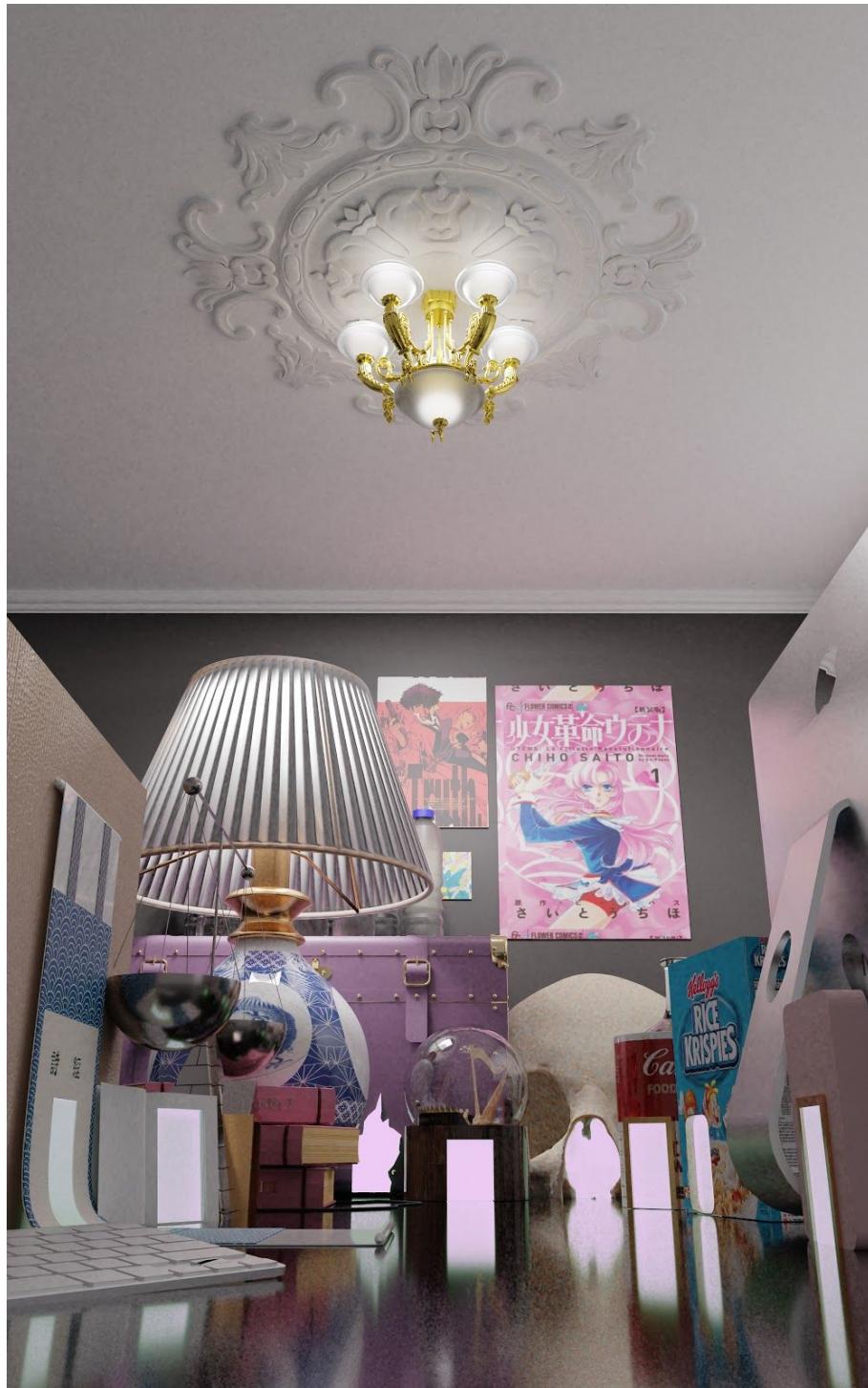


# THE CIVIC PROGRAM

## ARCHITECTURE FOR THE IMMERSIVE INTERNET

**WITH HALF OF THE WORLD'S POPULATION USING THE  
INTERNET, IS IT NOT STRANGE THAT WE NEVER SEE  
ANY CROWDS AS OUR CURSORS SAIL ACROSS THE  
FLAT PLAINS OF OUR SCREENS?**



*Temple of Knowledge: Spatial Learning Interface by Yana Kushpitovska.*

*Diploma Unit 2. The Civic Program 2019-20.*

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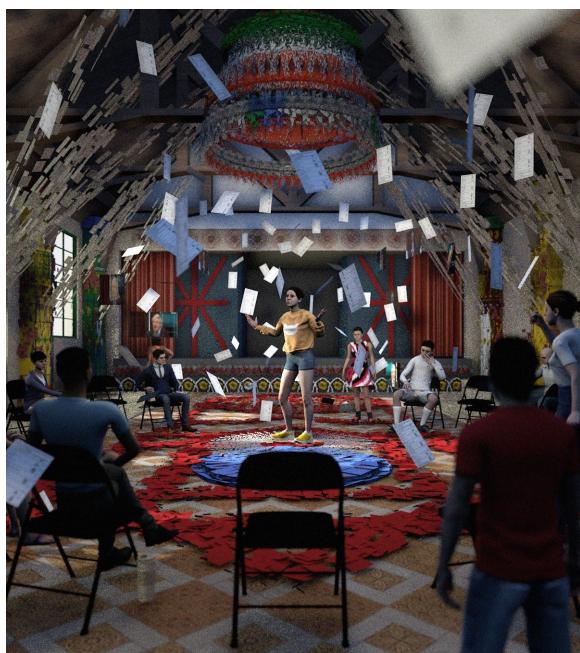
**AS WE TRANSITION FROM FLAT TO SPATIAL WE NEED  
TO ENSURE THAT THE NEW ARCHITECTURAL  
DIMENSION OF THE INTERNET IS BUILT RESPECTING  
AND SERVING THE CIVIC REALM.**



*Remote Civic Tourism* by Tammy Thanaporn Amornkasemwong. Diploma Unit 2. The Civic Program 2019-20.

