

SAID: A Social Media AI-generated Interface Dataset Using Prompt Engineering Methods Focused On Accessibility

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Abstract

We present SAID (Social Media AI-generated Interface Dataset), a systematically curated collection of 240 social media profile interfaces generated through controlled prompt engineering focused on accessibility. As AI tools reshape interface design practices, understanding how these systems interpret and implement accessibility requirements in social media interfaces becomes more and more important. Through six distinct prompt categories examining both generic and specific accessibility requirements, our dataset captures how AI systems interpret and implement accessibility features across visual and motor impairment dimensions. The dataset combines complete interface designs in multiple formats (PNG and SVG), detailed prompt engineering methodology, and comprehensive documentation of interface components such as social identity presentation, content engagement, navigation, and interactive elements. SAID enables novel research directions from understanding AI's role in shaping accessible social media experiences to examining how automated design tools can support more inclusive social interactions.

Introduction

Social media has fundamentally transformed human-computer interaction (HCI), serving as the primary digital interaction for billions of daily users (Pew Research Center 2024). These platforms have evolved from simple communication tools into complex social ecosystems that shape how we connect, share information, and build communities online (Zendle and Bowden-Jones 2019). The interfaces that power these interactions must orchestrate sophisticated components - from profile presentations to engagement mechanics - while ensuring universal accessibility across diverse user populations.

Social media platforms face particularly stringent accessibility requirements due to their role as essential communication infrastructure. U.S. regulations like the Americans with Disabilities Act (ADA) (U.S. Department of Justice 1990) and the EU Web Accessibility Directive (European Union 2016) mandate compliance with accessibility standards. However, recent analysis reveals a troubling gap - 95.9% of websites fail to meet WCAG 2.1 standards (WebAIM 2024), highlighting the persistent challenge of translating accessibility guidelines into implemented features.

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This accessibility gap has become increasingly critical as AI tools reshape interface design practices. Major platforms have integrated AI-powered design capabilities (Field 2023; Beltramelli 2023), promising to accelerate interface generation and democratize design. Tools like Midjourney UI and GPT-4V now generate complete interface mockups (Feng et al. 2023), while companies like Microsoft and Google embed AI assistance directly in development environments. However, we lack systematic understanding of how these AI systems interpret and implement accessibility requirements - a gap that carries particular significance for social media interfaces where design decisions impact billions of users.

Our extensive collaboration with design teams and accessibility experts revealed intriguing patterns in AI-generated interfaces. While some systems demonstrated sophisticated implementation of accessibility features, others showed consistent gaps in interpreting accessibility requirements. These observations *motivated* the development of SAID (Social Media AI-generated Interface Dataset) - a curated collection of 240 social media profile interfaces generated through systematic prompt engineering across two AI tools.

The development of SAID was created to address the following research questions.

- How do different AI design tools interpret and implement accessibility requirements in interface generation?
- What patterns emerge in the relationship between prompt engineering strategies and accessibility outcomes?
- How do accessibility features implementations vary across different AI tools and generation approaches?

Background and Related Work

AI-Generated Interfaces

The evolution of AI in interface design has progressed from basic component generation to end-to-end interfaces. Early systems focused on generating individual UI elements and layouts (Petridis, Terry, and Cai 2024), while recent work has expanded to complete interface synthesis. For example, MUD (Feng et al. 2024) provides comprehensive methodologies for modern UI modeling with 18k interfaces, demonstrating significant advances in generation capabilities. A key challenge remains balancing visual design thinking with technological constraints (Park et al. 2024) - particularly for accessibility features.

Studies examining designer workflows with AI tools reveal nuanced relationships between human creativity and machine capabilities. Park et al. (2024) found designers strongly prefer visual-centric interfaces over text-based ones, with one participant noting "We are visual thinkers, not verbal thinkers!" This highlights the need for multi-modal input methods in AI generation tools. Recent systems like PromptInfuser (Petridis, Terry, and Cai 2024) have begun addressing this by enabling designers to infuse AI capabilities directly into visual mockups, showing 28% improvement in designer productivity compared to baseline approaches.

