[TOOLKIT]

GENERATIVE AI IN DESIGN EDUCATION

KATE GECK
SCHOOL OF ARCHITECTURE & URBAN DESIGN

DR EMMA LUKE
SCHOOL OF DESIGN

COLLEGE OF DESIGN & SOCIAL CONTEXT

RMIT UNIVERSITY

2024

Created with the support of
The Alastair Swayn Foundation
Design Thinking Grant

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For more, please visit
https://www.genaitoolkit.info/

ACKNOWLEDGEMENT OF COUNTRY

This project was completed on the unceded lands of the Wurundjeri People of the Eastern Kulin nation, we wish to acknowledge them as the Traditional owners.

The territory of the Wurundjeri lies within the inner city of Melbourne and extends north of the Great Dividing Ranges, east to Mt Baw Baw, south to Mordialloc Creek and west to the Werribee River.

The development of Melbourne heavily impacted the Wurundjeri People. Dispossession of land, dislocation, frontier clashes and introduced diseases led to a dramatic decline in the population.

Despite the effects of colonisation, the Indigenous people and culture survived and the strong bonds between families and clans could not be broken.

We pay our respects and acknowledge their Elders - past, present and emerging.

CONTRIBUTORS

Lead Researchers
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Contributors
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Design and Research Assistance
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ACKNOWLEDGEMENTS

This project has been supported by a 2023 Alastair Swayn Design Thinking Grant. It has also been supported by RMIT University's School of Architecture and Urban Design and School of Design.

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[01] TABLE OF TOOLS

	FIREFLY	MIDJOURNEY	RUNWAY	CHATGPT
GENERATES	**Images** ~~Video~~ ~~Audio~~ ~~Text~~	**Images** ~~Video~~ ~~Audio~~ ~~Text~~	**Images** **Video** **Audio** ~~Text~~	~~Images~~ ~~Video~~ ~~Audio~~ **Text**
TYPE	**Diffusion**	**Diffusion**	**Diffusion**	**Large Language**
PROS	+ Safe for commercial use. + Comes as part of an Adobe subscription. + Appears in newest releases of Photoshop and Illustrator. + Also has a browser version. + Many YouTube tutorials.	+ Powerful image generation across many styles and types. + Many prompting parameters to refine, combine and control images. + Interface supports iteration and variation.	+ A wide range of browser based tools to generate multiple media types. + Interface supports the development of individual processes moving between image and video. + Interface supports development of processes for refining images.	+ Free to use. + Browser based and easy to access. + Powerful text generation.
CONS	– Fewer controls for image generation.	– Monthly subscription fee. – Need to set up Discord to use. – Laion-5B database is controversial.	– Monthly subscription fee. – Laion-5B database is controversial.	– Can provide incorrect information. – Can generate a lot of 'filler' and become repetitive.
NOTES	*Trained on Adobe Stock images, openly licensed content and public domain content.*			*Works well if you ask it to assume a role to answer your question.*

[02]

TECHNICAL SKILLS

This is a non-exhaustive list of technical starting points to explore further when teaching genAI. It is suggested that these could be approached using a learning journal, where changes are made systematically and students record their observations to understand how these technical elements affect their image-making. This could help develop image literacy so students understand how language, style and image assemble in practice with genAI. These activities could also include a whole class using the same prompt ‘stem’ such as An image of a biocomputer, and then individuals or groups apply different styles, camera controls, lighting and keywords to the image for the whole class to discuss and compare.

Style Sessions:

> Prompts reference historical art + design styles.

> Prompts reference specific practitioners.

> Prompts reference specific media.

> Prompts reference specific historical eras.

Lighting/Tone:

> Prompts reference specific kinds of lighting.

> Prompts reference specific directions of lighting.

> Prompts reference specific seasons / times of day.

> Prompts specify palettes and tones.

Camera Controls:

> Prompts reference specific lenses.

> Prompts reference specific shots (long, mid, close, panoramic, drone).

> Prompts scale/zoom in and out.

> Prompts reference specific films/directors/photographers.

> Prompts that specify aspect ratio.

Prompt and Parameter Analysis:

> Generate a class list of keywords used in the MidJourney community feed

> Work through the MidJourney guide systematically

// *https://docs.midjourney.com/docs/prompts*

// *https://docs.midjourney.com/docs/image-prompts*

// *https://docs.midjourney.com/docs/parameter-list*

[03]

DISCUSSION IDEAS

These discussions are ideal for small groups or pairs, to then feed back into a whole group discussion. Chat GPT can be used as an option to help unpack new concepts, but students may need to be careful not to generate huge swatches of information with it. These ideas can make use of ChatGPT to:

01 ***Generate initial arguments / ideas.***

02 ***Assume the role of different stakeholders.***

03 ***Breakdown questions / explain terms.***

Existing Knowledge/Setting the Scene:

- What are the myths and dreams of AI as expressed through film, books, popular culture, memes, social media?
- Where is AI used, and what is generative AI?
- How does generative AI work - can you breakdown the processes and types of models?
- How do you think AI can and will affect you?

Analysis and Critique:

- Is there an aesthetic to AI images - can you tell if something is generated?
- Can you analyse images you have generated and identify any aesthetic or conceptual influences?

Ethical Implications:

- What kinds of criticisms are levelled at generative AI, and are they warranted?
- What kinds of things concern you about generative AI?

Philosophical Terrain:

- Can AI make art?
- How do you understand the relationship between yourself and generative AI when designing?

[04]

ACTIVITIES

These were generated in the educator workshops and can be used or modified with attribution. Many of these activities embrace ambiguity with the models, and leverage this to encourage critical reflection.

