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Design and Application of Cultural Intellectual Property Using AIGC with Xiamen's Landmarks as Motifs

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Abstract: The distinction between cultural and creative intellectual property (IP) in cities is becoming increasingly difficult to make, and the culture of landmarks tends to be treated only superficially. This study takes the landmarks of Xiamen as an example and develops an AIGC method that turns their visual identity into a design language. Based on Pierce's three-part symbol model, a Stable Diffusion LoRA was trained to change real buildings into personified IP characters. Two ways of evaluation, user testing plus expert evaluations, showed that the method works, and a reusable framework was built to translate landmark culture into the field of IP.

Keywords: Urban IP; Landmark Culture; AIGC; Visual Transformation; Culture and Creative Design.

1. Introduction

At present, cultural soft power has become a big part of how cities compete with each other. But when it comes to creative IP production, we keep running into the same two problems: the outputs tend to look very alike, and the meaning behind them stays shallow. City mascots and souvenirs all over China use pretty much the same visual tricks, so regional distinctiveness gets lost. Landmark elements are put into the designs, sure, but this mostly stays at a surface level, and the history and collective memory underneath them are often ignored. Xiamen, as a coastal tourist hub and a special economic zone, has landmarks like Gulangyu, the Twin Towers and the Haicang Bridge, yet there is still no complete system for turning these into intellectual property. So, we tried to answer two questions: Can AIGC really translate the culture of these landmarks into visual form, and is our proposal, "Qiao Jian Xiamen," clearly understandable and appealing to audiences from the angle of visual identity and acceptance? Our goal is practice-oriented, we want to test an AIGC-driven design method for landmark culture that other cities and trend-setting product teams can pick up and develop further.

2. Literature Review and Theoretical Framework

2.1. The Relationship Between Urban Intellectual Property and Landmark Culture

Urban IP means intellectual property that comes out of urban culture. It builds a regional identity and lets people feel connected to a place through shared symbols. What a city brand really comes down to is turning the things that make a city different into symbols people can see and interact with. Landmarks shape the cityscape and quietly affect how residents experience the city. They carry shared memories and a feeling of belonging to the place. Kavaratzis (2004)[1] points out that the core of a city brand is turning a city's characteristics into a symbol system that people can recognize and communicate.

In this paper, the culture of landmarks is defined as a content source and also as the physical carrier of urban IP, while urban IP is seen as the symbolic expression of landmark culture and as an extension related to the brand. The relationship between the two is not a parallel one; it goes step by step from content to form, and from resource to outcome. This definition sets the scope of the study fairly clear. The design process starts with extracting and analyzing the cultural resources of landmarks, and it ends at making and applying the urban IP image.

2.2. The Current State of AIGC Application in Culture and Creative Design

Generative AI tools, such as those represented by Stable Diffusion and DALL-E, are reshaping the design process. AIGC design is a model of collaborative creation between humans and machines based on prompts. By creating prompts, having the model generate content, and manually optimizing the results, designers achieve rapid creative divergence and iterative design [2]. At the application level, AIGC is gradually finding its way into the fields of digital cultural and creative products for museums as well as visual urban design (Yang Fangchao, 2026) [3]. To date, however, existing research has focused on the generation of individual images, and there remains a lack of a mature methodological framework for the systematic transformation of cultural landmarks [4] .

2.3. Research Gaps and Analytical Methods

A few challenges in the research so far can be pointed out. One is that studies on cultural symbols in the form of landmarks are still fairly few; most existing work looks at intangible cultural heritage or the visualization of certain regions, and there is no methodological framework for IP design that covers the whole system of landmarks[5]. The other is that the use of AIGC in visual translation remains at an exploratory stage, with few practical theoretical models or design methods available.

This study uses Peirce's semiotics as a framework for the theoretical analysis, drawing a line between the icon (which works through resemblance), the index (built on causal or spatiotemporal links), and the symbol (which rests on social

conventions). Applied to landmark culture, the physical forms of landmarks — say, the silhouette of a dome or the curves of a bridge — work as icons, their spatial location and functional role count as indices, and the historical memories and civic feelings they carry act as symbols. The reason for picking this framework is that AIGC handles form transformation at the iconic level and generates visual schemas, while the designer takes charge of semantic evaluation and building narratives at the indexical and symbolic levels, which sets up a kind of cooperative division of labor between human and machine.