## INTRODUCTION

As the digital world gains a third dimension it becomes of architectural concern. Both because *pages* are turning into *spaces*, but also because digital content is emancipating from the screen and into our rooms, streets, and landscapes by virtue of immersive



*Through The Lens of An Augmented Democracy* by Yu-Cheng Tyler Su. Diploma Unit 2. The Civic Program 2019-20.

technologies. The internet enabled social interaction in and around previously disconnected digital assets, turning the formatting of information into the shaping of public realms. Designers and coders have gone from indexing data to building *public squares*<sup>1</sup>, and we sleepwalked from the harmless website into the treacherous minefield of social media. How do we

architects, with our plural understanding of the physical realm (experiential, practical, and bureaucratic), contribute to the shaping of emerging virtual worlds in ways that align with civic values of openness, inclusivity, and sustainability?

Around the world internet shutdowns and slowdowns are on the rise, inequalities with regards to accessibility, regulation, and surveillance are increasing, and the once granulated nature of the www is lumping into a handful of dominant revenue-driven tech giants. Meanwhile, through political, economic, and environmental crises, digital gatherings on the internet have proven vital, with popular gathering sites recently being considered for “site of digital global heritage” protection – akin to the “world heritage” status bestowed by Unesco to physical sites<sup>2</sup>.

With half of the world's population using the Internet is it not strange that we never see any crowds as our cursors sail across the flat plains of our screens?

Outside of chat boxes and comment sections the internet is empty. The ways in which we gather and express ourselves in this medium are limited by its ability to represent us and the agency we are granted. Immersive technology has brought forward a renewed interest in the avatar: the embodiment or personification of individuals, groups, and even concepts or attitudes. As we turn our

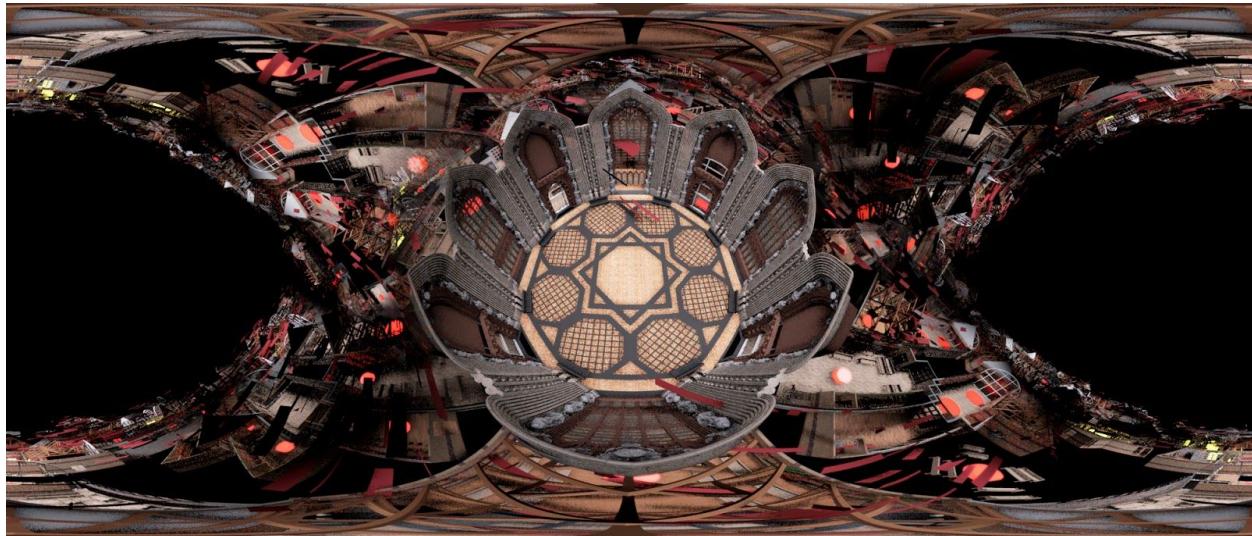
<sup>1</sup>Jack Dorsey, Twitter CEO at Senate Intelligence Committee Hearing. 5 Sep 2018: Twitter users consider it a public square.

<sup>2</sup> Nikita Aggarwal & Carl Öhman: What if Facebook goes down? Ethical and legal considerations for the demise of big tech. 11 Aug 2020. Internet Policy Review

scrolls into strolls we (re)shape the spaces around us, physical and virtual alike. As we gather in the increasingly immersive internet we merge realms, creating possibilities for meaningful exchange between people globally as well as further opportunities for manipulation, inequality, and concentration of power.

The Civic Program continues to work towards models of Architecture for the Immersive Internet, this year with a focus on how we gather on the internet. As we transition from flat to spatial we need to ensure that the new architectural dimension of the internet is built respecting and serving the civic realm.

Each and everyone of us who care about the health of the internet and its possibilities to positively impact the world need to widen our understanding of complex underlying issues and work towards a fair and ethical digital future.



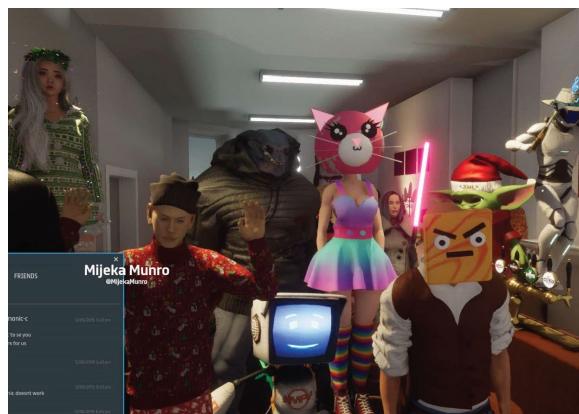
Through The Lens of An Augmented Democracy by Yu-Cheng Tyler Su Diploma Unit 2. The Civic Program 2019-20.

