

BCIT EVENT
Teaching with AI

PRESENTATION:
ARTIFICIAL INTELLIGENCE
FOR DESIGN IN ARCHITECTURE

31/10/2024

DR. MAITE BRAVO, ARCHITECT AIBC, MRAIC

AGENDA

1. APPLICATIONS IN ARCHITECTURE & DESIGN FIELDS
2. PLATFORMS
3. TECHNIQUES:
 - Prompt to image (render or other)
 - Sketch to render
 - 3D View to render
 - Image Blend
 - New formats (comics, diagrams, etc.)
4. CONCLUSIONS

PLATFORMS

List of AI platforms used during student projects from 2022-date.

Source: Maite Bravo, Oct. 2024.

| TECHNIQUES | MIDJOURNEY | DEEPAI | OPENAI | STABLE DIFUSSION | OPENART | ARCHI AI | DASHTOON |
|-------------------|------------|--------|--------|------------------|---------|----------------|----------|
| Cost | \$ Paid | Free | Free | Free | Free | Free (limited) | Free |
| Prompt to image | | | | | | | |
| Sketch to render | | | | | | | |
| 3D View to render | | | | | | | |
| Image Blend | | | | | | | |
| Comics | | | | | | | |
| Diagrams | | | | | | | |

PROMPT TO IMAGE



PLATFORMS

[Midjourney](#)

AI PLATFORM:
Midjourney

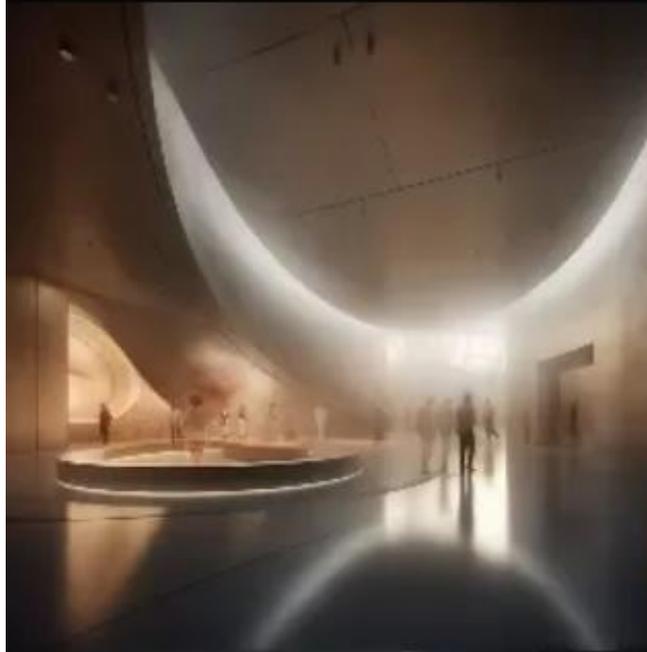
AI Prompt:
“Interior space for
a museum of
space and light
that highlights
human
experience,
diffuses light”.



PLATFORMS

[Midjourney](#)

interior space for
a museum of
space and light
that highlights
human
experience,
diffuses light



STEP 2: IMAGE GENERATOR

2.1 Propose a prompt.

Stable Diffusion.
(2023, October 27 at 4:20 PM).

Response to a prompt about:
“Museum of space and light, indirect lighting, windowless, white ambiance, stone floors, double height, open to below, people in awe.”]

Source:
<https://stablediffusionweb.com/#demo>



STEP 2: IMAGE GENERATOR

2.2 Refine the prompt based on previous outcome

Stable Diffusion.
(2023, October 27 at 4:27 PM).

Response to a prompt about:
“Museum of space and light, indirect lighting, windowless, white ambiance, parametric design, 2 stories, open to below, art display, people looking at an exhibition.”]

Source:
<https://stablediffusionweb.com/#demo>



STEP 2: IMAGE GENERATOR

2.3 Refine the prompt again based on the previous outcome

Stable Diffusion.
(2023, October 27 at 4:38 PM).

Response to a prompt about:
“Museum of space and light, indirect lighting, windowless, white ambiance, **parametric wall design**, 2 stories, open to below, art display, people looking at an exhibition.”]

Source:
<https://stablediffusionweb.com/#demo>



STEP 2: IMAGE GENERATOR

2.4 Refine the prompt again based on the previous outcome

Stable Diffusion.
(2023, October 27 at 4:58 PM).

Response to a prompt about:
“Museum of space and light, indirect lighting, windowless, white ambiance, stone floors, 2 stories, open to below, people in awe, **circular roof.**”]

Source:
<https://stablediffusionweb.com/#demo>



STEP 2: IMAGE GENERATOR

2.5 Refine the prompt again based on the previous outcome

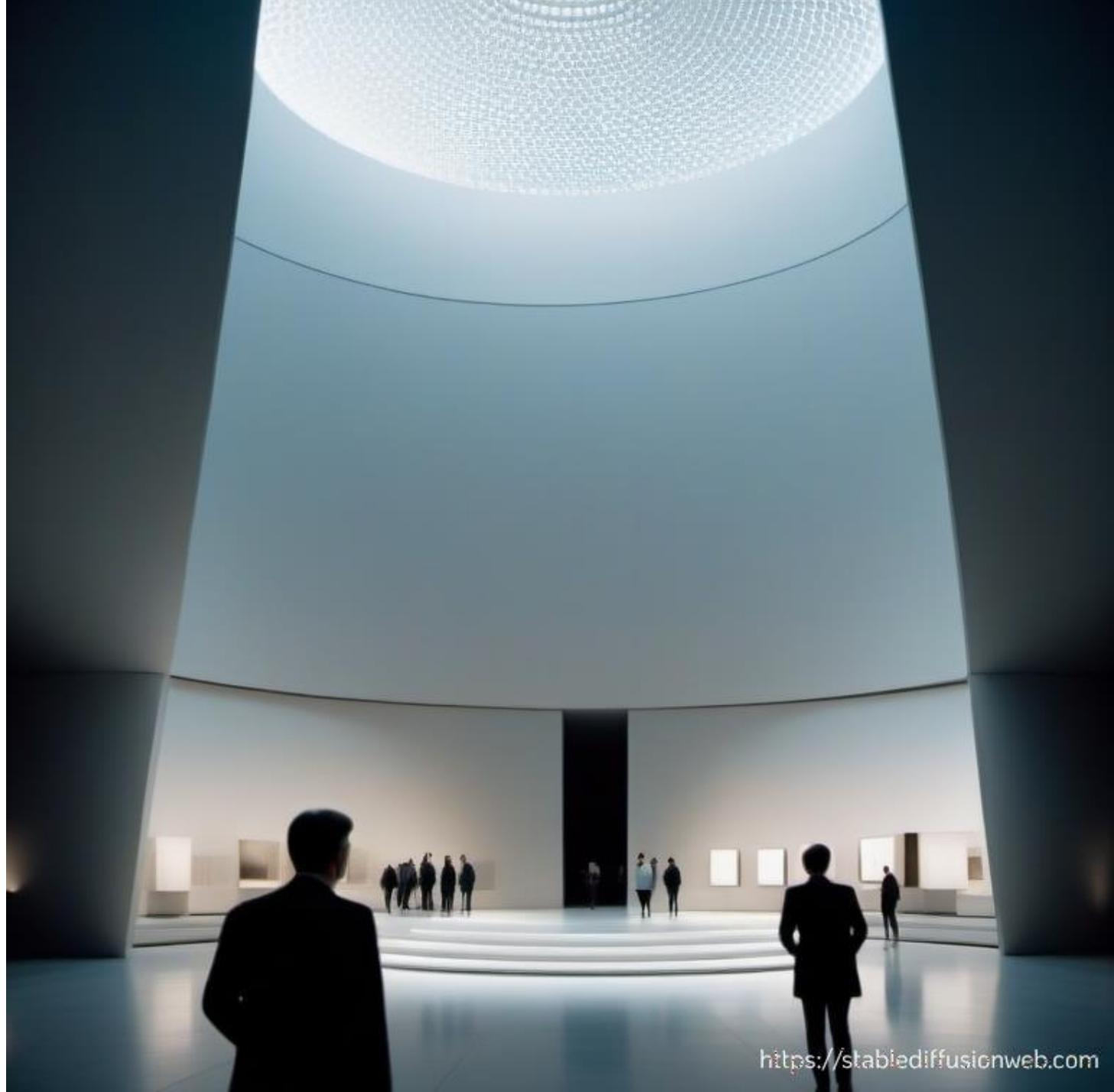
Stable Diffusion.
(2023, October 27 at 5:41 PM).