3. Research Design

This study used a four-stage design that covered field research, element extraction, AIGC-generated results, and a two-pronged evaluation. Data came from three channels: field research (May through June 2026, on-site photography and feature documentation at eight landmarks in Xiamen); a user survey (July to August 2026: 206 questionnaires handed out through online and offline channels, 174 valid responses, a response rate of 84.5%); and expert evaluation (August 2026, where four experts from design and communication fields did independent evaluations). The field work covered eight categories of landmarks: the Twin Towers, the Bagua Tower, the Haicang Bridge, the Egret Stadium, the Xinglin Bridge, the Piano Museum on Gulangyu, the Wuyuan Bridge, and the "Wave" landmark. Among the respondents, 40.8% were men and 59.2% women; 66.7% fell in the 18- to 35-year-old group, and 55.7% lived in Xiamen.

4. Extraction of Landmark Characteristics and Design Strategies

4.1. Extraction of the Visual Elements of Landmarks

Based on the results of the field research and the questionnaire survey, the stylistic features of the most important landmarks were extracted. Let us first consider the Twin Towers. Their two “sails” provide the clearest visual cue. In the “White Egret Stadium,” one can discern the image of a white egret with outstretched wings and gently enveloping curves. The “Xinglin Bridge” echoes the arch of a ginkgo leaf. In the case of the “Bagua Tower,” the contours of the dome and the tension of the cable stays play this role, while the “Piano Museum” draws on the piano keyboard and wavy lines as motifs. Based on these characteristics, the colors were divided into four groups: “Modern-Urban,” “Historical Architecture,” “Natural Ecology,” and “Marine Culture,” to ensure that each location can retain its own character.

4.2. Design Strategy Using AIGC

Based on the findings mentioned above, we developed an IP design approach that we call the “personified bridge.” We fed composite images of the four landmark groups into Stable Diffusion to train the LoRA model and transformed the landmark buildings into personified characters. The prompts consisted of three parts: “landmark + style + regional culture.” Example: “A little boy as a chibi character with a head modeled after the twin sails of the Twin Towers, in a modern, urban style against the backdrop of Xiamen’s maritime culture.” During the IP expansion phase, we used Vibe Coding to build a platform for digital exhibitions and IP production. By integrating Claude Code into VS Code, we generated suggestions for a range of cultural and creative derivatives—including AR postcards, themed trading cards, and interactive city board games—using natural language commands.

5. Design Proposals and Evaluation

5.1. IP Character Design

Judging by the features of each landmark, the visual system was split into four groups: "Modern-Urban (Twin Towers)," "East-West Fusion (Bagua Tower)," "Cultural Totem (White Egret Stadium)," and "Marine Culture (Piano Museum)." Four IP characters were then designed, one for each. "Manman," the IP character for the "Twin Towers," has a head based on the two sails of the towers and uses a modern, urban color scheme. For the "Bagua Tower," the character "Akyong" turns the dome into a hat and the Haicang Bridge into a belt, borrowing colors from historic buildings. "Xiaolu," made for the "White Egret Stadium," wears a hat shaped like the stadium's outline plus a hair accessory with the Xinglin Bridge worked in as a ginkgo leaf motif; her colors come from maritime culture. As for "Qingqing," the character tied to the "Piano," her hairpins and skirt hem are modeled on piano keys, and she also carries a marine-inspired color scheme.

During the AIGC process, different versions of the prompt text were made with ChatGPT and then fed into the LoRA model, which produced several sets of meme images plus some suggestions for animated poses. Designers picked from these based on how culturally appropriate they were, and did some fine-tuning afterwards. The key part of this whole process is really the semantic control of the prompts. When parameters like the degree of personification, how cultural elements get integrated, and stylistic consistency are defined, the generated results can keep a balance between creative diversity and the cultural guidelines.