## DISTANT CROWDS

There are today countless gathering spaces with tens of thousands of inhabitants accessible through immersive VR technology. They are commonly referred to as "social vr platforms" and are, in broad terms, immersive versions of platforms such as Second Life, launched in the early 2000s and reaching its peak user base in 2013. Social VR platforms such as BigScreen VR, VRChat, Sansar, High Fidelity or Mozilla Hubs are pioneers of the immersive world that is expected to become widespread with the arrival of 5G and the mainstream headset or glasses. These spaces have emerged out of a natural evolution of the assembly space online. The chat room and later social media have become powerful extensions of physical forms of assembly in public space,

but before them, many other mediums for communication have aimed to shorten the distance between us. In fact, the evolution of communication media can be seen as one long project towards remote togetherness. From the letter (asynchronous text), to the telephone (synchronous voice), radio and television (asynchronous voice and image), the internet chat (synchronous text), social media (asynchronous text), the video-call (synchronous voice and image), and social VR (synchronous voice, image, and body language), we could see the timeline of media evolution as a progressive transition from a *physical me* to a *virtual me* with the aim to transfer as many layers as possible across ever greater distances and at ever increasing speed. However, within this timeline there has been several steps back. Going back to text (chatting) when we already had voice

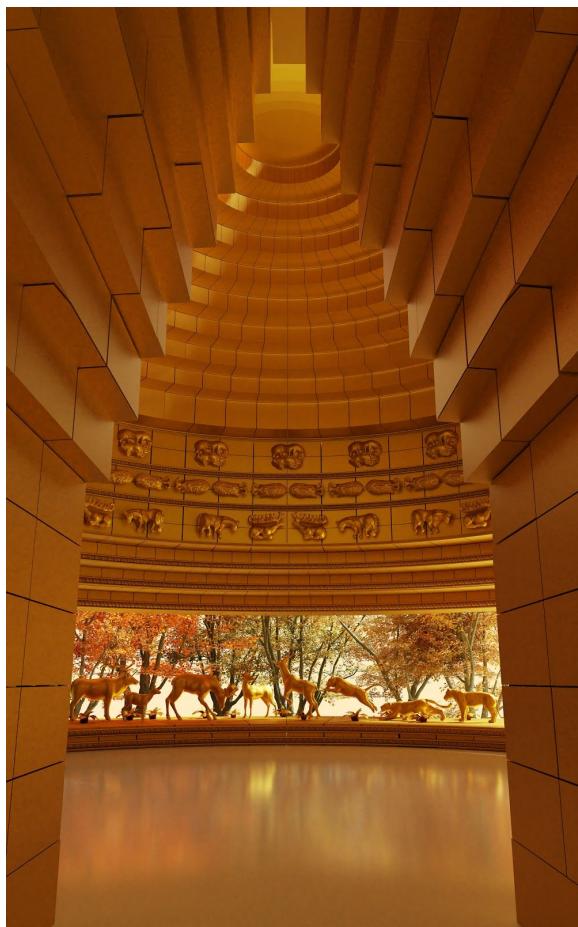
(telephone), or going back to an asynchronous model (social media) when we already had synchronous channels (online chat).



*The Halfway Pub - Typological Integration for Public Reintegration by Agi Permatasari. Diploma Unit 2. The Civic Program 2019-20.*

The reasons for this range from practical (archiving, tagging, etc.) to personal (privacy, identity, etc.), but recognising the benefits of cancelling or delaying channels (abstracting the self) does not stop the work being put towards increasing fidelity - leading to ever more *complete* avatars. This back and forth quest towards the virtual body shows the potential for new forms of gathering to break with conventional social structures while keeping familiar formats of exchange. However this does not come with its setbacks. The disembodied presence, delayed response, or shifting identities made possible by online gathering platforms can take away the sense of accountability and its consequences in maintaining civility and establishing trust. Remote gathering highlights the role of the body as an inherent part of communication and, in turn, the importance of architecture in

structuring bodies in space. It is only natural that current virtual spaces are replicas or mashups of physical ones, as we are replicating the interactions we would otherwise have in the flesh, if it weren't for the distance between us. The notion of the virtual itself implies the existence of a reference<sup>3</sup>.



Temple of Knowledge: Spatial Learning Interface by Yana Kushpitovska. Diploma Unit 2. The Civic Program 2019-20.

The virtual cannot exist without another, and even if it can evolve far from its source of reference, it will only be virtual for as long as

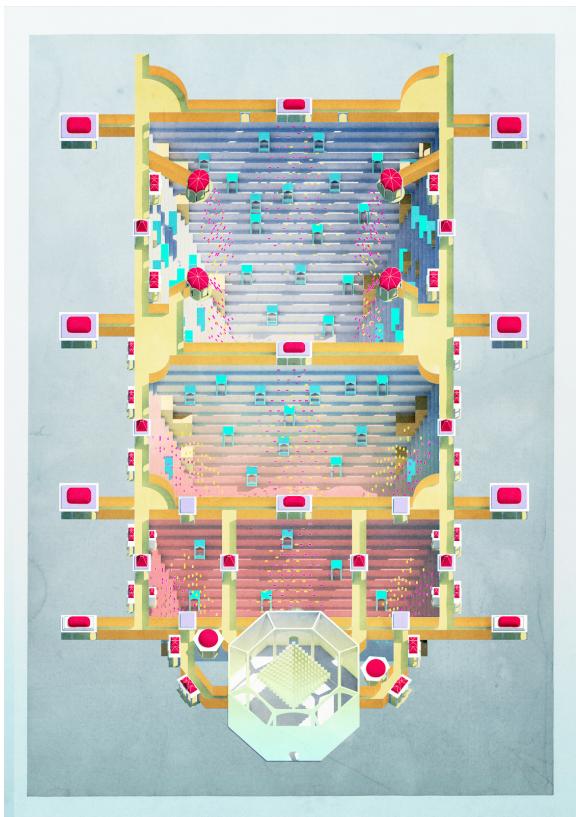
<sup>3</sup> Authors note: virtual is that which having the attributes of something does not share its physical form.

it is understood in relationship to its source. Perhaps virtual spaces and social interaction within them will eventually evolve beyond recognition and become a completely *new thing* on its own right; however, that can only happen through a gradual evolution of what we now know and understand.

