

PROJECTS PORTFOLIO

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The aim of this project portfolio is to show my motivation [see motivation letter] in creating a hollistic approach to projects. This portfolio shows 3 different projects with 3 different approaches:

1-BIM Project

3-Landscape & Sustainability Project

The Portfolio also aims to highlight the following as my strong points:

BIM Proficiency

AI Proficiency

Landscape Design

Program skills

Research-Based Design

Client-Centered Design

Note: This is an Interactive PDF, to the get the full experience kindly do the following: 1-Hover on all photos using your mouse 2-Press on Buttons to access links (Button will appear as rounded edge boxes and will change color on hover).

BIM Project

Oasis International School

Hover on photos

EIR/Client Requirements

EIR short for Exchange Information Requirement is a pre-tender document created by the client to which firms can respond to with their offers. It defines standards, information and requirements of a BIM process in the client's project.

In the EIR the client "Kaitech showed their requirements concerning the KT-school project in terms of the following:

BIM Uses

Information Exchange

System performance & units

Safety & Security

Software Platforms

Standards & Naming Convention

Co-ordination & Clash detection

Collaboration

To see the client's full EIR press on the button below:

BXP :BIM Execution Plan

BXP short for BIM Execution Plan is a document used by firms to respond to the EIR. It defines how the firm will carry out the BIM process & implement the client's requirements.

Some segments that were shown in the BIM Execution Plan we created to respond to the client's EIR:

Project Goals

Software

Project Schedule

Information Delivery Strategy

Key Project Contacts

Standards & Naming Convention

Documents & Standards

Collaboration

To see the full BXP press on the button below:

Programs Used

Click on titles to access links



Revit



NavisWorks



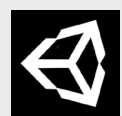
AutoCAD



PhotoShop



Indesign



Unity



Autodesk Forma



Autodesk Cloud



Interaoperability



Enscape



Dynamo



Power BI

3D

The school has been modeled in revit in terms of architecture, structure & mechanical. Templates & families were created . We worked on the model collaboratively using Autodesk Construction Cloud. We then resolved clashes using NavisWorks.

4D

A simulation for the timeline of the construction has been created using Revit, Excel & Navis-Works. A video animating construction elements based on the time of their Construction has been created.

5D

A sample of BOQ for the project has been created using the Master Format. BIM Interaoperability Tool (Revit Plugin) has been used to make assigning Master Format Classification to elements easier. The cost has been simulated along with the timeline of construction using NavisWorks.

6D

Sustainability studies have been carried out on 3D model using Autodesk Forma . These studies include: Daylight Analysis, Micro-climate, Noise, Solar Panel, Sun Hours, Wind Analysis

7D

Created Cobie Sheet using Revit & BIM Interaoperability Tool (Revit Plugin) to be later used in Facility Management.

VR

Created Virtual Reality Model & Virtual Tour using Enscape.
Created augmented reality model using Unity & Vuforia.

AR

AI Project

Gate Design Using AI

Client Requirements:

The client was requesting a design for a gate of a factory. The factory is to be visited by important personnel. The client requested that the gate be grand, reflect Egypt's heritage and show elements of Ancient Egypt.

1-Research using AI

Based on the client Requirements a research has been conducted using Gemini (Large language Model: LLM similar to ChatGBT). Here is the prompt that was used to conduct this research:

Prompt: Can you tell me about the architecture of Ancient Egypt? What elements did they repeatedly use in their Architecture?

Gemini's Output :

Columns: decorated with hieroglyphs or designs resembling papyrus plants, palm trees, or lotus flowers.

Hieroglyphs and Reliefs: Ornate carvings and paintings depicting religious and royal themes.

Symmetry and Monumentality: Symmetrical Buildings/Structures, reflecting the order and stability of the Egyptian worldview.

Why Gemini not ChatGBT? :

Cultural Authenticity : Gemini relative to ChatGBT is known to produce more culturally authentic answers and not to be Biased.

Multimodel AI: Gemini is a Multimodel AI It can understand not only text, but photos and speech which makes it easier to convey the message.

2-Prompt Engineering

After conducting the research we need to create an effective prompt and use it to generate the design. To generate a meaningful design, it is important for the prompt to be detailed and to serve the purpose of the design. That is where Prompt Engineering comes to play; There are many frameworks that are recommended to create an effective prompt. Here is the framework I used for the purpose of this design:

Prompt Framework : [Persona][Task][Context][Exemplar]

Prompt Created Based on Framework :

Imagine that you are an architect generate a prompt to be used by AI photo generator to create a modern version of a pharaonic gate that would be visited by important personnel. Use your answer to my previous prompt (research on architecture of ancient egypt & it's elements) to create the prompt.