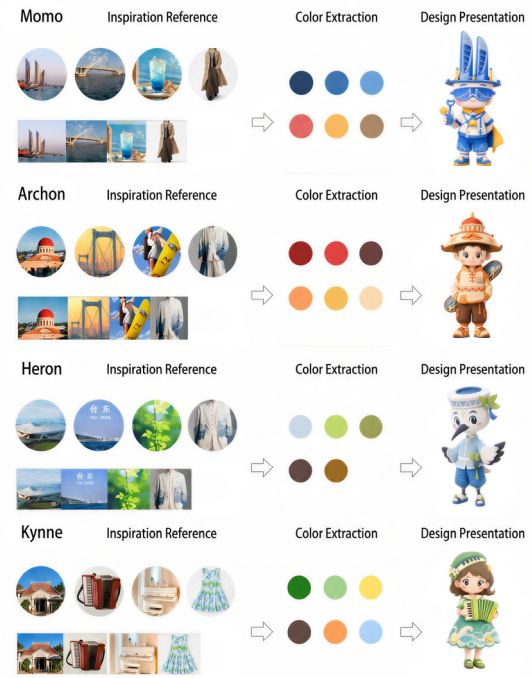


Figure 1. Table analyzing IP designs of landmarks in Xiamen (created by the author)
Reference images are sourced from the Baidu search platform

5.2. Design of Merchandise

Using the four IP characters, we made a board game and a

card game that mix the city and its culture together. The history behind each landmark actually drives how the game is played, and it adds to the collectible value too. Besides practical stuff like cloth bags and mugs, AR postcards were made as well — scan them and the game characters pop up right in front of the real landmarks. So the landmark culture isn't just something people buy once; it gets worked into their daily lives and routines.



Figure 2. Design of the cultural and creative derivatives of the "Bridge to Xiamen" landmark IP (created by the author)

6. Evaluation of the Design and Proposed Strategies

6.1. Results of the Two-Pronged Evaluation

In this study, a two-pronged evaluation approach was adopted, utilizing a user survey (N = 60) and an expert evaluation (N = 4), to assess the differences between the "Bridge View Xiamen" proposal and the competitive reference examples across four dimensions. The evaluation results are presented in Table 1.

Table 1. Comparison of Multidimensional Evaluation Results Between the Design Proposal for the "Bridge to Xiamen" Landmark and the Reference Examples

Evaluation Dimension	User Group (Current Proposal)	User Group (Competitors)	User Group (Difference)	Expert Panel (Current Proposal)	Expert group (competitors)	Expert group (differences)
IP Affinity	4.32	3.78	+0.54	4.00	3.75	+0.25
Visual Aesthetics	4.28	3.55	+0.73	4.25	3.50	+0.75
Cultural Autonomy	4.15	3.42	+0.73	4.50	3.25	+1.25
Narrative Cohesion Index	4.08	3.20	+0.88	4.25	3.00	+1.25
Overall average	4.21	3.49	+0.72	4.25	3.38	+0.87

Looking at the data, thematic consistency showed the biggest gains (user group: +0.88, expert group: +1.25). This suggests the bridge image, which works as an overarching motif tying the roles of different landmarks together, did its job well. As for cultural uniqueness, the symbolic translation method seems to have worked, since the expert group's score went up quite a lot (+1.25). On the images' appeal, the user group scored higher (4.32) than the expert group (4.00). This difference may be because younger people tend to like personified images more.

6.2. Redesigning Urban IP Narratives Through Regional Culture

Turning landmark culture into urban IP is basically about rewriting regional culture into a narrative that matters right now [6]. Two things must happen at the same time: the landmarks need to stay recognizable even after their symbolic elements get pulled out, and the IP characters themselves must carry a cultural story that people can actually connect with. If one works out the form, function, and attached memories of each site and leaves the visual part to AIGC, the scattered landmarks line up all of a sudden as a set of figures sharing the thread of one story. So instead of isolated architectural symbols, you get a narrative of the city brand as a whole, which opens the door to reusing regional culture creatively. That is really where the value of this method sits. In fashion and products, the real advantage is speed. With AIGC, the symbols of these landmarks can be turned right away into visually usable elements for derivative products, which cuts down a lot the path from cultural resources to finished design proposals.

7. Conclusion

With AIGC, we came up with the "Bridge to Xiamen" design method and tried it out in real concrete design projects. Drawing on Pierce's symbol system, we turned architectural landmarks into IP characters, and made clear how the work splits between AI and the designers. The results beat the comparison examples on visual recognizability, aesthetics, and thematic consistency, which shows the method works in practice. It also gives the team a framework they can reuse, so switching between different design tasks goes faster and delivery time gets shorter. For future work, we plan to add quantitative indicators, use a bigger sample size, and try extending AIGC into IP and fashion products too.

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