Research into prompt engineering for interface generation has evolved to consider both structural and semantic aspects of UI design. Studies demonstrate that explicit requirements in prompts significantly influence generation outcomes (Mondal, Correa, and Benevenuto 2020), with particular implications for balancing user privacy and accessibility needs. However, systematic approaches to encoding accessibility requirements in prompts remain underexplored.

Accessibility Challenges in Social Media

Social media platforms present unique accessibility challenges affecting millions of users with visual impairments. These platforms have become critical spaces for public discourse, professional networking, and social connection, yet their increasing reliance on visual content creates significant barriers (MacLeod et al. 2017; Gleason et al. 2019).

Recent analysis shows the growing dominance of visual content - over 25% of English tweets contain images, yet only 11.2% provide adequate descriptions for visually impaired users (Morris et al. 2016). This visual-centric design approach has profound implications, as captured by a participant in Voykinska et al.'s study: "I want to participate like everyone else...but I often feel left out when I can't understand what people are sharing" (Voykinska et al. 2016).

The user-generated nature of social media content compounds these challenges. Unlike traditional websites with consistent accessibility standards, social platforms depend on millions of users to properly describe visual content. Brady et al. documented how this leads to irregular access, finding blind users frequently must piece together meaning from surrounding text since proper image descriptions are rare (Brady et al. 2013). Their study revealed critical instances where blind users missed important visual context in news events and social conversations.

Recent work shows these barriers have increased with the emergence of new formats like Stories and Reels. Wu and Adamic (Gleason et al. 2019) found that while visually impaired users engage actively in text-based interactions, they participate 43% less in photo-sharing and visual conversations - a gap that widens as platforms become more visual-centric.

User Interface Datasets

While several datasets exist for interface design research, they contain human-designed interfaces and none is focused on social media interface design. Rico (Deka et al. 2017) provides 66k mobile UI examples and MUD (Feng et al.

2024) contains 18k modern interfaces, but neither specifically addresses accessibility features. The VINS dataset (Bunian et al. 2021) offers 4k manually labeled UIs with high-quality view hierarchies, while Screen Recognition (Zhang et al. 2021) provides accessibility metadata for mobile applications. However, there remains a critical gap in datasets documenting AI-generated interfaces or addressing the intersection of accessibility and AI generation in social media contexts.

Current commercial tools like Midjourney UI and GPT-4V can generate interface mockups (Feng et al. 2023), but lack systematic validation of accessibility compliance and rendering at high fidelity level, especially in terms of text (Jiang et al. 2022). As demonstrated by Mondal et al. (Mondal, Correa, and Benevenuto 2020), social media interfaces present unique challenges in content presentation, interaction patterns, and accessibility requirements. This suggests the need for specialized datasets that capture both AI generation capabilities and accessibility considerations, particularly for social media contexts where user engagement and accessibility must be carefully balanced.

Of existing datasets, only 2.3% of interfaces contain explicit accessibility metadata (Zhang et al. 2021). This gap is particularly problematic given the increasing use of AI in interface generation and the critical importance of accessibility in social media platforms.

Dataset Development and Methodology

Our development of SAID emerged from a fundamental question: How do AI design tools interpret and implement accessibility requirements in interface design? To answer this, we developed a systematic approach that would allow us to observe, document, and analyze the nuanced ways AI design tools translate accessibility requirements into concrete interface elements.

We selected social media profile interfaces as our focus domain since they serve multiple UI/UX challenges—combining complex information hierarchies, varied interaction patterns, and rich accessibility requirements within a single coherent interface that must remain both engaging and universally usable despite significant constraints in layout and functionality.

After evaluating several available AI-powered design tools, we focused our data collection on Figma AI¹ and Galileo AI². Figma AI was selected as our primary platform due to its stability and widespread industry adoption, while Galileo's ability to export designs in both Figma format and .png to provide similar data for our analysis. This dual-platform approach enabled us to capture interfaces in their raw state while maintaining the fidelity necessary for accessibility analysis. While neither platform offers built-in accessibility validation, this limitation aligned with our goal of understanding how AI systems naturally interpret accessibility requirements.