CONCRETE DREAMS

Ying-Lan Dann & John Power

Aims:

> Communicate the images observed in a dream using Stable Diffusion and Chat GPT.

Warm Up:

> Read a concrete poem.

Ideation:

> Describe a dream as though it really happened.

Outcome:

> Produce a concrete poem, generate 3 images to show the sequence of the dream.

BODIES

Ian Haig & Alan Nguyen

Aims:

> To explore representations of bodies in free genAI models.

Task:

> Use an array of free image generation platforms to generate images of different bodies. Compare and contrast prompt language with the imagery generated. Are there trends across models? Trends within models? Pin up all images using Miro or by printing them, and discuss these observations.

TEACHING ASSISTANT

Kate Geck & Emma Luke

Aims

> ChatGPT as a teaching assistant for the class, develop a collaborative knowledge base for students to use.

Task:

> Students and staff collect a range of text resources relating to the studio topic. Create a chatGPT for the class. Train it on the class content. Encourage studnest to interact with the model and encourage ongoing reflection on the nature of this experience.

// *https://www.chatbase.co/blog/how-to-train-chatgpt-with-your-data*

ATMOSPHERIC IMAGES

Kate Geck

Aims:

> Integrate interior design drawings with genAI to encourage ideation and reflection.

Task:

> Students work with existing plans and sections that they have produced. These are used with Firefly for composition transfer. Students experiment with the intensity slider and prompting to generate new outcomes. Prompting should focus on mood and atmosphere - using expressive language to guide results. Students then bring these images in Photoshop and rework them using existing collage skills in conjunction with the generative fill tool.

STYLE + SELF

Tom Penney & Kirsten Black

Aims:

> Use genAI to explore style and reflect on how students can 'make it their own'.

Task:

01 Students receive a random card with an artistic style or movement (eg. surrealism, renaissance).

02 Students use ChatGPT and MidJourney to generate images in that style.

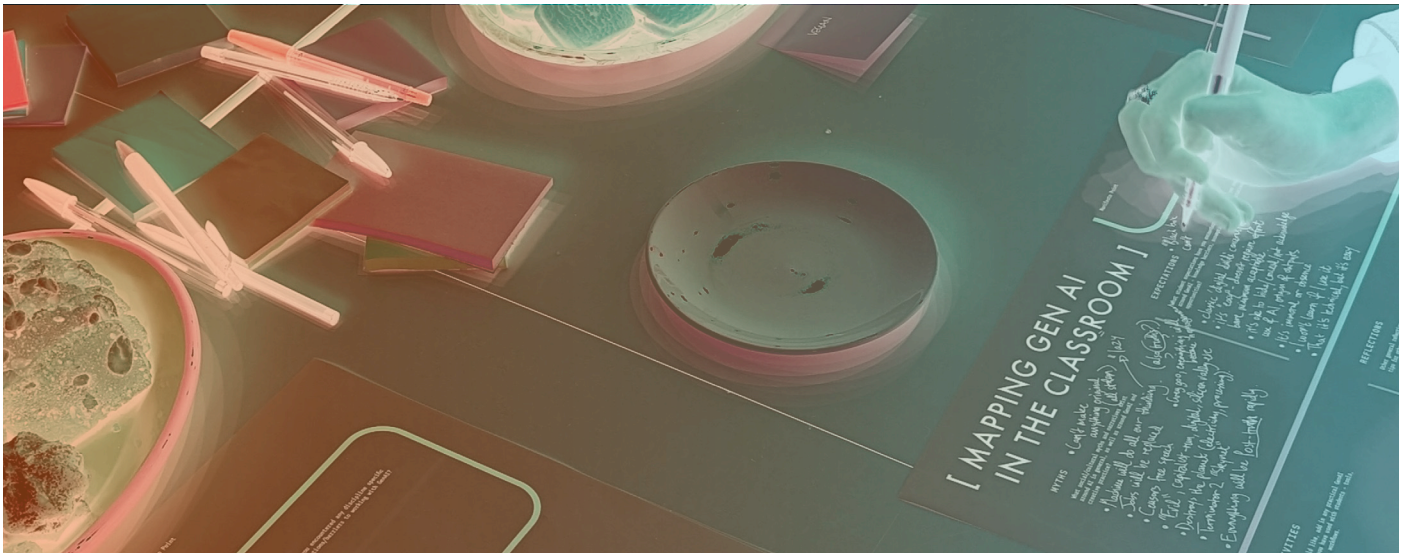
03 Iterate on these compositions.

04 Use research to understand the subject matter of the composition.

05 Iterate further based on this understanding.

06 Reflect on what you can do to move this image into more interesting territory.

07 Articulate how you have brought your own interests and critical reflections to bear on this image.



THE JOSEPH KOSUTH STRATEGY

Martine Corompt & Jess Sansum

Aims:

> Explore the nature of representation and the relationship between objects, their meanings, and the ways in which we understand them.

Task:

> Engage in image making, for example a chair. Reflect on the differences between the object, the generated image and the text prompt. Throughout reflect on the flows of making - what is enjoyable and why? How do errors factor in? Do these present opportunities or challenges? Think critically about how meaning is constructed and the different ways in which we engage with and understand objects.

NARRATIVES: SPATIAL, EXPERIENTIAL AND NONLINEAR

Olivia Hamilton & Daniel Binns

Aims:

> To explore storytelling through image making and speculation.

Task:

> Choose a physical site and conduct site analysis: analyse and record spatial and experiential qualities.

> Support this with texts relating to the site, space, visualisations and poetics.

> Using the analysis images as prompts, use genAI to imagine alternate histories or futures for the site.

> Could result in a storyboard of 5-6 images, or an audio or text piece.

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