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Architecture Portfolio 2021—2024 2021 - 2024

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01

Dance Hub Reimaging a Dance Center for the 21st Century

Studio Lynn University of Applied Arts Vienna

Final Thesis Master degree in Architecture

Lynn, Greg o.Univ.-Prof. Mag.arch. Supervisor

Bence Pap, Kaiho Yu and Maja Ozvaldič Teaching Assistants

Mangelsdorf, Wolf Univ.-Prof. Dipl.-Ing. Structural design teacher

> Dance Hub is situated in Midtown Manhattan, in close proximity to the Lincoln Center and Broadway, 'Dance Hub' is a reconceptualization of the traditional typology of a performance hall, wherein multiple types of venues, stacked on top of each other, bound together by a spiraling public path, allow visitors to experience new aspects of the performer/spectator relationship.







Superimposed Grids

Dance Hub redefines performance venues by stacking three distinct dance halls for classical ballet, modern dance, and contemporary dance. A central public path weaves through these halls, allowing visitors to explore different performances and styles within one building. This path also reveals hidden backstage and rehearsal areas, offering transparency into the world of dance.

The compact, vertical design places back of house below ground, freeing stages from unnecessary spaces. The Dance Hub features a state-of-the-art dance archive, digitizing and preserving choreographies for research and display. Along the public path, a dance lab and gallery let visitors witness the archiving process and engage with motion capture technologies. A rooftop bar and theater enhance the journey, fostering a connection with dance as an evolving art form. During festivals, Dance Hub transforms into a vibrant cultural epicenter, with all halls active and visitors flowing through interconnected spaces.



6. Having seen its backstage and technical support, visitors ascend and are brought to the front of the Contemporary Dance Hall. As the audience completely surrounds the stage, so does a partition which opens or closes depending on the desire of the performance. The circulation path then disperses here so that guests are free to move across the stage, and integrate with the performance, if desired. Finally the threshold between performer and audience is completely blurred.

4. Up the grand staircase at the center of the void, visitors are brought into the upper foyer of the Modern Dance Hall. Similarly to the first dance hall, the threshold is blurred as a moving wall opens or closes depending on the state of the performance: open when during rehearsal, and closed during performances.

2. The public circulation path brings you upward into the foyer of the Classical Dance Hall. Movable architectural elements allow for two configurations of this space: when there is a performance happening inside the dance hall, the wall between the foyer and the circulation remains closed, and during rehearsals the wall opens up and expands the hall into the foyer allowing the circulation to blur into the audience space, expanding the threshold. The formal logic of pleating continues into the Classical Dance Hall.



7. The journey ends at a rooftop lounge and open-air theater, offering views of Lincoln Center and midtown's towers, integrating the city into the performance backdrop.

5. Continuing up the public path, visitors arrive inside the plenum of the Modern Dance Hall, ostensibly for back of house operations, now exposed to the public. Mesh floor and openings through the structure below and above allow visitors a glimpse into the backstage of the Modern Dance Hall and the Contemporary Dance Hall overhead, exposing what's usually not seen to a guest, and again blurring the threshold between spectator and performer.

3. Guests ascend further using escalators which wrap the Classical Dance Hall, and arrive into the void which serves as a gallery and exposition space. Glass walls on either side of the void offer a view over the surrounding buildings, across the city. The placement of the void at a nexus of backstage activity allows guests to observe the curtains, lights, scenery, stage effects, and fly tower of the Classical Dance Hall while having a peek inside the costume room of the upcoming Modern Dance Hall.

1. The public emerges initially into a lobby, which opens to the audience space of the Dance Lab, where high-fidelity motion capture of the dancers is displayed to the public, explaining to the visitor the narrative of the building: preserving dance for the future. Reception and information counter, box office and ticket collection counter, larger cloakroom and dance shop are all accessed in between the pleats along the sides of this space. The space acts to initially dissolve the threshold between spectator and performer, blurring the line between the two. There are two staircases on the sides that lead you up to the Classical Dance Hall above.

Classical Dance Hall



The Classical Dance Hall features a proscenium stage, emphasizing traditional frontality. The pleated stage curtain extends into the wooden ceiling, echoing historic opera houses. Supported by a pleated precast concrete structure, the hall is enclosed with a pleated glass facade.

Modern Dance Hall



The Modern Dance Hall breaks boundaries by expanding the stage into the audience, creating an immersive experience. The clean, modern design features an exposed technical ceiling and a white box connecting the hall to the city. Positioned between two truss systems, it has a double-skin facade with three-ply polycarbonate panels and highly selective insulating glass.