Response to a prompt about:

“Interior view in the style of Tadao Ando of a museum of space and light, geometric forms, light beams, indirect lighting, 2 stories, open to below, people in awe, exhibits.”]

Source:

<https://stablediffusionweb.com/#demo>



STEP 5: OPPORTUNITIES

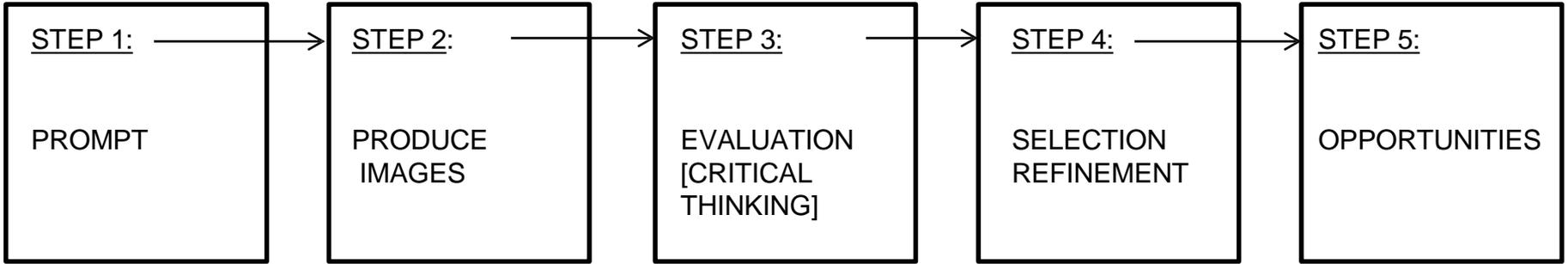
Design Recommendations

- Central Space
- Indirect lighting
- Focous stage
- Circular walls with circulation at the perimeter
- Others?

Source:
[https://stablediffusionweb.com/
#demo](https://stablediffusionweb.com/#demo)



AI RENDERS PROTOCOL WORKFLOW



Example:
 “Museum of space and light, indirect lighting, windowless, white ambiance, parametric wall design, 2 stories, open to below, art display, people looking at an exhibition.”

Repeat x3 or more.



Design Recommendations

- Central Space
- Indirect lighting
- Focus stage
- Circular walls with circulation at the perimeter
- Others?

EXERCISE WORKFLOW

STEP 1: PROMPT

Develop a prompt for the image. Must be specific, with the main elements of your proposal.

Example: "Museum of space and light, indirect lighting, windowless, white ambiance, parametric wall design, 2 stories, open to below, art display, people looking at an exhibition."

Repeat x3 or more.

STEP 2: PRODUCE IMAGES



STEP 3: EVALUATION [CRITICAL THINKING]

- Pros:
- Cons:

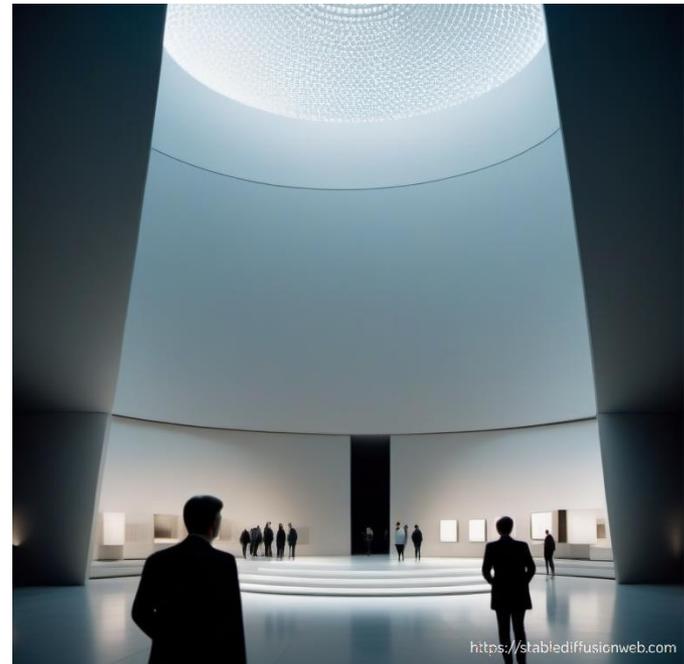
STEP 4: SELECTION

- Refine prompt & test, such as:
- Emphasize OH light, central space, 2nd floor

"Museum of space and light, indirect lighting, windowless, white ambiance, stone floors, 2 stories, open to below, people in awe, circular roof."

STEP 5: OPPORTUNITIES

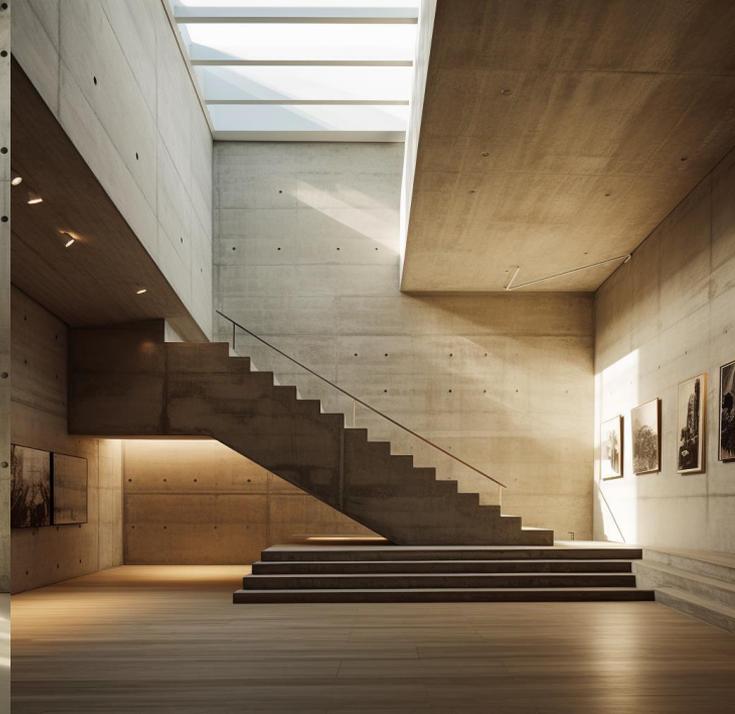
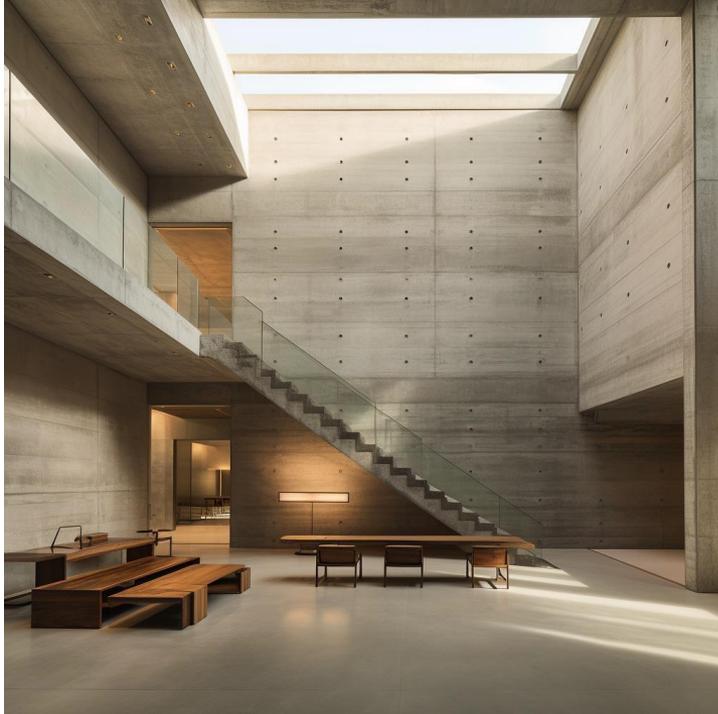
- Design recommendations.