The virtual cannot exist without another, and even if it can evolve far from its reference, it will only be virtual for as long as it is understood in relation to its source. The architecture of immersive virtual worlds serves the purpose of communicating to the human mind, tapping into past memories to create an experience that is completed across time. The virtual must therefore embrace such referential nature in order to communicate to the many and not the few, and with as much depth as possible. It must also find a balance between the replication of physical spaces for the sake of familiarity and the possibilities offered by its immaterial nature to create non-euclidean space<sup>4</sup>. Spaces can be bent, overlapped, twisted, or displaced at will and in real time, they can appear out of nowhere and cease existing once we look away. We might be together virtually with someone and yet perceive different worlds. The possibilities for the malleability of space as we know it if physical reality are endless, but they will only bring about a sense of immersion and belonging as long as they keep an anchorpoint, a reference, for our very much material bodies to fit in.

<sup>4</sup> Non-Euclidean geometry is any geometry that is not the same as Euclidean geometry. Although the term is frequently used to refer only to hyperbolic geometry, common usage includes those few geometries (hyperbolic and spherical) that differ from but are very close to Euclidean geometry.  
(<https://www.britannica.com/>) accessed 2020)

The web of interconnected virtual worlds is commonly known as the Metaverse, the Immersive WEB or the Immersive Internet: a collection of virtual spaces in which to remotely gather with others and/or interact with information organised in 3D space. In simpler terms, the Immersive Internet is a three-dimensional iteration of the current Internet. This would be a natural evolution of current infrastructure and provide the opportunity to maintain the openness and –relative– decentralisation of the www.



*The Sacred Neverland* by Abhinav Jain. Diploma Unit 2. The Civic Program 2019-20.

However, in the same way in which we chose the conveniently curated and frighteningly centralised App Store, we might also choose the metaverse as a contained product, as opposed to an open landscape of wild experimentation.

Tech giants are currently on the quest to own the metaverse<sup>5</sup> under the premise of safekeeping our privacy and protecting our data, but visibly aiming to fulfill their ever growing commercial ambitions while claiming such spaces as *public*. Not different from POPS (privately owned public spaces) in the physical realm, the metaverse as a contained product would not be able to free itself from commercially driven interest and, therefore, never be public in the civic sense of the word.

The Immersive Internet is as much by the meshes and textures of its many worlds as it is the management infrastructure behind them, in the same way as the built environment is as much the bricks and mortar of our constructions as it is the socio-political organisations that civically support them.

<sup>5</sup> Editorial: Facebook's Quest For World Domination May Have No Real Competition. Ian Hamilton - AUGUST 20, 2020.  
<https://uploadvr.com/editorial-facebook-quest-domination/>

## OUTLINE

During Term 1 we will work together on a report of the architecture and infrastructure of digital gatherings, with a twofold focus on: the forms and places in which we gather, and the resources behind it. Students must identify spaces and frameworks that create a sense of togetherness and go beyond mere communication. Understanding where that line is - between communication and gathering - within media spaces will require a study of physical gathering spaces that will serve as precedents and analogies to help us understand social interaction online today and project into the possible formats of tomorrow.



*The Sacred Neverland by Abhinav Jain. Diploma Unit 2. The Civic Program 2019-20.*

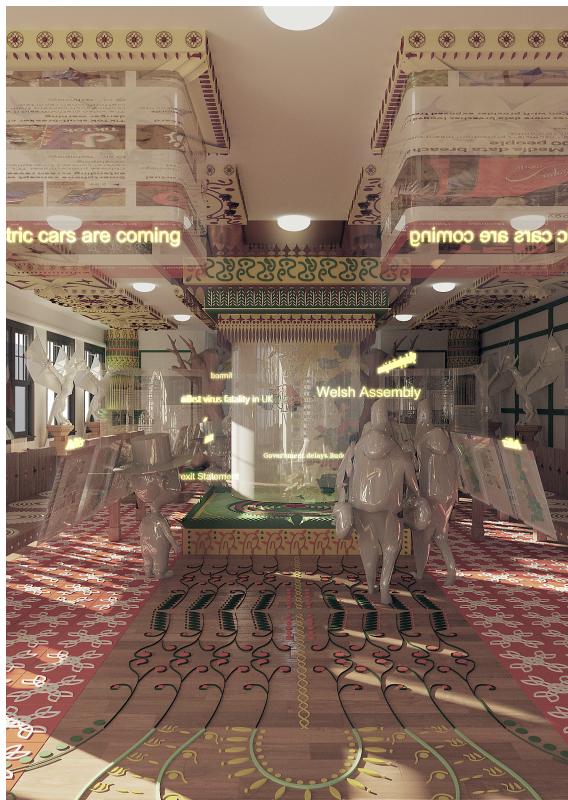
Based on the collaborative piece of work (Report on the Architecture and Infrastructure of Digital Gatherings) and individual studies (Studies of Architectural Precedents of Gathering Spaces), students will shape a context that foresees developments on immersive media, their impact on the built environment, and how gatherings might look in the future. This will be portrayed in a short film that will serve as a starting point for a design project in Term 2. The production of this film will involve

building a virtual film set in an immersive real time engine (see page 16 for more details).

During term 2 students develop their individual designs. Responding to the context established in each of their films, students are asked to design spaces that consider both the physical and virtual realms. The designs for civic spaces in the Immersive Internet must address: -physical and virtual- formal and material aspects such as geometry, size, colour, and texture; cultural, behavioural, and perceptual issues such as: the relationship to the history of the place and/or type, stylistic associations through materiality and ornamentation, overlay of physical and virtual elements; and normative aspects such as law establishment, enforcement, and surveillance, translation and/or transgression of established social codes and decorum, user and creator protocols, issues of territoriality in the virtual such as access, control, and ownership, laws concerning use, behaviour and commercialization.

The above points are many and each of them carries a considerable degree of complexity. Students are advised to identify those which have the greatest impact on the nature of each of their projects and focus their attention while necessarily addressing most of them.

Term 3 is fully dedicated to finalising presentation materials.



*Through The Lens of An Augmented Democracy* by Yu-Cheng  
Tyler Su Diploma Unit 2. The Civic Program 2019-20.