Contemporary Dance Hall



The Contemporary Dance Hall surrounds the stage with the audience, creating an intimate, courtyard-like setting without frontality. The design emphasizes verticality and allows reconfigurable floor space for varied performances. The hall's structure is supported by an external skeleton, with a glazed facade and perforated metal shading supported by consoles.





- Entrance Lobby
 Dance Lab Stage
 Dance Shop

- Jance Shop
 Back of house
 Classical Dance Hall
 Classical Hall Foyer
 Dance Gallery
 Modern Dance Hall
 Administration
 Deack stage

- 10. Back stage
- Contemporary Dance Hall
 Contemporary Dance Hall Foyer

- Rooftop Bar
 Open Air theatre



Modern Dance Hall



Classical Dance Hall



02

Ar[T]ram

Studio Lynn University of Applied Arts Vienna

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Bence Pap, Kaiho Yu and Valeria Ospital Teaching Assistants

Studio Project Team

Tomaz Roblek , Anna Salakhova, Luca Zanarini, Philipp Ma and Hao Wu

Vienna's RingStrasse, known for its 19th-century tram rails and cultural landmarks, inspires the Ar[T] tram project, which the traditional museum extends experience outdoors in dynamic, mobile а wav.

The project aims to transform RingStrasse into a constantly evolving cultural hub. Self-driving modular galleries and museum programs travel along the existing tram tracks, turning urban mobility into a public space where art engages people on the move, without needing a formal visit.

Modules inspired by iconic interiors—like the Central Dome of the Natural History Museum and the Auditorium of the State Opera—combine to create a sequence of diverse spaces. These modular trams provide unique collaborations between five cultural institutions, offering a moving preview of their experiences.

For instance, a performance tram might feature modern dance alongside ballet, paired with a gallery showcasing the history of these art forms. Alternatively, a museum tram could exhibit fossils, life-sized animals, and renowned artworks. These flexible combinations create unique curatorial opportunities, blending performances, objects, and artworks in novel ways.











Vienna's RingStrasse is famous for its 19th century tram rails and cultural facilities. The project Ar[T]tram focuses on the traditional museums on RingStrasse and extends the museum experience outdoors in a motional and dynamic way.

The ambition is to transform Ring Street into a cultural and artistic hub that is constantly moving and inviting the public to gather and interact. It turns the urban mobility to a public space, where self-driving modular galleries and complementary museum programs travel along the street on the existing tram tracks. By adding to the existing transportation system, we get the opportunity to engage people with art while they are moving around the city, without signing up, to have a museum experience.

Natural History Museum

[Exhibition space + Workshop]



Art History Musuem [Gallery + Shop + Cafe]





Museum for Applied Arts [Exhibition Space + Lecture Room]







[Auditorium]



















Ar[T]ram Configurations

Intermodule dynamic connection



Each module has 2 kinds of joints - rigid joints that connect the modules on their open side to complete their sections using extending and interlocking mechanical joints when they are put together at the cultural anchor points.





And soft joints that connect modules in their longitudinal way which allow for bending when the tram is moving.



03

Tencent HQ

Studio Lynn University of Applied Arts

PreDiploma Project

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Bence Pap, Kaiho Yu and Maja Ozvaldič Teaching Assistants

Mangelsdorf, Wolf Univ.-Prof. Dipl.-Ing. Structural design teacher

> The proposed Tencent Headquarters in Budapest embodies the company's dedication to technological progress. Designed to accommodate 400 employees and provide an immersive experience for visitors, it includes a 364-seat esports arena, showcasing Tencent's gaming-focused identity.

> Proposed Tencent Headquarters seamlessly combines architectural innovation with technological integration, reflecting the company's values and fostering creativity, collaboration, and connectivity.







The architectural design centers on three distinct long-span structural systems, each hosting crucial technological components within unique ceilings. Open lobby features a cantilevering pleated structure, facilitating connectivity with the media hall's surface and creating a spacious gathering area.

Supported by two space frames, Media hall integrates a jumbotron and essential systems like HVAC and motorized acoustic ceilings, achieving a floating effect while ensuring functionality.

Open offices utilize long-span steel floors with ceilings that mirror the structural logic. Fresh air circulation in the raised floor promotes a productive work environment.

- 1. Amphitheatre
- 2. Reception
- 3. Entrance Lobby
- 4. Media Hall Foyer
- 5. Media Hall
- 6. Open Workspace
- 7. Rooftop Lounge



Section





- Concrete Foundation
 Supporting space frame
 Reconfigurable Stage
 Seatings

- 5. Absorbtive wall panels6. Transparent absorptive panels



Open lobby features a cantilevering pleated structure, facilitating connectivity with the media hall's surface and creating a spacious gathering area.