PLATFORMS

[Midjourney](#)

PROMPT:
/imagine interior design
for a museum that
highlights the human
experience and creates
delight with indirect
light, concrete walls,
tadao ando architecture
- @mtbm (fast)
5:56PM 2023-10-29



PLATFORMS

[Midjourney](#)

PROMPT:
/imagine interior design
for a museum that
highlights the human
experience and creates
delight with indirect
light, concrete walls,
tadao ando architecture
- [@mtbm](#) (fast)
5:56PM 2023-10-29



interior design for a museum that highlights the hum
[@mtbm](#) (fast)



| | | | | |
|----|----|----|----|--|
| U1 | U2 | U3 | U4 | |
| V1 | V2 | V3 | V4 | |

PLATFORMS

[Midjourney](#)

PROMPT:
/imagine interior design for a museum that highlights the human experience and creates delight with indirect light, concrete walls, tadao ando architecture - [@mtbm](#) (fast)
5:56PM 2023-10-29



Midjourney Bot ✓ Bot Today at 6:01 PM
interior design for a museum that highlights the human ex
Variations (Strong) by [@mtbm](#) (fast)

U1 U2 U3 U4
V1 V2 V3 V4

PROMPT TO IMAGE

STUDENT WORK

IMAGE
GENERATION
PROMPT TO IMAGE



BCIT Indigenous House,
Students: Loaiza Granda,
Alejandra & Rojas Ibarra,
Daniel. BLDG 4000-Winter
2024, Arch Elective, BCIT, April
2024.

IMAGE GENERATION PROMPT TO IMAGE

Prompt:
“Building inspired by the
flow of a creek in Burnaby,
British Columbia”

BCIT Indigenous House,
Students: Brooklyn McKave &
Monica Galvez, Daniel. BLDG
4000-Winter 2024, Arch
Elective, BCIT, April 2024.



IMAGE GENERATION PROMPT TO IMAGE

Prompt:
SHOW ME A COAST
SALISH COMMUNITY
CENTER IN BURNABY, BC
THAT IS INPIRED FROM
INOSCULATED TREE
RINGS AND BUILT WITH
LOCAL TIMBER
MATERIALS.

BCIT Indigenous House.
Students: Aidin & Will. BLDG
4000-Winter 2024, Arch
Elective, BCIT, April 2024.



IMAGE GENERATION

PROMPT TO IMAGE

BCIT Indigenous House,
Students: Woodruff, Joseph & Klimek, Joshua.
BLDG 4000-Winter 2024, Arch Elective, BCIT,
April 2024.



IMAGE GENERATION

PROMPT TO IMAGE

BCIT Indigenous House,
Students: Lussier, Samuel & Morley, Sean.
BLDG 4000-Winter 2024, Arch Elective,
BCIT, April 2024.



SKETCH TO RENDER

PLATFORMS

[Midjourney](#)

SKETCH TO IMAGE



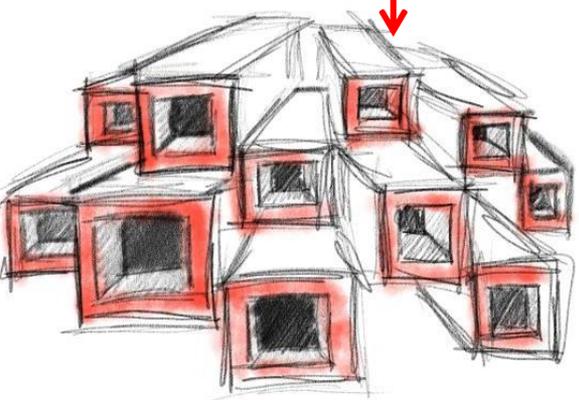
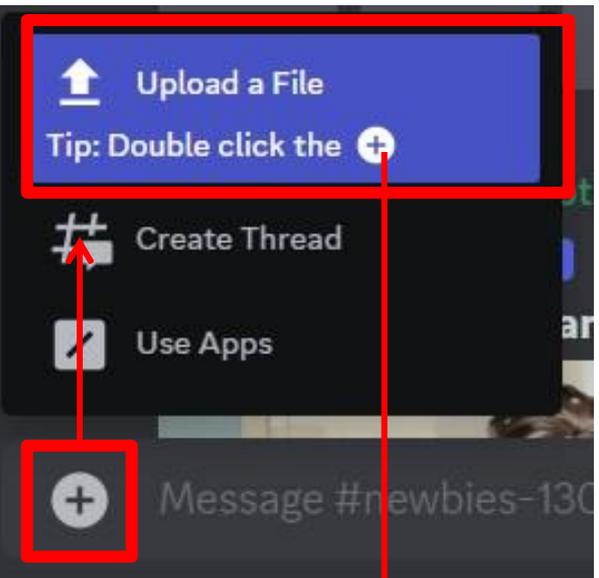
Concept sketch for an apartment building by Mina Baek,
BCIT BLDG 4000-Arch Elective, January 2023.

PLATFORMS

[Midjourney](#)

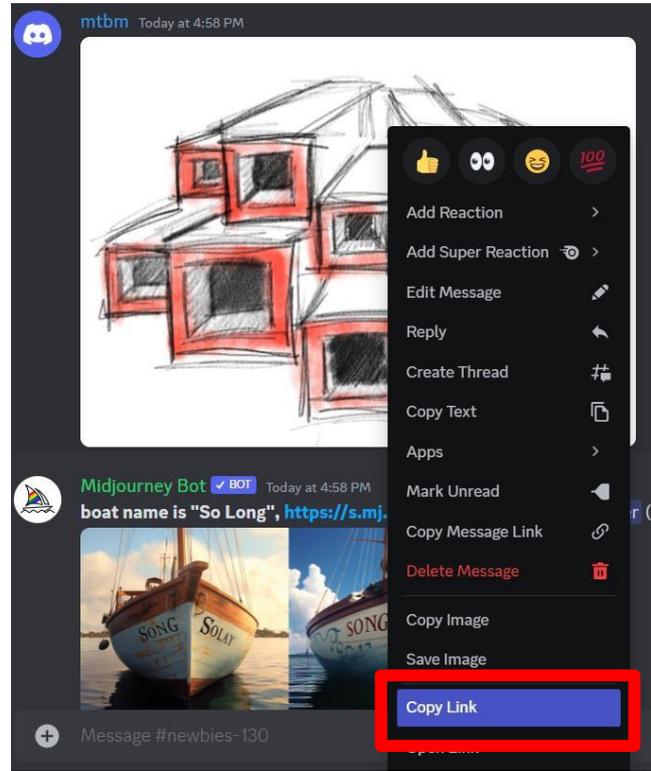
SKETCH TO IMAGE

STEP 1: In mid journey chat, upload a sketch



Sketch by Baek, Mina
BCIT BLDG 4000, January 2023.