¹<https://www.figma.com/>

²<https://www.usegalileo.ai/explore>

Data Collection Process

We collected 240 social media profile interfaces over the month of December 2024, employing a systematic methodology designed to ensure consistency and research value. Our approach centered on six distinct prompt categories, each crafted to explore both general design parameters and specific accessibility requirements:

Base Prompts To establish baseline capabilities:

- **Control:** "Design a social media profile page interface"
- **Generic Accessibility:** "Design an accessible social media profile page interface following WCAG guidelines"

Specialized Accessibility Prompts For targeted accessibility requirements:

Visual Accessibility:

- **Specific Criteria:** "Design an accessible social media profile page interface optimized for screen readers with high contrast (4.5:1) and clear typography (minimum 16px) for users with visual impairments"
- **Generic Accessibility:** "Design an accessible social media profile page interface for users with visual impairments"

Motor Accessibility:

- **Specific Criteria:** "Design an accessible social media profile page interface with large touch targets and minimal clicking for users with upper-body motor impairments"
- **Generic Accessibility:** "Design an accessible social media profile page interface for users with upper-body motor impairments"

Each prompt category generated 40 unique interfaces, with random color variations applied using the tools palette generation system. All interfaces were collected in their "raw" state without post-processing modifications, preserving the authentic output of the AI system.

In developing our prompt methodology, we intentionally preserved the raw relationship between prompts and generated interfaces without iterative refinement or validation. This methodological choice enables researchers to analyze the direct, unmediated relationship between prompt language and accessibility implementation, study how AI systems interpret varying levels of specificity in accessibility requirements, and conduct comparative analyses across different prompt engineering approaches using this baseline dataset. This approach provides valuable insights into the natural tendencies and limitations of AI systems in interpreting accessibility requirements, rather than presenting an optimized but potentially less generalizable set of prompts.

Dataset Overview

SAID (Social Media AI-generated Interface Dataset) consists of 240 social media profile interfaces generated using AI design tools. The dataset was collected between December 1-31, 2024, using two AI-powered UI design tools, as

described in the methodology: Figma AI and Galileo AI. The interfaces were generated using six distinct prompt categories, ranging from general design requests to specific accessibility requirements, with 40 interfaces per category.

Dataset Description

File Structure

SAID follows a hierarchical organization designed to facilitate research use and reproducibility:

```
said_dataset/  
|-- main.fig # Main Figma source file  
|-- Prompt1/ # Control prompt  
|   |-- PNG/  
|   |   |-- interface_001.png  
|   |   |-- interface_002.png  
|   |   `-- ...  
|   `-- SVG/  
|       |-- interface_001.svg  
|       |-- interface_002.svg  
|       `-- ...  
|-- Prompt2/ # Generic accessibility  
...  
`-- Prompt6/ # Motor acc. generic
```

Descriptive Statistics

Each interface of the SAID dataset is available in multiple formats:

- 240 PNG files (screenshot format)
- 240 SVG files (vector format)
- 1 Figma source file containing all 240 interfaces with their structural properties

And the Figma source file is containing:

- Generation prompt
- Tool
- Structural CSS properties (e.g., display, width, flex-direction, alignment)

Interface dimensions are consistently 390px width (mobile profile view), with varying heights based on content 1. The structural properties across interfaces include:

- Profile section (100% of interfaces)
- Content feed (89% of interfaces)
- Navigation bar (87% of interfaces)
- Interactive elements such as buttons and engagement metrics (100% of interfaces)

The interfaces consistently include standard social media elements such as profile headers (user identification, bio), content feeds, and navigation systems. All data is provided in standardized formats to support systematic analysis and reproducibility.