- 8. Media surface9. Hanging See Through Metal Mesh



Supported by two space frames, Media hall integrates a jumbotron and essential systems like HVAC and motorized acoustic ceilings, achieving a floating effect while ensuring functionality.



1.

2.



Open offices utilize long-span steel floors with ceilings that mirror the structural logic. Fresh air circulation in the raised floor promotes a productive work environment.



Media Hall - Acoustic & Structure

Reconfigurable ceiling is allowing to adapt to different needs of performance. Two scenarios were tested with Pachyderm Acuoustic simulation inside GH Rhino. Raised ceiling Performs like a typical media hall with absorptive properties. Lowered ceiling results in lower reverberation times and it is more suitable for focused moments.





REVERBERATION TIME:	LOWEREI
62.5 Hz	1.463059
125 Hz	1.400403
250 Hz	1.689976
500 Hz	2.002416
1 Hz	2.077374
2 Hz	2.085348
4 Hz	1.985361
8 Hz	1769087

Upper Space frame is a shell supported on the perimeter. In the middle there is an oppening which gets compensated by a stiffening ring under compression. Bottom Space frame is a shell supported on the perimeter. In the middle there is an oppening which gets compensated by a stiffening ring under tension. The thickness of beams have been optimized with Karamba3d in Rhino GH.





- CFD simulation Red = Higher Wind speed/Lower pressure
- 1. Natural ventilation in spring and autumn
- Energy production via optimally positioned pv panels 2. on the roof
- 3. Effective solar shading via vertical movable metal sunshades
- 4. Highly slective solar control glass

- 5. Heat Recovery6. Cantilievered part to optimize suction
- 7. Air suction via overflow elements
- 8. Office Air supply through elevated floor
- 9. Adaptive Acoustic ceiling
- **10.** H/C Systems



Hybrid Ventilation Concept 35

04

Multicore Assembly

Studio Lynn University of Applied Arts Vienna

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Bence Pap, Kaiho Yu and Maja Ozvaldič Teaching Assistants

Studio Project Team

Tomaž Roblek, Leon Mackowski, Jasmy Chien-Hsuan Chen

> Multicore Assembly re-urbanizes the industrial production by forming multiple, smaller independent fabrication spaces. In each independent assembly line for La Marzocco espresso machines, extracted artisanal motions are magnified to form curated stages of visitor experience, emphasizing the artisanal use of the product by contrasting between the organic and the inorganic.

> Based on the multicore concept, work steps extracted from individual assembly lines are combined with view analysis from Motion Capture to form the visitor tour path. The stage envelope is defined according to visitors and workers motion in time and in space to create spaces that relate directly to the movement of the human body. Motion capture generates the organic shapes of the stages, and refined with architectural decisions of lighting, openings and materiality.

> Stages along the visitor path wrap around an open public space with a café, a workshop and a store, resulting in the corporate campus of the factory, both to be used by workers and customers. Finished products arrive over a catwalk into the tower in the back, where they are displayed. The tower is a storage unit equipped with rotating storage shelves, much like a paternoster elevator, while also representing the product and the brand to the public. The back of the house is responsible for material supply for the assembly lines.

> Multicore Assembly combines multiple small factory lines with visitor functions, offering not only curated tours, but also the possibility of self-guided tour, café, museum, and interactive workshop experiences for all customers.







With the Multicore concept, as in the title, we divide the factory into 4 independent lines that offer flexible placement of masses on the site. In these Assembly lines, there are 5 stages being displayed along a dedicated visitor path, considering view relationship, circulation/logistics and most importantly data extracted from Motion Capture.

These moments are wrapped around an open public space with a café, a workshop and a store resulting in the corporate campus of the factory, both to be used by workers and customers. The finished products arrive over a catwalk into the tower in the back, where they are displayed. The tower is a storage unit equipped with rotating storage shelves, much like a paternoster elevator, while also representing the product and the brand to the public. The back of the house is responsible for the circulation of supply material for the assembly lines.



1. Visitor path is set above Factory "Stage"



2. Motion captured agents are shaping the form of enclosure by superimposingfrozen moments of people's movement in time.



5. Workers movement defines a new surface





9. To form one continuous membrane based on the movement of all users combined



10. Which informes the shape of the visitor path



13. Visitors movement of looking towards the stage is carefully studied



14. To form soft ergonomic railing surrounding the oppening



3. Enclosure surface gets inflated based on a speed of the visitor - slower visitor goes in certain area, more inflated the form gets.