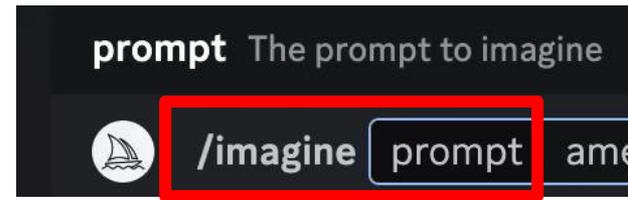
STEP 2: Right click image and "copy link"



STEP 3: Link image to prompt

Prompt:
/imagine(space)(paste link to image)
add prompt

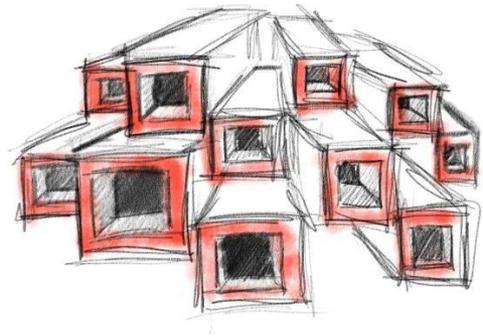
/imagine
<https://s.mj.run/Fb4nAqPta10>
building with apartments in Vancouver Canada - @mtbm
(fast)
5:00PM 2023-10-29



PLATFORMS

[Midjourney](#)

SKETCH TO IMAGE



Sketch by Mina Baek,
BCIT BLDG 4000-Arch
Elective, January 2023.

Prompt:
<https://s.mj.run/Fb4nAqPta10>
**building with
apartments in
Vancouver Canada**

- @mtbm (fast)
5:00PM 2023-10-29



PLATFORMS

[Midjourney](#)

SKETCH TO IMAGE

Round 1:
Select preferred
option



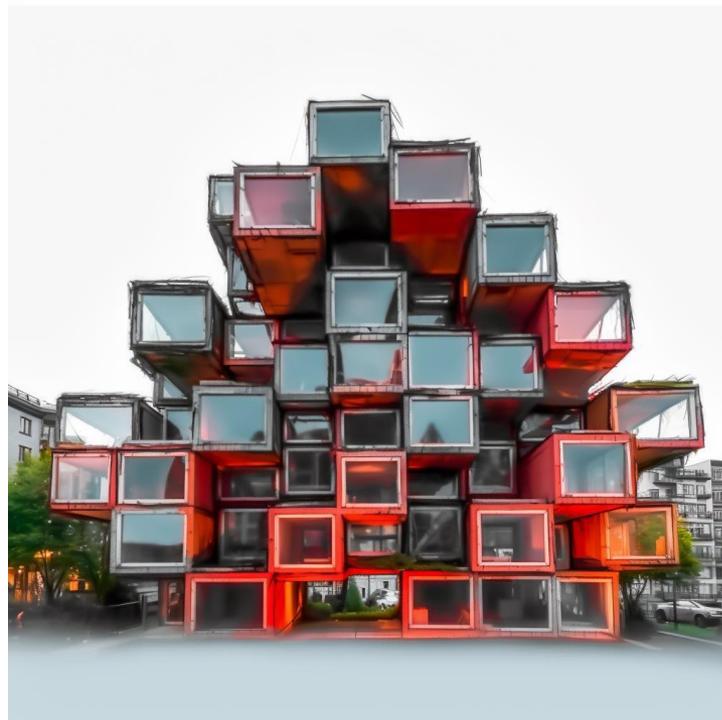
| | | | | |
|----|----|----|----|--|
| U1 | U2 | U3 | U4 | |
| V1 | V2 | V3 | V4 | |

PLATFORMS

[Midjourney](#)

SKETCH TO IMAGE

Round 2:
Select preferred
option



PLATFORMS

[Midjourney](#)

SKETCH TO IMAGE

Round 3:
Select preferred
option



PLATFORMS

[Midjourney](#)

SKETCH TO IMAGE

Final Image



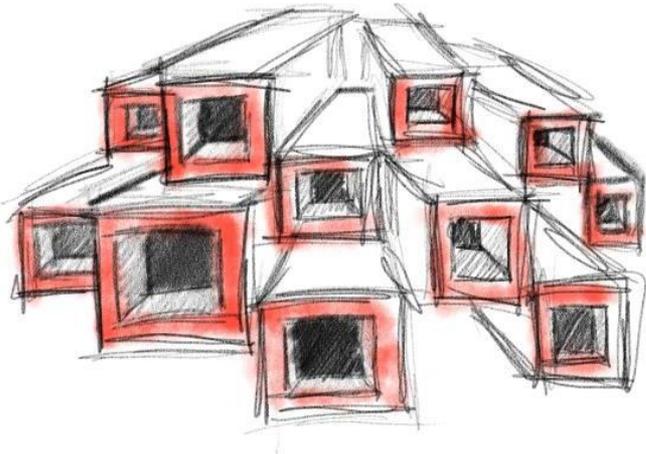
PLATFORMS

[Midjourney](#)

SKETCH TO IMAGE

Final Image

Concept sketch for an apartment building by Mina Baek, BCIT BLDG 4000-Arch Elective, January 2023.



Credit: Image generated by AI, Midjourney. Response to the prompt:

<https://s.mj.run/Fb4nAqPta10> building with apartments in Vancouver Canada

- @mtbm (fast) 5:00PM 2023-10-29).



IMAGE GENERATION

SKETCH TO IMAGE

BCIT Indigenous House,
Students: Rakhra, Anisha & Andreychik, Anna.
BLDG 4000-Winter 2024, Arch Elective, BCIT,
April 2024.

Prompt: A 2-storey indigenous community building inspired by the medicine wheel. Located in Burnaby, BC