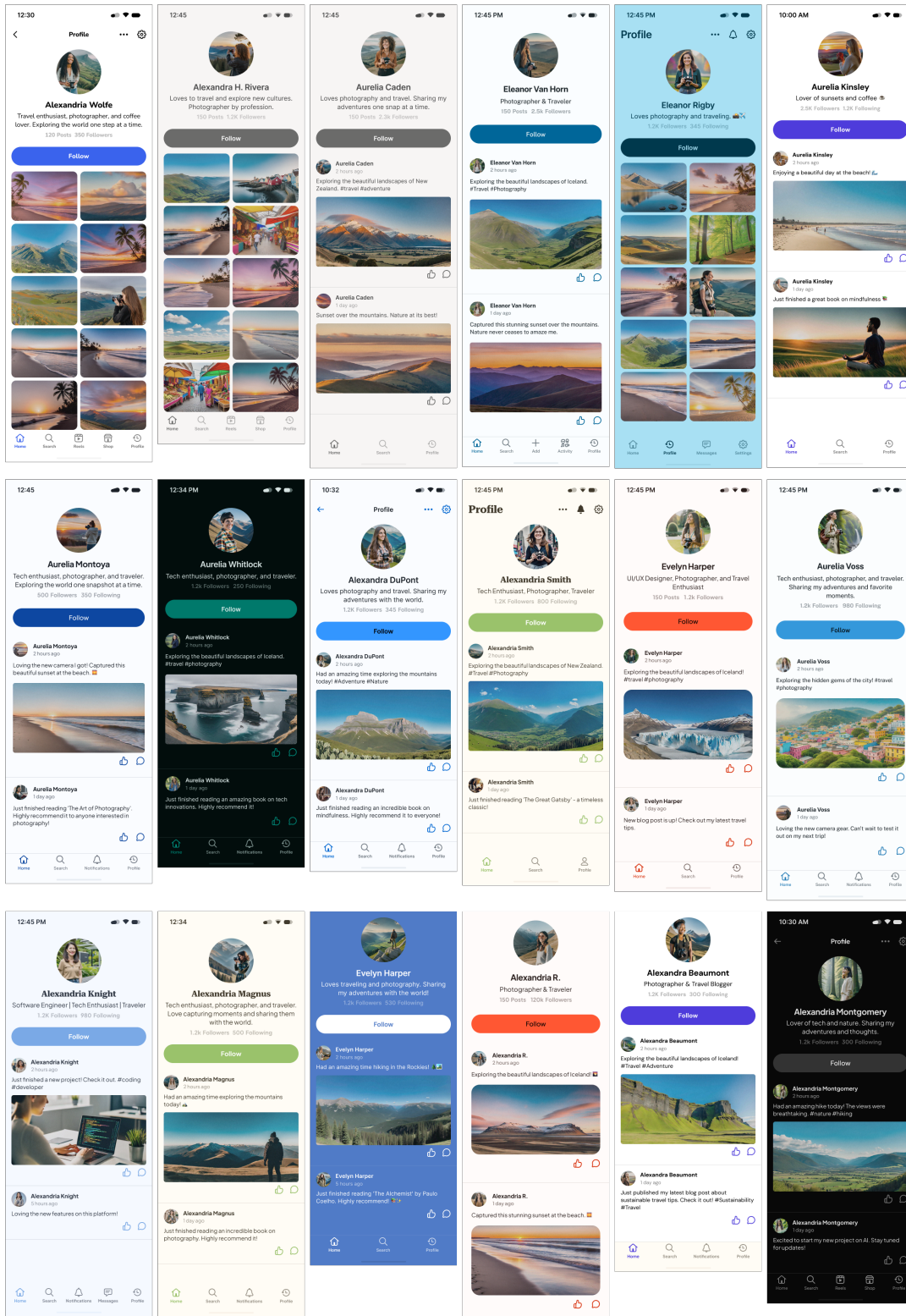


Figure 1: Examples of AI-generated login screen interfaces, randomly selected from our dataset. Note the strong, almost unavoidable adherence to conventional social media structural interfaces elements.