Students are encouraged to expand their research through their History and Theory essays, exploring other angles or takes on their argument. Fifth year students develop their Technical Studies based on physical or virtual technical aspects significant to the project. The unit will take the ETS5 Late Option (April-28th). The area of the project studied in ETS must be of great significance to the design and become a research topic in its own right. Students are encouraged to think broadly about the technical topics that an architect should be knowledgeable of today beyond structural, material, and environmental studies.

## OUTPUTS

### Report on the Architecture and Infrastructure of Digital Gatherings

(Collective)

In the form of text, drawings, and raw references we will create a collective study on the status of digital forms of gathering today. While each student will find a particular focus, the aim is to work towards a collaborative piece of work that will facilitate a basis of discussion and a resource for design.

### Studies of Architectural Precedents of Gathering Spaces

(Individual)

As the first step towards shaping an individual interest, each student will select a series of buildings to analyse through the angle of data management and display in 3D space. Despite these studies being individual, we will agree on a collective form of representation so it can become a singular resource.

### Context-setting Film

(Individual)

Each student will create a film establishing a context for their projects which might be based on the current state of immersive media spaces and devices or a near future speculative context where immersive media is deployed onto the built environment. These films, developed in real-time engines, will also serve as a form of experimentation with narrative based forms of representation in virtual 3D space.

### Brief

(Individual)

Each student will write a design brief stating the aims and ambitions of the project with regards to:

**AIM** Context for the project (why is it needed and who needs it) and what civic ambition the project must deliver through its design.

**SITE** Physical and virtual location, which can be a specific place or type of place, outlining: key characteristics, issues to resolve, issues to note, features to maintain, problems to solve, etc.

**TYPE** Type of space to be designed, with relevant architectural references (spaces and buildings that represent, in some way, what is to be achieved).

**PROGRAM** Architectural solutions that the project should deliver: activities it should accommodate, services it should provide, people it is serving, etc.

**PROTOCOLS** Laws, regulations and policies that apply to the project but are not part of the architecture, differentiating between existing articles pertaining to the site or the type of space, and the ones established by the project.

### Design Projects

(Individual)

With attention to the relationship between physical (Euclidean) and virtual (non-Euclidean) spaces, and in response to the studies conducted in Term 1, students will develop design proposals presented through conventional architectural representation methods as well as a conclusive film.

Projects might be aimed at current or near future scenarios, which would define whether the project concludes in the actual built space (or a part of it), a representation of a space that could exist in future platforms, or a combination of the two.

## FORMATS

Throughout the year we will structure learning in different formats, providing a range wide enough to hopefully suit the different needs and preferences of each student and to accommodate different forms of discussion while also exploring first hand the possibilities of remote gathering

### Discussion

A meeting of all members of the unit around a particular topic, often structured around a reading, taking place in Mozilla HUBS. A world will be assigned for each session with the possibility of populating it with the references and ideas sparked by the discussion.

### Seminar

A meeting of all members of the unit often joined by an external guest that will present a topic to be discussed, taking place in a custom world in Mozilla HUBS (guest dependent) or alternatively in ZOOM.

### Lecture

Lectures given by the unit tutors and invited guests with regards to specific topics of the unit will take place in ZOOM for optimum video-streaming and sound quality.

### Pin-Up

Internal project presentations by students in the unit will take place in Miro boards with conversation facilitated by ZOOM.  
Alternatively or additionally, students might present in custom worlds in Mozilla HUBS.

### Presentation

Project presentations to a panel of invited guests (Juries) will take place in ZOOM for optimum video-streaming and sound quality as well as to maximise the number of guests, and be open to the public.

### Shared Tutorial

Shared tutorials are usually in a group of 3 to 4 students plus one or two tutors, and will take place in Miro boards, making use of the chat and video call functions within the boards themselves. Students join tutors in giving feedback and follow up on the projects of other members of the unit throughout several sessions.

### Individual Tutorial

Individual tutorials involve one student and one or two tutors, but are always open to other students in the unit who may also contribute to the feedback.

### Student Initiated Sessions

Students are highly encouraged to run sessions by themselves to share work and ideas, as well as to run collective work sessions or experiments in remote gathering. The unit will provide access to the necessary accounts in the usual platforms and look into options for other platforms students may want to use.

### Travelling

Please note that there is no unit trip scheduled for the academic year. Students are encouraged to travel for the benefit of their individual work if it is safe to do so.

## TOOLS

The unit will introduce students to a wide range of digital tools which will be essential for both research and design.

### Workshops

Several workshops will take place throughout the year introducing modelling, representation methods, and tools as well as filmmaking techniques such as editing, script writing, video editing, VR films, and content curation.

### Software

Digital tools essential to the unit will be introduced to students in group sessions and video tutorials especially produced. Students in the unit are also encouraged to seek solutions that work best for their projects.

- **Twinmotion** from Epic Games - A real time immersive 3D software which we will use to produce films for 2D, 3D, and 360° VR. It can also be used to produce static 2D or 3D content. Twinmotion is FREE.
- **Unreal Engine** from Epic Games - Leading real time game engine which we will use for virtual production of immersive and flat films as well as spaces for interactive gatherings. Unreal Engine is FREE.
- **Quixel Bridge** from Epic Games - A resource software which links Unreal Engine with MEGA SCANS - the largest (free) high quality library of digital assets available.
- **After Effects CC** from Adobe - A video effects program which we will use to

compose complex videos including graphics and 3D content. \*

- **Premiere Pro CC** from Adobe. A video editing software which we will use for high quality video editing. \*
  - **Audition CC from Adobe**. Professional but easy to use audio editing software.\*
- \* All members of the unit are recommended to purchase a full educational license for all Adobe software.
- **OBS Studio** - Open Broadcaster Software (OBS) is a free and open-source cross-platform streaming and recording program which we will use for video calls, broadcasting and virtual production.

Digital tools which the unit recommends and might be used based on individual requirements.

- **Glycon 3D** - Motion tracking software which utilizes VR headsets such as Oculus Quest and HTC Vive headsets to translate real body movements into digital coordinates for virtual production. Glycon 3D is not free but offers a range of different packages.
- **Blender** - Open-source 3D computer graphics software tool set used for creating animated films, visual effects, art, 3D printed models, motion graphics, interactive 3D applications, virtual reality and computer games. Blender is FREE.
- **Cinema 4D** from Maxon - 3D modeling and animation software specially suited for virtual production. Cinema 4D is not free.