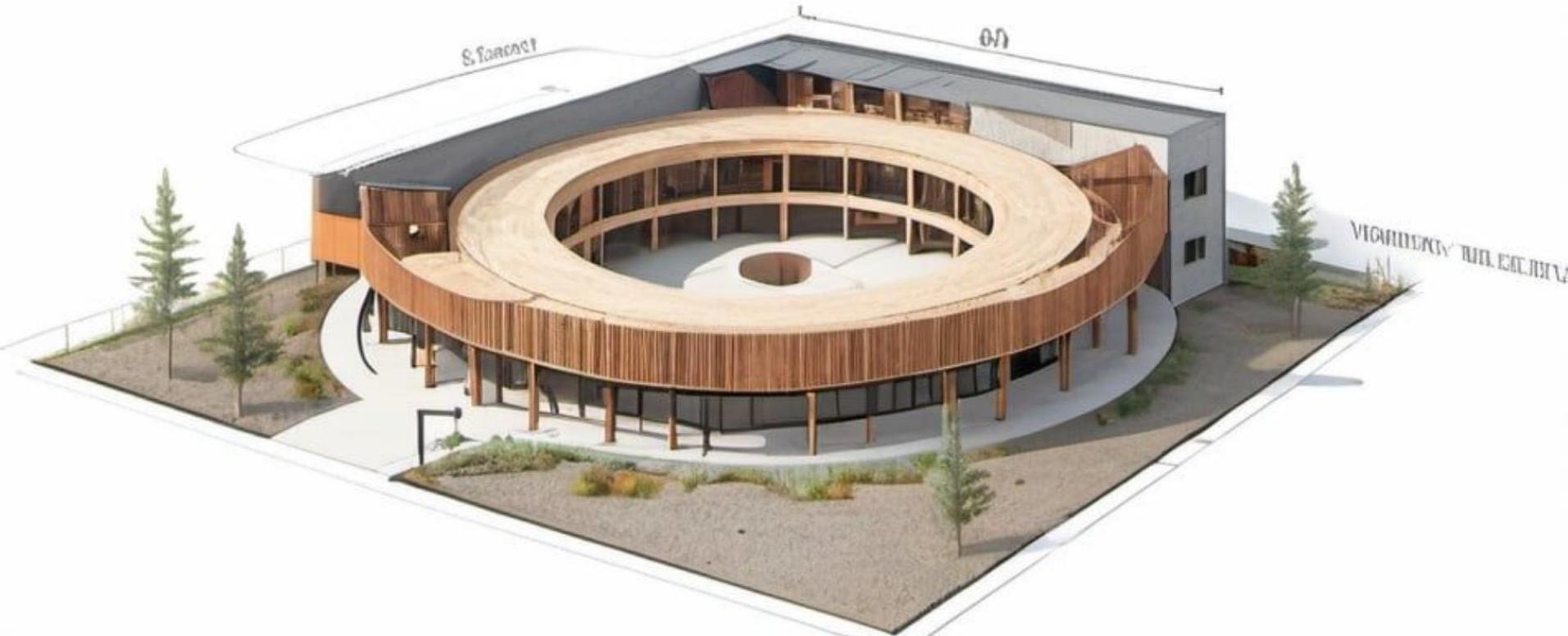
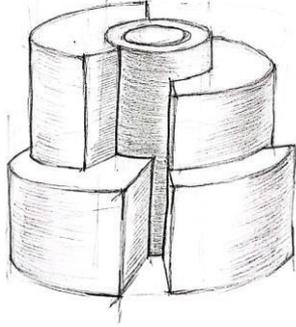
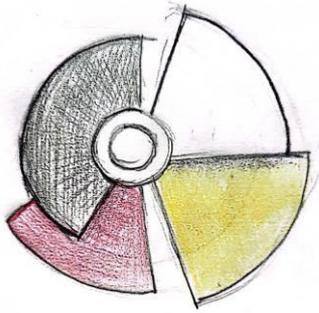
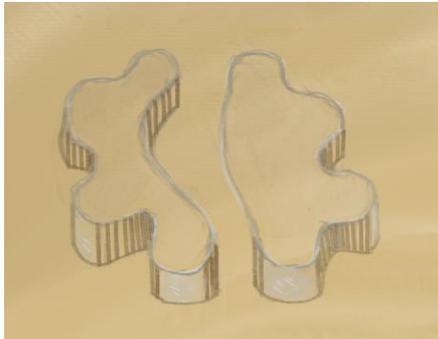


IMAGE GENERATION SKETCH TO IMAGE

Best images student work:

Text Prompt:
Indigenous building,
Red cedar, timber
vertical siding, creek in
the middle

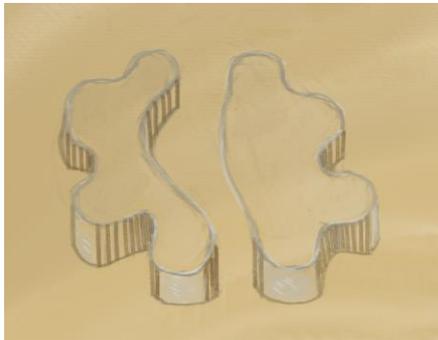


BCIT Indigenous House.
Students: Broad, Ivy & Al-
Mashhadani, Rawan. BLDG
4000-Winter 2024, Arch
Elective, BCIT, April 2024.

IMAGE GENERATION SKETCH TO IMAGE

Best images student work:

Text Prompt:
Indigenous building,
Red cedar, timber
vertical siding, creek in
the middle



BCIT Indigenous House.
Students: Broad, Ivy & Al-
Mashhadani, Rawan. BLDG
4000-Winter 2024, Arch
Elective, BCIT, April 2024.



3D VIEW TO RENDER

3D view of Tenant improvement project,
Student: DJ KIM. BLDG 3000- Fall 2024,
Arch Elective, BCIT, October 2024.



BCIT STUDENT WORK

3D VIEW TO RENDER

Final Image

AI Software Used:

Archi AI

AI Rendering Prompt:
"Render a modern, cozy, and elegant minimalist restaurant interior. The design features curved walls, a central sculptural tree with grape-like spherical lights, and a warm, inviting atmosphere. The layout should create a smooth flow, with ambient lighting enhancing the intimate dining experience."

Room Type: Restaurant

Style: Minimalist

A screenshot of the Archi AI web interface. The interface is dark-themed and shows the rendering process. On the left, there's a navigation menu with options like 'Interior', 'Inspiration', 'Exterior', 'Virtual Staging', and 'My Designs'. The main area displays a 3D wireframe rendering of the restaurant interior, with a pink arrow pointing to the central sculptural tree. Below the rendering, there are settings for 'ROOM TYPE' (Restaurant), 'STYLE' (Minimalist), and 'DETAILS' (Render a modern, cozy, and elegant minimalist restaurant interior...). At the bottom, there's a 'Generate' button. On the right, a panel titled 'Your renders' shows three large pink question marks, indicating that the rendering process is still in progress or that the results are not yet visible.

BCIT STUDENT WORK

3D VIEW TO RENDER
Final Image



Concept sketch for a tenant improvement project,
Student: DJ KIM. BLDG 3000- Fall 2024,
Arch Elective, BCIT, October 2024.

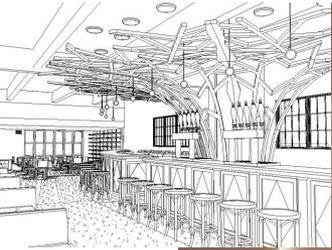


BCIT STUDENT WORK

3D VIEW TO RENDER

Final Image

Concept sketch for a tenant improvement project,
Student: DJ KIM. BLDG 3000- Fall 2024, Arch Elective,
BCIT, October 2024.

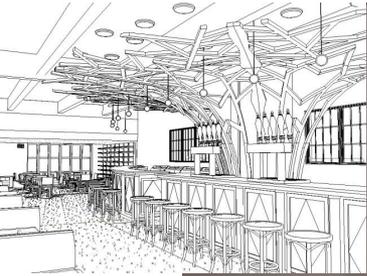


BCIT STUDENT WORK

3D VIEW TO RENDER

Final Image

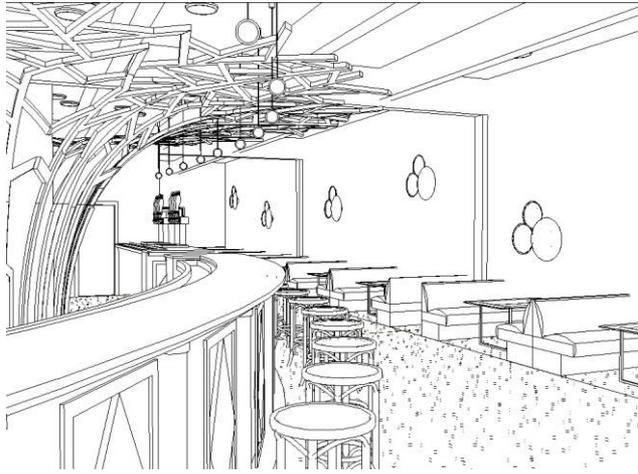
Concept sketch for a tenant improvement project,
Student: DJ KIM. BLDG 3000- Fall 2024, Arch Elective,
BCIT, October 2024.