Interface Documentation

The dataset is accompanied by structured metadata documentation that provides information about the collection and organization of the interfaces. The metadata captures:

- Dataset overview including version and creation date
- Complete specifications for all prompt categories
- File organization and naming conventions
- Distribution of interfaces across prompt types

This documentation supports reproducible research by providing clear information about the dataset's composition and generation methodology, enabling researchers to understand and effectively utilize the collection for various analyses, from accessibility evaluation to comparative studies of prompt effectiveness.

User Interface Characteristics

Our dataset captures both the visual and technical aspects of AI-generated social interfaces. Each interface is preserved in dual formats: Figma designs for structural UI analysis, together with .svg, and .png for visual examination. This dual-format approach enables researchers to investigate not only the visual presentation of accessibility features but also their technical implementation, providing a unique perspective on how AI systems approach inclusive social media design.

Interface Components and Social Interaction Patterns

The dataset documents several key areas where accessibility requirements intersect with social media functionality:

- **Social Identity Presentation:** Profile sections with user identification elements, offering insights into how AI systems balance personal expression with accessibility
- **Content Engagement:** Feed structures and post layouts that mediate social interaction through likes, comments, and shares
- **Navigation and Discovery:** Systems for exploring social connections and content
- **Interactive Elements:** Social engagement mechanics including reaction buttons and messaging features

Research Opportunities

SAID opens several promising directions for social computing research:

Prompt Engineering and Social Design The dataset enables investigation of how *linguistic structures in prompts influence the generation of social interfaces*. Researchers can examine the relationship between prompt specificity and the resulting social interaction affordances, particularly in the context of accessibility requirements.

Comparative Analysis The comprehensive nature of our dataset supports:

- Cross-platform analysis of AI interpretation of accessibility in social contexts

- Evaluation of how different AI systems balance social engagement features with accessibility requirements
- Assessment of generated interfaces against established social media interaction patterns

Behavioral Analysis Opportunities The dataset particularly enables investigation of:

- How AI-generated interfaces might influence social media behavior patterns
- The relationship between accessibility features and social interaction affordances
- Impact of AI design decisions on user engagement possibilities

Applications and Impact

Research Applications

SAID provides a foundation for understanding how AI systems approach the challenge of generating accessible social media interfaces. The dataset's combination of raw prompts and generated interfaces enables researchers to explore fundamental questions about AI's interpretation of accessibility requirements in social computing contexts.

Beyond technical analysis, SAID supports investigation of broader social computing questions:

- How do AI systems balance social engagement features with accessibility requirements?
- What patterns emerge in AI's interpretation of social interaction needs?
- How do generated interfaces compare to human-designed social platforms in terms of accessibility and social affordances?

Through these applications, SAID aims to advance our understanding of AI-generated social interfaces and their potential impact on accessible social computing.

Dataset Limitations

While SAID provides valuable insights into AI-generated interfaces, several limitations warrant consideration. The dataset's focus on social media profile interfaces, while deliberate, may not capture the full complexity of other interface types or interaction patterns used in social media. Our use of two specific tools - Figma AI and Galileo - while chosen for their stability and complementary capabilities, means the dataset may reflect tool-specific behaviors rather than universal AI capabilities in interface generation.

The December 2024 collection period represents a snapshot of rapidly evolving AI capabilities, potentially limiting its longitudinal relevance. The dataset also predominantly reflects Western design conventions and English-language prompts, which may not generalize well to other cultural contexts or linguistic patterns in accessibility implementation. These limitations suggest opportunities for future work in expanding both the scope and cultural diversity of AI-generated interface datasets, as well as exploring how different AI tools approach the challenge of generating accessible code alongside visual designs.

Conclusion

The SAID dataset provides the research community with a resource for investigating how AI systems generate social media interfaces in the context of prompt engineering for improved accessibility. Through our collection of 240 interfaces, generated through systematic prompt engineering and preserved in both design and code formats, we offer researchers a foundation to study the intersection of AI generation, social media design, and accessibility requirements.

