

# Beyond Precedents: A Cross-Disciplinary Approach to Text-to-Image AI

**CAMILLE SHERROD**

Kean University

**Keywords:** precedents, pedagogy, design studio, artificial intelligence (AI), midjourney.

Following the surge of publicly available artificial intelligence platforms like Midjourney and Leonardo.Ai in 2022, text-to-image AI has been a valuable tool for idea generation in the early stages of the design process. In the classroom, the potential of AI allows design students to craft custom reference images and concept variations, utilizing large datasets without the need for advanced technical or language skills. When used for reference making, this raises the question: can design be created solely on precedents represented in large datasets? This project's primary objective is to contribute to the archival of early text-to-image explorations by organizing and categorizing AI-generated images derived from resident-driven text prompts. Additionally, the project aims to explore whether design can be created solely on precedents, focusing on the critical examination of AI-generated images and their representation of marginalized communities. The overarching goal is to improve student work, leading to more meaningful, culturally-informed precedents and appropriate design solutions.

In a cross-disciplinary workshop aimed at expanding architectural precedents at the early design stage, seventeen teams of third-year undergraduate architecture students were tasked with integrating text-to-image AI software into the design process of a live-work studio. To achieve this, students were asked to visit ten marginalized communities throughout New Jersey and conduct informal interviews with underserved members of the resident community. In addition, students were asked to research, study, and draw modern housing typologies to develop an understanding of affordable housing precedents. To assist students in the transformation of community interviews into text prompts and the selection of input images, a series of instructions was provided:

*What if [insert project] was in [insert your city], what would be the cultural implications on function and form? Step 1: Using one or more of your housing precedent images + community quotes from Assignment 1.2: Community Engagement, use text-to-image AI to produce an interior or exterior space located within your city's boundaries. Step 2: Select three of your favorite images from the previous step. Using image-to-text AI, generate a descriptive prompt for each of your favorite images.*

The images that resulted included layering and embedding community voices, visions, goals, and interests onto housing precedents either explicitly referenced by name in the text prompt or as input images. In total, 7,650 student-generated images were produced with each team asked to identify their six favorite images. AI software was then used to reverse-generate text prompts of this smaller collection. As an important step, students were asked to present both the generated and regenerated images for discussion with a cross-disciplinary group of faculty from Anthropology, Sociology, and English departments across the university. This offered multiple opportunities to help students better understand the distinction between language, its impact on image making, and its potential to counter or reinforce inherent bias in AI datasets.

Following this process, the images were organized into three categories: Remixed Spatialities : Depicting frictions that arise from introducing alternative demographics to iconic built projects with the potential to identify specific locations for design intervention. Heightened Spatialities : Depicting programs and functions intensified by the challenges of high-poverty environments with the potential for design solutions that consider and mitigate specific problems of the local environment, often the result of bias-laden descriptions or using the names of localities with stigmatized reputations in the text prompt. Reactive Spatialities : Depicting potentially novel spatial configurations with the capacity for tailored design responses for the local community, as a result of image prompts that include both housing precedents and unique cultural artifacts.

Organizing outputs according to distinct methods to identify or counter bias in generated images offers a framework for new teaching methodologies that embrace cross-disciplinary approaches to AI. This approach, which includes the experimentation of incorporating qualitative interviews into AI processes and categorizing the results, offers valuable insights in the context of language development.

## BEYOND PRECEDENTS : A CROSS-DISCIPLINARY APPROACH TO TEXT-TO-IMAGE AI

In the classroom, the potential of AI allows design students to craft custom reference images and concept variations, utilizing large datasets without the need for advanced technical or language skills. When used for reference making, this raises the question: can design be created solely on precedents represented in large datasets? This project's primary objective is to contribute to the archival of early text-to-image explorations by organizing and categorizing AI-generated images derived from resident-driven text prompts. Additionally, the project aims to explore whether design can be created solely on precedents, focusing on the critical examination of AI-generated images and their representation of marginalized communities. The overarching goal is to improve student work, leading to more meaningful, culturally-informed precedents and appropriate design solutions.

In a cross-disciplinary workshop aimed at expanding architectural precedents at the early design stage, seventeen teams of third-year undergraduate architecture students were tasked with integrating text-to-image AI software into the design process of a live-work studio. To achieve this, students were asked to visit ten marginalized communities throughout New Jersey and conduct informal interviews with underserved members of the resident community. In addition, students were asked to research,

study, and draw modern housing typologies to develop an understanding of affordable housing precedents. To assist students in the transformation of community interviews into text prompts and the selection of input images, a series of instructions was provided:

What if [insert project] was in [insert your city], what would be the cultural implications on function and form? Using one or more of your housing precedent images + community quotes from Assignment 1.2: Community Engagement, use text-to-image AI to produce an interior or exterior space located within your city's boundaries. Select three of your favorite images from the previous step. Using image-to-text AI, generate a descriptive prompt for each image.

The images that resulted included layering and embedding community voices, visions, goals, and interests onto housing precedents either explicitly referenced by name in the text prompt or as input images. In total, 7,650 student-generated images were produced with each team asked to identify their six favorite images. AI software was then used to reverse-generate text prompts of this smaller collection. As an important step, students were asked to present both the generated and regenerated images for discussion with a cross-disciplinary group of faculty from Anthropology, Sociology, and English departments across the university.



a train that is covered in flowers on top of it, in the style of industrial brutalism, american urbanism, reinforced concrete construction, american urban life



the bauhaus building, in the style of biomorphic, neo-concrete, playful streamlined forms, dark beige and red, orange and indigo

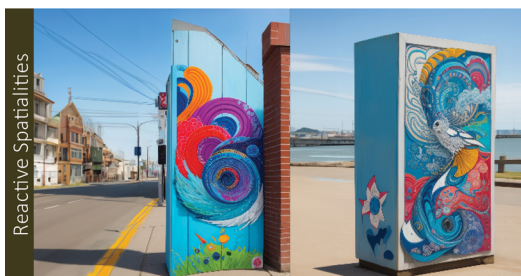


man is sitting at the edge of a city, with garbage, in the style of seapunk, hyper-realistic water, california plein air, cluttered



Following this process, the images were organized into three categories: **Remixed Spatialities** : Depicting frictions that arise from introducing alternative demographics to iconic built projects with the potential to identify specific locations for design intervention. **Heightened Spatialities** : Depicting programs and functions intensified by the challenges of high-poverty environments with the potential for design solutions that consider and mitigate specific problems of the local environment, often the result of bias-laden descriptions or using the names of localities with stigmatized reputations in the text prompt. **Reactive Spatialities** : Depicting potentially novel spatial configurations with the capacity for tailored design responses for the local community, as a result of image prompts that include both housing precedents and unique cultural artifacts.

**Students:** Beyonce Jackman, Lauryn Repollet, Autumn Siedlik, Maria Reyes, Zimu Zhou, Oluwafemi Fadipe, Erwin Izeppi, Bria Johnson, Danny Miller, John Orellana



a sculpture in a city with buildings, in the style of pixelated abstraction, oscar dominguez, contrasting shadows, golden ratio



Figure 1. Beyond Precedents, Studio Workshop Poster.

---

#### ENDNOTES

1. Nelson Goodman, "How Buildings Mean," *Critical Inquiry* 11, no. 4 (June, 1985): pp. 642-665.