STUDENT WORK

3D VIEW TO RENDER
Final Image

Concept sketch for a tenant improvement project,
Student: DJ KIM. BLDG 3000- Fall 2024, Arch Elective,
BCIT, October 2024.



BCIT STUDENT WORK

3D VIEW TO RENDER
Final Image

Concept sketch for a tenant improvement project,
Student: DJ KIM. BLDG 3000- Fall 2024, Arch
Elective, BCIT, October 2024.



BCIT STUDENT WORK

3D VIEW TO RENDER
Final Image

Concept sketch for a tenant improvement project,
Student: DJ KIM. BLDG 3000- Fall 2024, Arch
Elective, BCIT, October 2024.



ADVANCED APPLICATIONS
WORK FROM MASTER'S STUDENTS AT
IAAC (INSTITUTE FOR ADVANCED ARCHITECTURE)
in Barcelona, Spain
July 2024

*** Funded by BCIT- IMF International Mobility Fund



III SUMMIT REDES – El Urbanismo Próximo

TEXT TO IMAGE

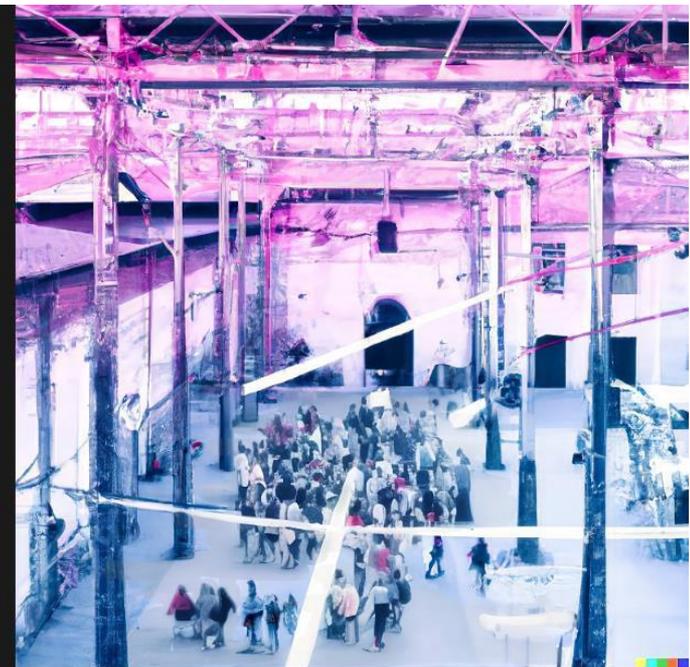
AI ASSISTANT

This attempt is related to testing possible “outcomes” for the thesis statement in a particular context.

The students have to evaluate the images and present a critical view of the results.

MASTER THESIS
Visualizations of thesis
proposal using AI.

Student: Mariano Uriel.
IAAC-MOeC.



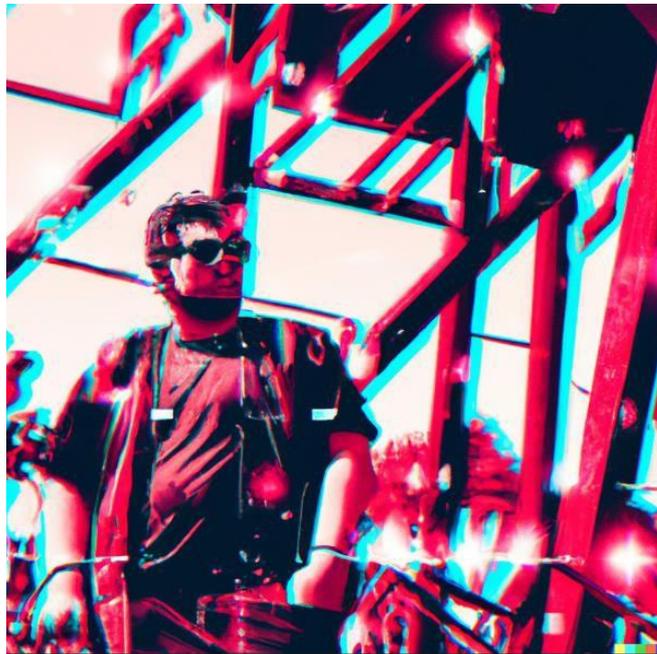
PLATAFORM:
[OPEN AI](#)

PROMPT:
"abattoir, industrial
public space,
elevated pasarells,
made with iron and
zinc, people
festival, concept
image, glitch effect,
canon 77d, 35mm,
pastel colors, lights,
eye level photo"



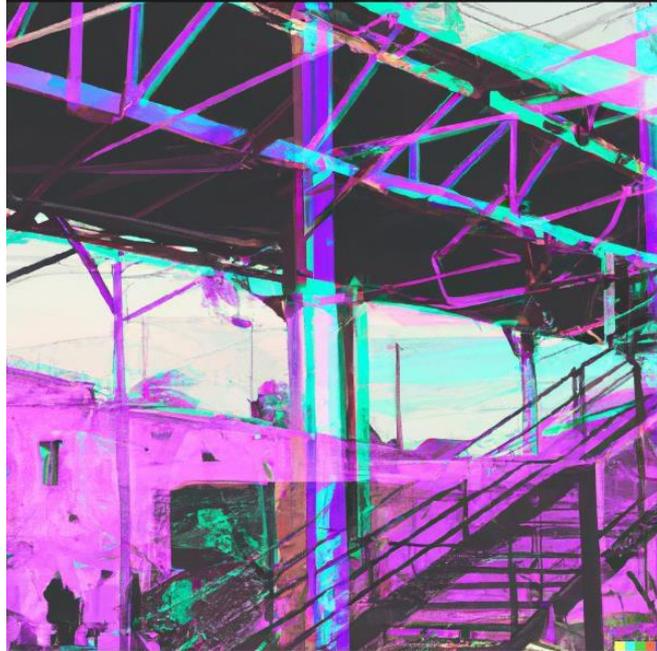
MASTER THESIS
Visualizations of thesis
proposal using AI.

Student: Mariano Uriel.
IAAC-MOeC.



PLATAFORM:
[OPEN AI](#)

PROMPT:
"abattoir
reprogrammed
public space,
elevated pasarells,
people festival,
highlights, glitch
effect, chromatic
aberration, canon
77d, 35mm"



MASTER THESIS

Visualizations of thesis proposal using AI.

Student: Christel Rossi Risco Gutiérrez . IAAC-MOeC.

Imagen generada por inteligencia artificial." OPENAI. (2024, Julio 18). PROMPT:

“En la medida en que se implemente una propuesta holística medioambiental y se distribuyan **estrategias regeneradoras asociadas a las infraestructuras: azul , verde y de reciclaje** en el paisaje urbano de la ciudad de Chiclayo, se tendrá el potencial de recuperar las condiciones ambientales de la ciudad transformando progresivamente su morfología hacia un urbanismo resiliente y regenerativo en el tiempo.].