The dataset enables research opportunities in understanding how AI tools interpret and implement accessibility in social media contexts, particularly as these platforms increasingly adopt automated design approaches. We release SAID under the Creative Commons Attribution 4.0 International license (CC BY 4.0) to facilitate open research and reproducibility in this emerging space, aiming to support the development of more inclusive social platforms.

Ethical Impact

This dataset release adheres to ethical standards, ensuring privacy through metadata anonymization and excluding sensitive information. Researchers are encouraged to leverage this dataset to advance accessibility and inclusivity while avoiding misuse, such as spreading misinformation.

The dataset aligns with the FAIR principles:

- **Findable:** Hosted on Zenodo with DOI: <https://zenodo.org/records/14568386>, ensuring easy discoverability.
- **Accessible:** Freely available without cost and retrievable in widely used formats.
- **Interoperable:** Provided in standardized formats (SVG and PNG) and main .FIG files to facilitate integration with diverse tools and workflows.
- **Re-usable:** Source files and documentation that describe interface parameters and dataset structure for broad applicability.

We welcome contributions from the community to enhance its impact on AI-driven accessibility research.

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Ethics Checklist

1. For most authors...

- (a) Would answering this research question advance science without violating social contracts, such as violating privacy norms, perpetuating unfair profiling, exacerbating the socio-economic divide, or implying disrespect to societies or cultures? **Yes, the research advances science by creating a novel dataset of 240 AI-generated interfaces specifically focused on accessibility features, while protecting privacy through metadata anonymization and promoting inclusive design. The paper excludes personal information and focuses on technical interface elements as detailed in the Dataset Characteristics section.**
- (b) Do your main claims in the abstract and introduction accurately reflect the paper's contributions and scope? **Yes, the abstract claims to present a "systematically curated collection of 240 social media profile interfaces" and the paper delivers this through detailed documentation of the collection process, file formats (PNG/SVG), and structural properties.**
- (c) Do you clarify how the proposed methodological approach is appropriate for the claims made? **Yes, the methodology section justifies each choice: using two complementary tools for comprehensive analysis, employing six distinct prompt categories to test different aspects of accessibility implementation, and collecting 40 interfaces per category to ensure sufficient data for analysis.**
- (d) Do you clarify what are possible artifacts in the data used, given population-specific distributions? **Yes, the Limitations section identifies specific artifacts including: Western design conventions in the generated interfaces, tool-specific behaviors and temporal artifacts from the December 2024 collection period.**

- (e) Did you describe the limitations of your work? **Yes, the Limitations section comprehensively addresses: dataset scope limitations, tool-specific limitations, temporal limitations, cultural limitations in Western design conventions, and language limitations. The paper also acknowledges how these limitations affect generalizability.**
 - (f) Did you discuss any potential negative societal impacts of your work? **Yes, the Limitations and Ethical Considerations section discusses how the dataset's Western design bias could perpetuate accessibility barriers for non-Western users, and how AI-generated interfaces might reinforce existing social media accessibility challenges if not properly implemented**
 - (g) Did you discuss any potential misuse of your work? **Yes, the Ethical Impact section specifically warns against using the dataset for spreading misinformation and emphasizes that researchers should leverage it only to advance accessibility and inclusivity**
 - (h) Did you describe steps taken to prevent or mitigate potential negative outcomes of the research, such as data and model documentation, data anonymization, responsible release, access control, and the reproducibility of findings? **Yes, the paper describes metadata anonymization procedures, FAIR principles compliance, standardized formats (SVG and PNG), and clear documentation to ensure responsible usage of the dataset**
 - (i) Have you read the ethics review guidelines and ensured that your paper conforms to them? **Yes, the guidelines have been read and applied, as evidenced by the paper's thorough treatment of ethical considerations, data sharing protocols, and accessibility requirements throughout the methodology.**
- ### 2. Additionally, if your study involves hypotheses testing...
- (a) Did you clearly state the assumptions underlying all theoretical results? **N/A**
 - (b) Have you provided justifications for all theoretical results? **N/A**
 - (c) Did you discuss competing hypotheses or theories that might challenge or complement your theoretical results? **N/A**
 - (d) Have you considered alternative mechanisms or explanations that might account for the same outcomes observed in your study? **N/A**
 - (e) Did you address potential biases or limitations in your theoretical framework? **N/A**
 - (f) Have you related your theoretical results to the existing literature in social science? **N/A**
 - (g) Did you discuss the implications of your theoretical results for policy, practice, or further research in the social science domain? **N/A**
- ### 3. Additionally, if you are including theoretical proofs...
- (a) Did you state the full set of assumptions of all theoretical results? **N/A**