- **Quixel Mixer** from Epic Games - A texturing tool which links directly to Mega Scans and Quixel Bridge.
- **Fuse CC** from Adobe - Used together with online software Mixamo Fuse allows for the customization and creation of 3D characters.
- **Marvelous Designer** from CLO Virtual Fashion - A professional cloth and clothing simulator.

Digital tools which the unit will use and assume all students will have good or advanced knowledge of.

- **Rhinoceros 3D** from Robert McNeel & Associates
- **Illustrator CC** from Adobe.
- **InDesign CC** from Adobe.
- **Photoshop CC** from Adobe.

## Platforms

In the interest of increased quality of information exchange within the unit as well as research, the following platforms will be introduced and used within the unit.

- **Miro** - An online collaborative whiteboard platform which we will use for collecting and sharing materials as well as for pinups and presentations.
- **Mozilla Hubs** - An open source immersive social platform which can be accessed from nearly any device with an internet connection. The unit will use Hubs to build spaces for gatherings as well as experimental research.
- **Discord** - An instant messaging community platform.

- **VRChat** - A free-to-play massively multiplayer online virtual reality social platform (social VR) where virtual worlds can be built with simple tools.
- **Sansar** - A free-to-play massively multiplayer online virtual reality social platform (social VR) where virtual worlds can be built with simple tools.

## Hardware

Required hardware for all members of the Civic Program.

- **Web Camera 1080p** - Most built in web cameras (laptops) do not offer quality good enough for virtual production and lack flexibility. Members of the unit should have a web camera with minimum 1080p resolution. The best web camera available in September of 2020 is the Logitech BRIO 4K Ultra HD, a more affordable alternative is Logitech C930/C920 or Razer Kiyo.
- **Microphone** - Good sound quality is important both for remote gatherings and for virtual production. Some web cameras and laptops have good quality microphones built in but this has to be tested before the start of the academic year. For best quality an external broadcasting microphone like the Razer Seirēn X or better is recommended.
- **Sound Absorption** - The easiest way to good quality audio is good sound absorption. Make sure that the space you work from has sufficient amounts of surfaces covered by fabrics, carpets, or other absorbing materials.

- **Green Screen** - This is important both for video calls and for virtual production. A 3x3 meter green screen is recommended as it will allow for full body capture. A green screen can either be painted directly on a wall or by attaching or hanging a mat fabric.
- **Lighting** - Good lighting is important for video calls and for virtual production. It can be achieved in a variety of ways and does not necessarily require professional studio lighting. For best all around use a *Softbox Lighting Kit* with two lights on tripods.
- **Computer** (desktop or powerful laptop) - Many tools we use in the unit works best with a PC computer with a powerful graphic card. In general this is easier to achieve with a desktop as the hardware is cheaper and cooling is more efficient.

Recommended hardware for all members of the Civic Program.

- **VR headset** - There are several products available, some require a PC with a powerful graphic card such as

the HTC Vive, Vive Pro and Vive Pro Eye while others such as the Oculus Quest is a stand alone headset which can be used independently. Students are encouraged to order a headset early in the year if they have the means, but it is not a necessity for the work of the unit. The AA building on Bedford Square is equipped with a room specifically for virtual production which we will have access to once we are allowed back into the school buildings.

- **Motion Trackers** - Available from HTC Vive and compatible with the Steam VR base station 1.0 or 2.0. With 3 trackers + a HTC Vive kit professional full body tracking is possible which allows real body movements to be translated into avatars.
- **Smart Phone** - A smartphone with a high quality camera can be a good alternative or substitute for a camera in virtual production. Products such as the iphone (X or later) also features facial tracking which can be used to operate avatars for virtual production. Smartphones (or tablets) can also be used to produce AR apps and tests.

## SCHEDULE

We will meet twice a week every Tuesday and Friday during TERM 1 and TERM 2.

In TERM 3 we will alternate between meeting once and twice a week on Tuesdays and/or Fridays.

As a general rule Tuesdays will be dedicated to individual and shared tutorials with a schedule adjusted to the different time zones within the group, and Fridays will be dedicated to group events, however, in order to accommodate the schedule of invited guests we might have to swap this around in particular cases.

### TUTORIALS

Individual and shared

**Tuesdays** (generally)

EAST      08:00 - 12:00 GMT

WEST      15:00 - 19:00 GMT

### GROUP EVENTS

Seminars, Lectures, Pin-Ups, Discussions, Presentations

**Fridays** (generally)

Presentations      10:00 - 13:00 GMT

14:00 - 17:00 GMT

Seminars, Lectures,  
Pin-Ups, Discussions      11:00 - 15:00 GMT

This timetable is calculated for time zones between UTC-5 and UTC+8. Adjusted will be made once the group is confirmed according to the students' specific time zones.

A detailed schedule will be made available to students on the first day of studio. Any changes to the detailed schedule will be communicated no less than 2 weeks in advance.