<https://chat.openai.com>



IMAGE BLEND

AI ASSISTANT - REFERENCES

This attempt is related to testing possible "intersections" between theoretical references and the thesis project.

The objective is to radicalize the discourse and position it within disciplinary references.

The students have to evaluate the images and present a critical view of the results.

CITATION PROTOCOL AI IMAGES



Wolkenbugel. El Lissitzky. 1925

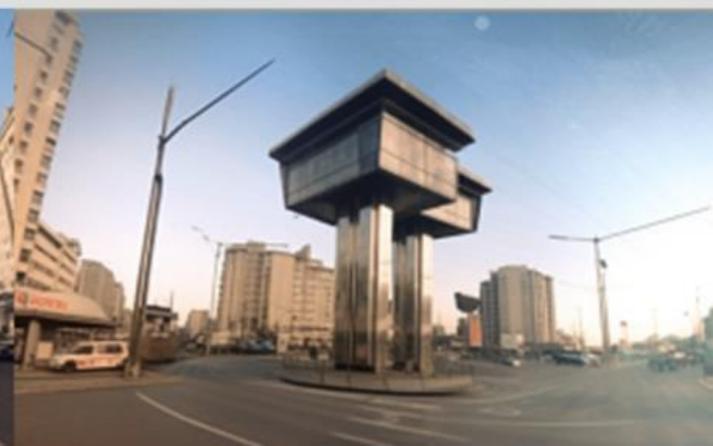


1645 Vergueiro St
São Paulo, State of São Paulo
[Google Street View](#)

1]
PLATAFORM:•MIDJOURNEY
[2]
DIA Y FECHA:2024, July 15, [3]
PROMPT:/blend (upload
images-up to 5 images)

Citation:

"Image generated with AI"
Midjourney (2024, July 15).
[response to a prompt about
blending picture 1)
Wolkenbugel. El Lissitzky. 1925
& picture 2)1645 Vergueiro St.
São Paulo, Brasil, Google
Street View].[ai.com](#)





Paisajes del agua El Taller de Arquitectos
LANDSCAPE URBANISM



Río Táchira

MASTER THESIS
Visualizations of thesis
proposal using AI.

Student: Kevin Rafael.
IAAC-MOeC.

PLATAFORM:
MIDJOURNEY



IMAGE AS CONCEPT GENERATORS

AI ASSISTANT

This attempt is related to testing possible diagrams in novel formats (comics, diagrams, etc.) as a tool to explain the thesis proposals.

The objective is to show applications and engagement of architectural content with a diverse group of users and audiences.

The students have to evaluate the images and present a critical view of the results.

USUARIO: NIÑOS BOY SCOUTS

NIÑOS!!
Hoy en la noche tendrán una experiencia ÚNICA en donde acamparemos en un bosque !! Los esperamos a las 5:00 pm en el Corredor Ecológico.

YEAH!!

5:00 PM EN EL CORREDOR ECOLÓGICO...
!! QUE PADRE CORREDOR, PODEMOS LLEGAR EN BICICLETA !!

WOW
BIENVENIDOS AL BOSQUE DE ARAGÓN

Aquí, alado del lago es donde acamparán porque es la zona más segura del bosque

WOW!

TODOS CON SUS CASAS DE CAMPAÑA ARMADAS...
Qué padre lugar y poder acampar enfrente de un lago, rodeados de naturaleza...

UNAS HORAS MÁS TARDE LOS NIÑOS PRENDIERON UNA FOGATA PARA DESPUÉS IRSE A LA SIGUIENTE AVENTURA...

9:00 PM VISITA NOCTURNA AL ZOOLOGÍCO...
WOW!

11:00 PM
ZZZ!

AL DÍA SIGUIENTE...
¡Qué increíble experiencia tuvimos! Ya la quiero contar a mis papás

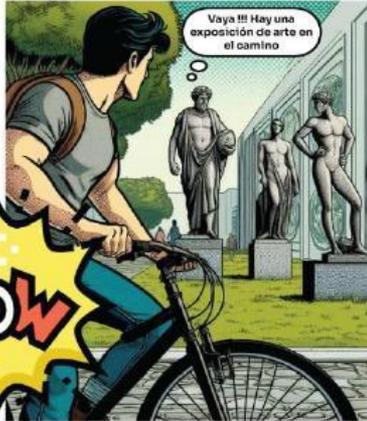
!!MAMAAA, PAPAÁÁÁ !!
No saben la gran experiencia que tuvimos.....

USUARIO: TURISTA

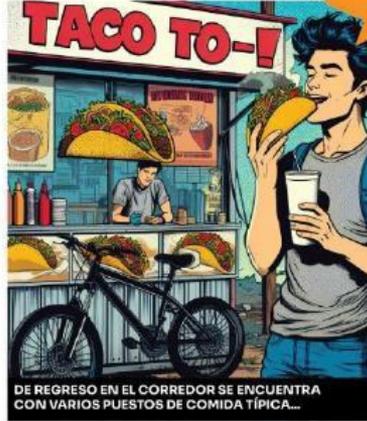
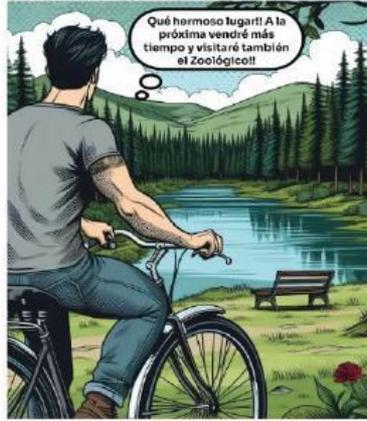
ATERRIZANDO EN CIUDAD DE MÉXICO...



EN EL CORREDOR ECOLÓGICO...



LLEGANDO AL BOSQUE DA UN RECORRIDO EN BICI...

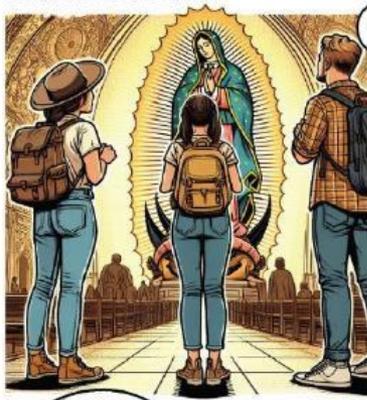


DE REGRESO A SU SIGUIENTE VUELO...



USUARIO: PEREGRINOS

3 PEREGRINOS VAN A VISITAR A LA VIRGEN DE GUADALUPE DESDE LEJOS...



Hola! Somos peregrinos y queremos preguntar acerca del camping...



Claro que sí, pueden rentar una casa de campaña aquí mismo y la zona de acampar es frente al lago. Vamos les guío...

TERMINANDO SU PEREGRINACIÓN...



MIREN!! Ahí dice "Corredor Ecológico, zonas de camping"

Y ahora?? Qué haremos?? En dónde dormiremos??...



YUM!

¡Qué bueno que hay comedores para los peregrinos!!

CAMINANDO EN EL CORREDOR...



WOW

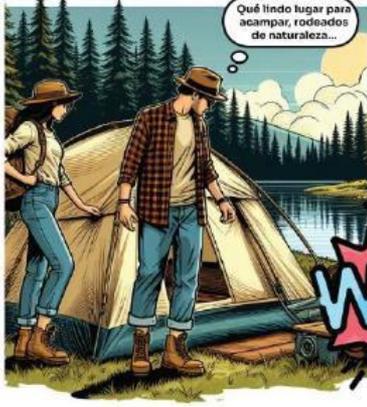
LLEGANDO AL BOSQUE...



