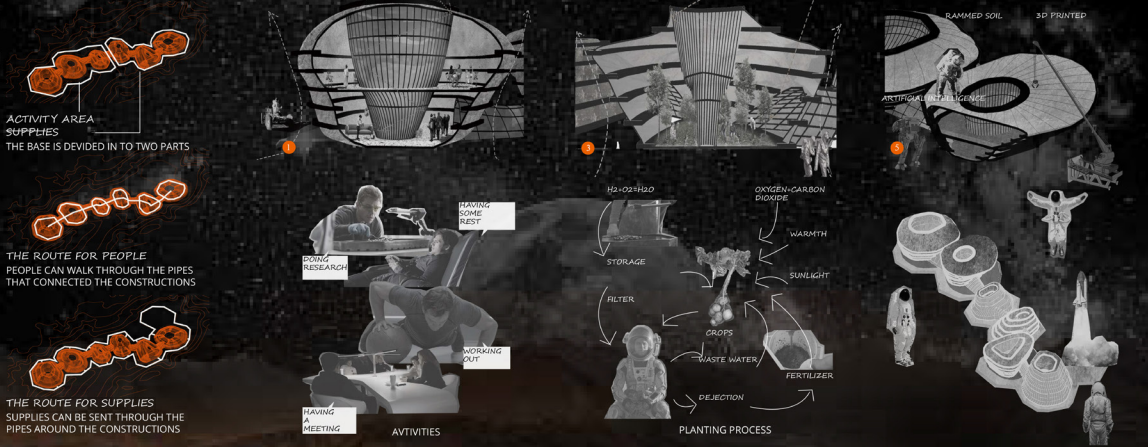
## MISSIONS TO MARS



## DESIGN CONCEPT



## ANALYSIS OF THE SITE



Marstopia (not in the Exhibition)  
Chuxuan Zhang  
China