Persona: Imagine your an architect

Task: generate a prompt to be used by AI photo generator

Context: modern pharaonic gate to be visited by important personnel

Exemplars: use your answer to my previous prompt

3-Photo Generation

After asking Gemini to create a prompt, It is time to use the generated prompt to create the design using AI photo generator. For the purpose of this design I used Adobe Firefly. To generate the photo effectively I used three elements:

Structure Photo

Reference photo

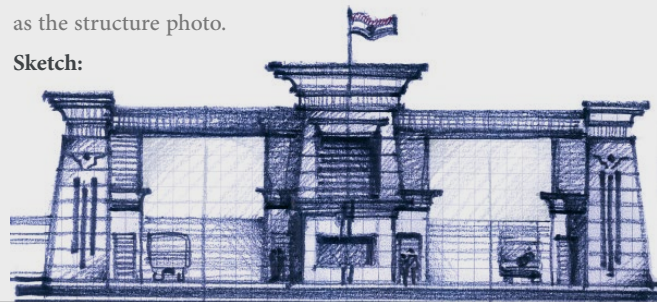
Prompt

Here is how I used these elements:

Structure photo :

The structure photo is a photo that shows the outline and the base of the design. For this design, I used a sketch created by a colleague as the structure photo.

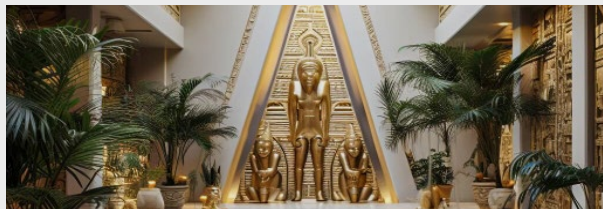
Sketch:



Reference photo :

The reference photo is a reference for the style the generated photo should have . For this design, I used a photo showing style of modern pharonic Interior.

Photo of modern pharonic interior:



Prompt :

For the prompt I used the prompt that was created by Gemini as a result of my Research and Prompt Engineering.

Prompt Generated to be used in AI photo generator:

A modern version of a pharaonic gate, that is imposing and symmetrical. Massive papyrus reed columns flank the entrance, adorned with intricate hieroglyphs depicting scenes of pharaohs. The gate is bathed in the warm glow of the setting sun, casting long shadows across the hieroglyphs. The gate has the flag of Egypt waving on top. The are palm trees paving the way towards the gates.

After using these 3 elements in adobe firefly the output design is generated. Here is the output design:

4-Photo Enhancement

Photo enhancement is an essential part when generating photos using AI. As observed the photo generated using Adobe Firefly is not exactly perfect. Here are the problems in the generated photo:

Low Detail

Weird Sticks

No Palm Trees



Here is how I resolved these problems:

Low Detail :

The low detail can be observed in the hieroglyphs and reliefs in the generated photo. To resolve this problem I used Krea AI (a program that enhances detail).

Photo After Enhancement:

Weird Sticks & No Palm Trees :

The weird sticks existing in the entrances of the gate as observed in the photo make no sense. Also the palm trees were not generated. To resolve this problem, Photoshop Beta (AI Enhanced) was used.

Photo After Enhancement & Final Output:

Programs Used:



Gemini



Adobe Firefly



Krea AI



Photoshop Beta

Landscape & Sustainability Project

Vita Migliore Fishermen Park

Project Aim:

This project aims to achieve **Socio-Econonmic Resilience** & **Resilience against Climate Change** in el Max region in Alexandria

Region Problems & People Needs:

Socio-Economic Problems

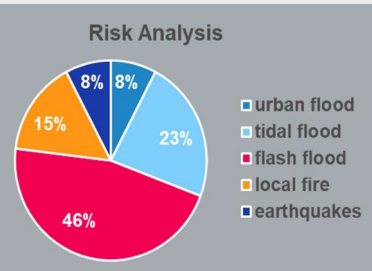
Low Income : Jobs are mainly depen-
dant on fishing which is seasonal & lack
of other job opportunties.

Lack of activities: Lack of recreational
spaces resulting in residents not en-
gaging in self-building & entertaining
activities.

Climate Change Problems

Sea-level Rise : Anticipated rise of
sea-level by 100 CM by Year 2100

Flash Flood: Rain and flash flood have
the highest percentage risk compared
to other hazard



Project Concept & Solutions

Climate Change Solutions & Resilience

Solutions that were implemented for Sea-level Rise & Flash Flood:





Click on photo

Socio-Economic Solutions & Resilience

Socio-Economic Resilience is achieved by creating a project that would provide job oportunties all season. This achieved by creating facilities that would **Cultivate** people skill to provide them them with **Work** oportunties and **Entertain** clients, residents & employees.

Click on photo