### TERM 1

#### WEEK 1

Mon	Sep-14	INTERVIEWS
Tue	Sep-15	INTERVIEWS

#### WEEK 2

Tue	Sep-22	INTRODUCTION
Fri	Sep-25	GROUP EVENT

#### WEEK 3

Tue	Sep-29	PIN UP
Fri	Oct-2	GROUP EVENT

#### WEEK 4

Tue	Oct-6	SHARED TUTORIALS
Fri	Oct-9	SEMINAR

#### WEEK 5

Tue	Oct-13	SHARED TUTORIALS
Fri	Oct-16	SEMINAR

#### WEEK 6

Tue	Oct-20	OPEN WEEK
Fri	Oct-23	OPEN WEEK

#### WEEK 7

Tue	Oct-27	SHARED TUTORIALS
Fri	Oct-30	PRESENTATION

#### WEEK 8

Tue	Nov-3	SHARED TUTORIALS
Fri	Nov-6	SEMINAR

#### WEEK 9

Tue	Nov-10	SHARED TUTORIALS
Fri	Nov-13	SEMINAR

#### WEEK 10

Tue	Nov-17	SHARED TUTORIALS
Fri	Nov-20	SEMINAR

#### WEEK 11

Tue	Nov-24	INDIVIDUAL TUTORIALS
Fri	Nov-27	INDIVIDUAL TUTORIALS

#### WEEK 12

Tue	Dec-1	PRESENTATION
Fri	Dec-4	DEBRIEF

TERM 2			TERM 3		
WEEK 1			WEEK 1		
Mon	Jan-11	INTRODUCTION	Tue	Apr-27	DISCUSSION
Fri	Jan-15	SHARED TUTORIALS	Fri	Apr-30	INDIVIDUAL TUTORIALS
WEEK 2			WEEK 2		
Tue	Jan-19	SHARED TUTORIALS	Tue	May-4	PIN UP
Fri	Jan-22	GROUP EVENT	Fri	May-7	INDIVIDUAL TUTORIALS
WEEK 3			WEEK 3		
Tue	Jan-26	SHARED TUTORIALS	Tue	May-11	SHARED TUTORIALS
Fri	Jan-29	GROUP EVENT	Fri	May-14	INDIVIDUAL TUTORIALS
WEEK 4			WEEK 4		
Tue	Feb-2	SHARED TUTORIALS	Tue	May-18	REHEARSAL
Fri	Feb-5	INDIVIDUAL TUTORIALS	Fri	May-21	PRESENTATION
WEEK 5			WEEK 5		
Tue	Feb-9	OPEN JURY	Tue	May-25	SHARED TUTORIALS
Fri	Feb-12	OPEN JURY	Fri	May-28	INDIVIDUAL TUTORIALS
WEEK 6			WEEK 6		
Tue	Feb-16	PRESENTATION	Tue	Jun-1	SHARED TUTORIALS
Fri	Feb-19	GROUP EVENT	Fri	Jun-4	INDIVIDUAL TUTORIALS
WEEK 7			WEEK 7		
Tue	Feb-23	SHARED TUTORIALS	Wed	Jun-9	Y4 REVIEWS
Fri	Feb-26	GROUP EVENT	Thu	Jun-10	Y4 REVIEWS
WEEK 8			WEEK 8		
Tue	Mar-2	SHARED TUTORIALS	Sun	Jun-13	REHEARSAL
Fri	Mar-5	INDIVIDUAL TUTORIALS	Wed	Jun-16	Y5 REVIEWS
WEEK 9			Thu	Jun-17	Y5 REVIEWS
Tue	Mar-9	SHARED TUTORIALS	Fri	Jun-18	DIPLOMA HONOURS
Fri	Mar-12	INDIVIDUAL TUTORIALS	WEEK 9		
WEEK 10			Wed	Jun-23	EXT. EXAM RIBA II
Mon	Mar-15	REHEARSAL	Sessions marked as "Group Event" may be Lectures or Discussions. Guests for these and for the Seminars will be confirmed at the start of each term. The times may be slightly shifted to accommodate guests' schedules. Guests for Presentations (Juries) will be confirmed a few days prior to each event.		
Wed	Mar-17	Y4 PREVIEWS			
Thu	Mar-18	Y4 PREVIEWS			
WEEK 11					
Mon	Mar-22	REHEARSAL			
Wed	Mar-24	Y5 PREVIEWS			
Thu	Mar-25	Y5 PREVIEWS			
Fri	Mar-26	DEBRIEF			

## GLOSSARY

**6DoF:** (Six degrees of freedom) refers to the freedom of movement of a rigid body in three-dimensional space. It is used in virtual environments to describe the movements of avatars.

**Bummer:** An acronym coined by Jaron Lanier that stands for: "Behaviors of Users Modified and Made into Empires for Rent" describing the non civic and harmful financial foundations of social media and digital surveillance economy.

**Echo Chamber:** In the news media echo chamber is a metaphorical description of a situation in which beliefs are amplified or reinforced by communication and repetition inside a closed system.

**Global Village:** describes the phenomenon of the world becoming more interconnected as the result of the propagation of media technologies throughout the world. Coined by Canadian media theorist Marshall McLuhan.

**Immersive Internet:** the concept of a future iteration of the internet, made up of persistent, shared, three dimensional virtual spaces linked into a perceived virtual universe. Synonyms: Metaverse, Immersive WEB.

**Legacy media:** Pre-digital media such as radio, television, and especially newspapers. With legacy media, the receiver does not contribute or interact with the content and remains totally passive.  
(Informally used in tech circles)

**Locomotion:** Used to describe movement from one place to another (locomotion) within a virtual reality environment. (Teleportation is a form of locomotion)

**Open web:** Informal term which encompasses technical concepts like open-source code and open standards. It also encompasses democratic concepts like free expression and digital inclusion.

**Paywall:** (on a website) an arrangement whereby access is restricted to users who have paid to subscribe to the site.

**Planetary-Scale Augmented Reality:** A virtual coordinate system which persistently maps the entire planet with coordinates at submillimeter precision for consistent augmented content.

**Self-Sovereign Identity (SSI):** Informal term for individuals or organizations having sole ownership of their digital and analog identities, and control over how their personal data is shared and used.

**Skin:** Used in virtual environments like games and social VR to describe the appearance of an avatar in its entirety.

**Social VR:** Online virtual platforms accessible through virtual reality headsets where users interact with each other through avatars which channel the voice and body language of the user to others. In most of these platforms the users create their own environments.

**Spatial Computing:** Broad term used to describe the way we interact with computers in our surroundings. In spatial computing, machines are no longer contained to a single location, but instead occupy the space around us. This applies equally to devices in the physical world, or to virtual reality settings.

**The Stack:** "An accidental megastructure" of planetary-scale computation layers that make up the entirety of our digital world. Coined by Benjamin Bratton in his book The Stack on Software and Sovereignty.

**Virtual:** That which having the attributes of something does not share its physical form.

**Walled Garden:** Closed digital ecosystem in which all the operations are controlled by the ecosystem operator.

## RESOURCES

All members of the unit will have access to extended resource archives containing texts, videos, images and digital assets. Below is an outline of some of the core resources of the unit.