4. Production line step acts as a stage



7. Vistors movement reflected surface



8. And merges with the surface from visitors movement



11. The oppening from visitor path towards the "stage" is based on the cone of vision of visitors



12. Resulting oppening



15. Main surface gets oppenings and is subdivided to create a structural shell



16. It plugs in and merges with the rest of the shape







Section B

Stage 2 - Duo Bolier & Hot Production

The visitor establishes a visual link between the hot production downstairs and the insertions of the two boilers. The finished hot product is transported through a rail at the back to the assembly.



Stage 3 - Piping & Wiring

Section C

The definition of ergonomics is addressed in the interior furniture-like soft surfaces, which is derived from motion capture and integrated with the view experience.

05

The 1907 Puch 7/4 Pavilion

Studio Lynn University of Applied Arts

Lynn, Greg o.Univ.-Prof. Mag.arch. Professor

Bence Pap, Kaiho Yu and Maja Ozvaldič Teaching Assistants

Studio Project Team Tomaž Roblek, Leon Mackowski, Zubin Tan

Pavilion for the 1907 Puch 7% is showing an interplay between different structural concepts along with a shift between outside appearance and inside experience.

The overall volume is being kept as simple geometry and is cut through to expose tectonics details from the interaction of multiple systems. As a result, the contrast between inside and outside comes to the fore.

Our Pavillion follows a curve that is expanding on its end symbolising force and directonality as an aspect of car design.









For the Program we approach the building from the back, entering the lobby under the waved ceiling where the car is standing on the second floor. The top floor can be entered from both sides inside of the structural walls. While one way leads over the suspended walkway, the other leads directly to the car's position.

While one staircase is spanned between the two structural walls on one side, merging into a suspended stair, the other structural walls are featuring a ramp partly supported by the walls and suspended in the middle, hanging from the beams reaching up to the roof. The may exhibition space is featuring Skylights from both circulation spaces, information panels and partly exposed structural steel beams.

Instead of classically placing the tensioning cable in a 45 degree angle, we tried to play another trick, making the cable disappear inside of the wall.



1. Initially, visitors are drawn to the transparent entrance.



2. Upon entering, people ascer to it.



4. Some people stay inside of the bright space.



5. Viewing the exhibited inform



7. The streamlines consisting of screens, air diffuser and lights, surround the exhibited car.



8. The final view comes from t structure.



nd the floating staircase next



3. Covered by the wavy ceiling, they step onto a narrow valley.



nation.



6. Seeing parts of the car.



he ramp beneath the hanging



9. Our pavilion follows a curve that expands at its end, symbolizing force and directionality as aspects of a car.

Detail





06

Core + Alternating Volumes

Kaira Looro

Primary School Competition 2023

Competition Team

Tomaž Roblek Adham Sinan Abdallah Hameedat

> The school prototype situates itself as a gesture for interaction, interplay and exchange, as a unit that emulates and is in dialogue with its context; and nourishes a sense of belonging and community.

> The prototype traces its character from the Diola compounds in the Casamance region, south of Senegal, as a covered radial arrangement of volumes connected by a circular path spread around an open shared area.

> Having one common collision area in the core promotes interaction, openness and a sense of unity, while direct access towards the common core, creates a seamless integration of all classes and ages into a common classroom beyond the rigid constraints of conventional education; where activities such as playing, outdoor learning, eating, and leisure take place.

> The Alternating volumes strategy allows for uninterrupted interconnected passage through classes and facilities alike, as a physical manifestation of equality and flat hierarchy.









- 1. 2. 3. 4. 5.

- Corrugated metal roofing Bamboo Root Structure CSEB Brick Columns CEB brick walls Reinforced Concrete Foundation



- 1. Metal roof supported by purlins spanning between bamboo joists
- 2. Bambo members are used to create struts
- 3. Struts are drilled into the supporting CSEB Brick Collumns
- 4. Structural Collumns and CSEB Brick Walls are laying on top of the Wall Footing foundation



Responding to the crucial role that interaction plays in the development of students in early education, Social interaction plays a pivotal role in primary schools, benefiting children's overall development. It fosters crucial skills such as communication, teamwork, empathy, and conflict resolution, enhancing emotional intelligence and social competence. Research shows that positive social interactions positively impact academic achievement, cognitive growth, and psychological well-being (Pianta et al., 2019). Moreover, socialization contributes to building self-confidence, forming friendships, and shaping positive attitudes towards diversity and inclusivity (Wentzel & Caldwell, 2018). These interpersonal experiences lay a foundation for lifelong social skills and successful future relationships.

Section A