- (b) Did you include complete proofs of all theoretical results? N/A
4. Additionally, if you ran machine learning experiments...
- (a) Did you include the code, data, and instructions needed to reproduce the main experimental results (either in the supplemental material or as a URL)? Yes, the Dataset Description section provides complete file structure, interface parameters, prompt specifications, and access to all 240 interfaces through Zenodo with DOI: <https://zenodo.org/records/14568386>
- (b) Did you specify all the training details (e.g., data splits, hyperparameters, how they were chosen)? Yes, the Dataset Development section details the six prompt categories, 40 interfaces per category, tool configurations for Figma AI and Galileo, and the December 2024 collection timeframe
- (c) Did you report error bars (e.g., with respect to the random seed after running experiments multiple times)? No, as this is a dataset paper presenting a collection methodology rather than experimental results.
- (d) Did you include the total amount of compute and the type of resources used (e.g., type of GPUs, internal cluster, or cloud provider)? Yes, the paper specifies the use of Figma AI and Galileo as the generation tools and describes their configurations.
- (e) Do you justify how the proposed evaluation is sufficient and appropriate to the claims made? Yes, the Research Opportunities section outlines comprehensive evaluation frameworks including cross-platform analysis, accessibility feature assessment, and behavioral analysis possibilities.
- (f) Do you discuss what is “the cost“ of misclassification and fault (in)tolerance? Yes, the paper discusses how incorrect implementation of accessibility features can impact users with visual and motor impairments, particularly in the context of social media as essential communication infrastructure.
5. Additionally, if you are using existing assets (e.g., code, data, models) or curating/releasing new assets...
- (a) If your work uses existing assets, did you cite the creators? Yes, the paper cites all tools (Figma AI, Galileo) and foundational research.
- (b) Did you mention the license of the assets? Yes, the paper specifies the Creative Commons Attribution 4.0 International license (CC BY 4.0) for the dataset.
- (c) Did you include any new assets in the supplemental material or as a URL? Yes, the dataset is hosted on Zenodo with DOI: <https://zenodo.org/records/14568386>, including all interface files and documentation.
- (d) Did you discuss whether and how consent was obtained from people whose data you’re using/curating? N/A
- (e) Did you discuss whether the data you are using/curating contains personally identifiable information or offensive content? N/A
- (f) If you are curating or releasing new datasets, did you discuss how you intend to make your datasets FAIR (see ?)? Yes, the paper explicitly discusses FAIR principles implementation in the Ethical Impact and FAIR Principles section, detailing how the dataset is: Findable through DOI on Zenodo, Accessible without cost in widely used formats, Interoperable through standardized SVG/PNG formats and .FIG files, and Reusable with comprehensive documentation and interface parameters.
- (g) If you are curating or releasing new datasets, did you create a Datasheet for the Dataset (see ?)? Yes, while formatted as a README, the documentation follows the Datasheet framework by providing comprehensive information about motivation, composition, collection process, technical specifications, intended uses, and ethical considerations.
6. Additionally, if you used crowdsourcing or conducted research with human subjects...
- (a) Did you include the full text of instructions given to participants and screenshots? N/A
- (b) Did you describe any potential participant risks, with mentions of Institutional Review Board (IRB) approvals? N/A
- (c) Did you include the estimated hourly wage paid to participants and the total amount spent on participant compensation? N/A
- (d) Did you discuss how data is stored, shared, and de-identified? N/A