SAN JUAN DE ARAGON

¡¡ Se ve increíble !! Será que si nos dejan acampar aquí??

ARMANDO SU CASA DE CAMPAÑA ...



Qué lindo lugar para acampar, rodeados de naturaleza...

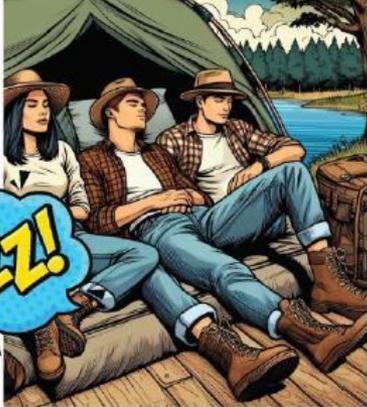
MIENTRAS SE HACE DE NOCHE VISITAN LOS MIRADORES DEL ZOOLOGICO...



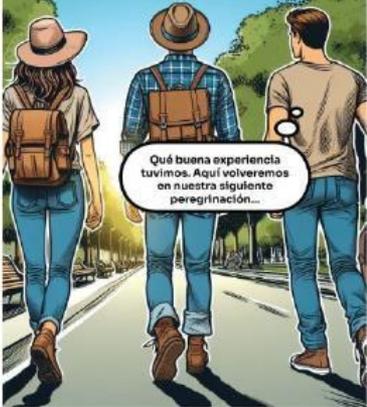
WOW!

ZZZ!

AHORA SI A DORMIR ...



AL DÍA SIGUIENTE DE REGRESO POR EL CORREDOR...



Qué buena experiencia tuvimos. Aquí volveremos en nuestra siguiente peregrinación...

Master Thesis
proposal for a park in
Chapultepec, Mexico,
City. Images created
using Midjourney.

Student: Lilia Haua.
IAAC-MOeC- July
2024.



Master Thesis
proposal for a
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Haua. IAAC-
MOeC- July 2024.



CONCLUSIONS

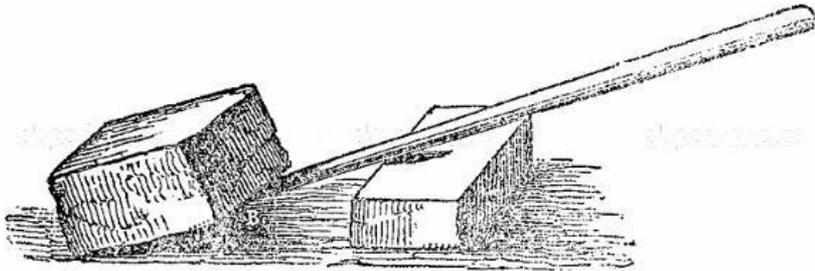
MACHINES

TOOLS & INSTRUMENTS

Source: University of Buffalo, Center on Knowledge Translation for Technology Transfer. KT4TT Best Practices Need to Knowledge Model Instrument Tool.

<https://publichealth.buffalo.edu/cat/kt4tt/best-practices/need-to-knowledge-ntk-model/ntk-instrument-tool.html#:~:text=Instrument%2FTool%20means%20an%20implement,fabricate%20any%20type%20of%20material.>

TOOLS & INSTRUMENTS



TOOLS

A TOOL is used to measure, manipulate or fabricate any type of material.

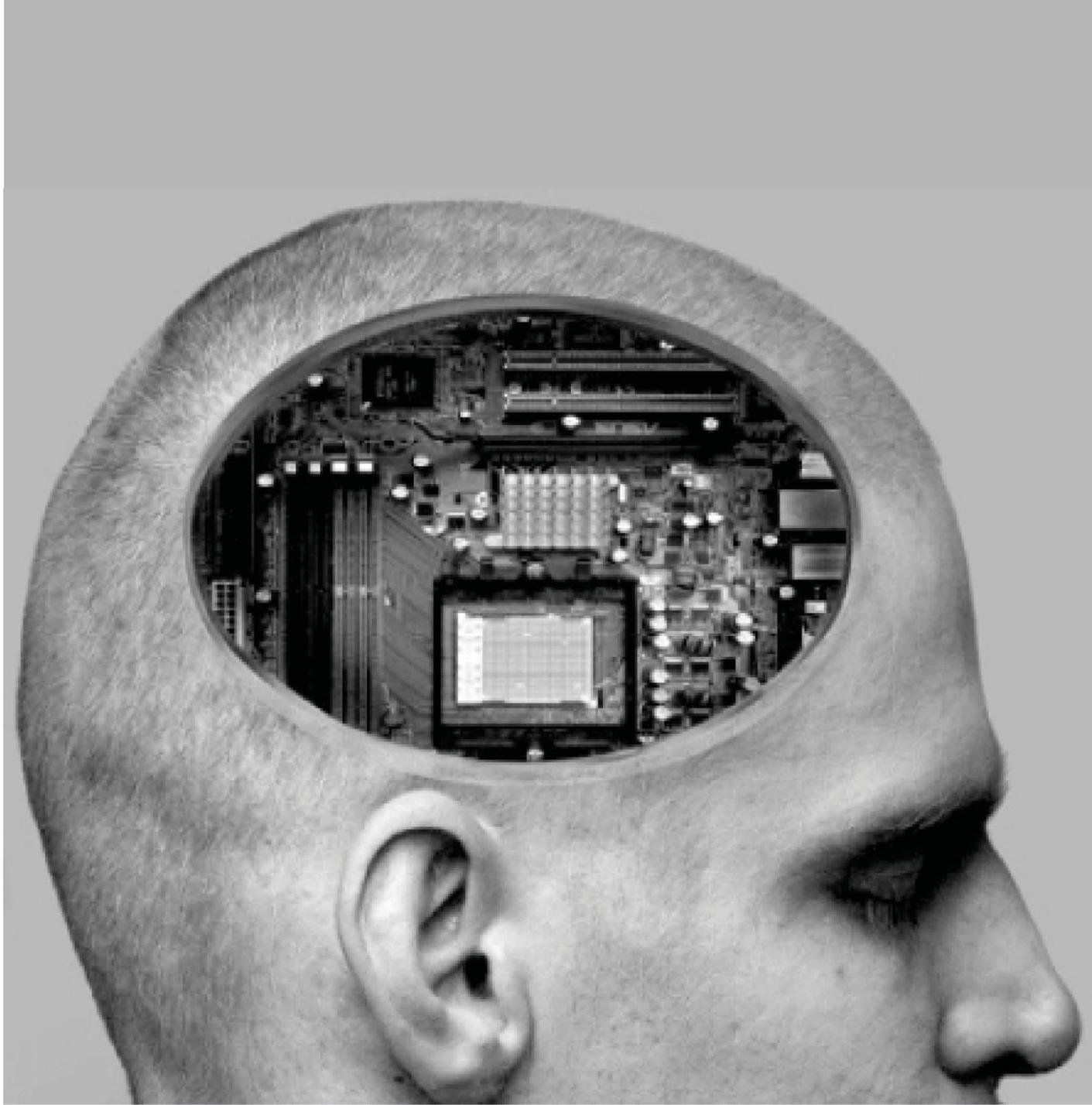


INSTRUMENTS

An INSTRUMENT is used for data collection, storage, analysis, management or monitoring.

Technique and
Civilization, Lewis
Mumford, 1934.

“While in the industry the machine can replace man when it is reduced to an automata, in the arts the machine can only expand and deepen the original functions and intuitions of man”.



END

CONTACT

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