### Books

2018. BAILENSEN, Jeremy. *Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do.* W. W. Norton & Company
2018. OLGIATI & BREITSCHMID, Valerio & Markus. *Non Referential Architecture.* TenderBooks
2018. LANIER, Jaron. *Ten Arguments for Deleting Your Social Media Accounts Right Now.* Vintage
2017. ARIEFF, Allison. *The Future of Public Space.* Metropolis Books
2017. LANIER, Jaron. *Dawn of the New Everything: A Journey Through Virtual Reality.* Penguin Books
2017. WILLIAMS GOLDHAGEN, Sarah. *Welcome to Your World: How the Built Environment Shapes Our Lives.* Harper Collins Publishers
2016. COLOMINA, WIGLEY, Beatriz, Mark. *Are We Human? Notes on an Archaeology of Design.* Lars Müller Publishers
2016. BRATTON, Benjamin. *The Stack - On Software and Sovereignty.* MiT Press
2015. JOEKALDA, TALI, TUKSAM Johanna, Johan, Siim. *Interspace. Essays on the Digital & the Public.* Lugemik, Estonian Center of Architecture
2013. GRIMSHAW, Mark. *The Oxford Handbook of Virtuality.* Oxford Handbooks
2008. DOESINGER, Stephen. *Space Between People.* Prestel Publishing
2007. VON BORRIES, WALZ, BÖTTGER Friedrich, Steffen, Matthias. *Space Time Play.* Birkhäuser
2002. BRIGGS, BURKE, Asa, Peter. *A Social History Of The Media: From Gutenberg To The Internet.* Wiley Publishing
2002. WARNER, Michael. *Publics and Counterpublics.* Zone Books
2001. HORROCKS, Chris. *Marshall McLuhan and virtuality.* Icon Books
2000. KOOLHAAS, CHUNG, Rem, Chihua Judy. *Harvard Design School Guide to Shopping.* Taschen
1977. VENTURI, SCOTT BROWN, Robert, Denise. *Learning From Las Vegas: The Forgotten Symbolism of Architectural Form.* MIT Press
1968. MCLUHAN, FIORE, Marshall, Quentin. *War and Peace in the Global Village.* Bantam Press
1967. MCLUHAN, Marshall, *The Medium Is the Message.* Bantam books
1966. HALL, Edward. *The Hidden Dimension.* Penguin Books
1922. MYERS, HEHEMANN, PEETS, Thomas, Werner, Elbert. *The American Vitruvius: An Architects' Handbook of Civic Art.* Architectural Book Publishing
1902. SITTE, Camillo. *The Art of Building Cities: City Building According to Its Artistic Fundamentals.* Martino Fine Books

## REPORTS

2019. Mozilla Foundation. *Internet Health Report*  
2018. A4A1 Alliance for Affordable Internet.  
*Improving Mobile Broadband Quality Of Service In Low- And Middle-income Countries*

## ARTICLES / ESSAY

2019. ROSEDALE, Philip. *Parts List for the Metaverse*. [High Fidelity Blog](#)  
2018. MATSUDA, Keiichi. *Mirrorworlds*. [Leap Motion Blog](#)  
2015. FURLAN, Rob. *A Maker's Guide to the Metaverse*. [Singularityhub.com](#)  
2010. MATSUDA, Keiichi. *DOMESTI/CITY - The Dislocated Home in Augmented Space*      [Bartlett School of Architecture](#)

## AUDIO/VIDEO

2020. *CEOs of Facebook, Amazon, Google and Apple face Congress in antitrust hearing - 07/29/2020* Reuters  
2019. *Congress holds hearing on use of persuasive technology on the internet — 06/25/2019* CNBC Television  
2019. HELLER, Brittan #789: *Human Rights in the Metaverse: Brittan Heller on Curtailing Harassment & Hate Speech in Virtual Spaces*, Voices of VR Podcast  
2019. HELLBERG, LESMES, Fredrik, Lara #800: *How VR is Changing Architecture Education & The Symposium on the Architecture for the Immersive Internet at the Architectural Association*. Voices of VR

- 2019 - - - *Architecture of the Immersive Internet*. AA school Lecture Archive  
2018. PERSZYK, Danielle. #657: *Using Neuroscience Theory for Experiential Design + The Nature of Consciousness*. Voices of VR Podcast  
2018. MATSUDA, Keiichi #639: *AR as the Democratization of Architecture, Hands-On Spatial Computing, & Leap Motion's North Star AR HMD*. Voices of VR Podcast  
2018. LANIER, Jaron. #136 - *DIGITAL HUMANISM*. Making Sense Podcast  
2018. LANIER, Jaron. *How We Need to Remake the Internet*. TED Talks  
2018. COJOCARU, Andreea. #719: *The Phenomenology of Architecture & How VR is Revolutionizing Spatial Design Intuition*. Voices of VR Podcast  
2017. LANIER, Jaron. *You will love this conversation with Jaron Lanier, but I can't describe it*. Ezra Klien Show  
2017. LANIER, Jaron. #600: *Jaron Lanier's Journey into VR: "Dawn of the New Everything"* Voices of VR Podcast  
2017. ROSEDALE, Philip. #533: *High Fidelity is Architecting for VR Privacy with Self-Sovereign Identity*. Voices of VR Podcast  
2016. ALTBERG, Ebbe. #360: *Open vs Closed Metaverse: Project Sansar & The New Experiential Age*. Voices of VR Podcast  
2016. BRATTON, Benjamin. *Presentation of The Stack*. SCI-Arc Media Archive  
2015. ROSEDALE, Philip. #173: *Philip Rosedale on creating the metaverse by linking virtual worlds together with High Fidelity*. Voices of VR Podcast

## UNIT MASTERS

Lara Lesmes and Fredrik Hellberg are both graduates from the Architectural Association in London (2011) and direct design and research practice Space Popular. They create spaces, objects, and events in both physical and virtual space, concentrating on how the two realms will blend together in the near future. They have completed buildings, exhibitions, public artworks, furniture collections, and interiors across Asia and Europe, as well as virtual architecture in the Immersive Internet.



*Temple of Knowledge: Spatial Learning Interface by Yana Kushpitovska*