

# Comparing custom ChatGPTs vs ChatGPT models to improve development efficiency and quality.

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**Abstract**—As we are going further into the world of General Artificial Intelligence (GAI) integration into website development and UX/UI design marks the beginning of an exciting era. We are currently at the start of a revolution that seems promising to boost efficiency, and creativity, and focus primarily on the users' needs. This paper goes into and compares recent academic work and studies highlighting how technology is evolving rapidly, the current challenges we face, and the new possibilities that are opening thanks to AI. It also goes over the complex questions, looking into the issues of using this advanced technology in our daily jobs. It prepares us for the future, highlighting how important hands-on research is for making AI's big possibilities into actual advantages for creating websites and improving user experience.

## I. INTRODUCTION

This paper invites readers to understand how custom Generative Artificial Intelligence (GAI) models are revolutionizing UI/UX design and development. It suggests that these personalized AI tools do more than just improve upon existing technologies like ChatGPT 3.5 and 4; they are reshaping the landscape of design and development altogether. The paper will delve into how these custom models, with their ability to adapt to the specific nuances of each project, bring a level of efficiency and adaptability to have a one stop tool for solutions. Through a blend of real world examples and research, the paper aims to demonstrate that adopting these specialized AI solutions leads to more effective and sustainable design practices, making a compelling case for a shift towards more personalized technology in UI/UX work.

## II. LITERATURE REVIEW

The introduction of GAI and conversational AI modules such as ChatGPT has improved the development and design sector. Chat bots promise to automate repetitive tasks, help with content creation, and analyze user behaviour to eventually revolutionize the field [1], [2]. This review aims to prove that AI specifically custom Chat Gpt's can improve design and development better than other version of Chatgpts. The arrival of new technologies like GAI (General Artificial Intelligence) caused improvement in the web development and design industries. The control that technologies would have in doing repetitive jobs, producing content that is inspiring and analysing the activities of visitors is impossible. This selection

is devoted to determining if the reception of AI in software development influences methodology and consequently the whole field.

- 1) **AI driven Mobile App Prototyping** Böhm and Graser [3] steps into AI in mobile application prototyping, highlighting the list enhancing design processes caused by AI. The study categorizes AI integration into indirect guidance, AI plugins, and integrated solutions, offering a conceptual framework for understanding AI's application in prototyping. Despite the lack of empirical data, the paper underscores the dynamic nature of technology and its potential to revolutionize application development, calling for rigorous empirical investigations to validate these conceptual insights.

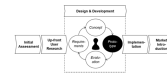


Fig. 1. Simplified User Centered Design Process

- 2) **The Impact of AI Generated Code on Web Development** Based on the efficiency analysis of AI generated code, this study underscores the significant advantages of using ChatGPT for automated coding in web development. By comparing ChatGPT's outcomes with traditional coding practices it shows improvements in speed, quality, and simplicity of coding tasks [4]. The employment of the Goal Question Metric (GQM) method for evaluation further shows the importance of quantitative metrics in assessing the impact of AI, with recommendations pointing towards enhancing AI's adaptability across various environments. This research also goes over the potential of AI in refining development processes. The integration of AI in coding does not only increase efficiency but also precision and innovation that was deemed unachievable. Particularly, the emergence of AI generated code, as seen with tools like Copilot, has shown an increase in productivity. These tools offer code suggestions from natural language descriptions, effectively reducing the burden on developers. This breakthrough has the potential to make programming more accessible, especially for beginners, by simplifying

complex coding tasks of web development and removing repetitive code that is generic for all applications and websites.

- 3) **Exploring ChatGPT's Integration into UX Design** Integrating ChatGPT specifically custom GPT's into the UX design process assists in speeding up the process when it comes to the generation of repetitive tasks and prototyping. This approach leverages AI to enrich the creative process, enabling UX designers to obtain qualitative feedback that highlights ChatGPT's efficiency in design creation and workflow optimization. Despite the recognized gaps between artificial intelligence and the capabilities of human creativity, the findings from this exploration endorse a symbiotic future. AI tools are seen not as replacements but as tools that can assist in the designing process, facilitating a richer evolution of design methodologies rather than supplanting traditional methods. This perspective is substantiated by the emerging evidence that ChatGPT can streamline the initial stages of design thinking, from ideas to prototype refinement, by offering a wide area of design suggestions and automating routine tasks. This integration stands as a promising model where AI's analytical and human creativity converge, enhancing the overall design quality and efficiency [1]. The collaboration between human designers and AI tools highlights a future approach to UX design, promising an enhanced capacity for innovation and a more intuitive design workflow.

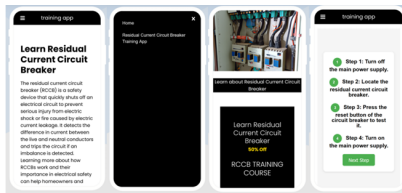


Fig. 2. Generative design using ChatGPT integration

- 4) **Comparative Analysis of AI Tools in GUI Development** An analysis of design tools like Figma helps to reveal the changes in the modern GUI area. The report discusses the automation of design processes by AI and comes up with some reasons for doing this, saying that it is another part of the growing AI based design methods. [5] Finally, using thematic analysis and A/B testing as methodologies for exploration, this research paper goes into the effects of AI integration on creativity during the design process and suggests the need to conduct further empirical studies to confirm the practicality of AI's promises.
- 5) **AI's Predictive Power in Early Stage Web Design** In the realm of web design, the early adoption of AI aims to determine whether it can accurately anticipate user behaviour and data science with design fundamentals [2]. This innovative approach employs AI models trained on screen designs to predict user interactions,

showcasing a significant leap towards data driven design decision-making. Such predictive capabilities suggest a future where extensive user testing might no longer be as critical, thanks to AI's ability to forecast user engagement and preferences accurately. This synergy of AI with design principles not only optimizes the design process but also paves the way for more intuitive and user centric digital environments, ultimately enhancing the user experience by grounding design decisions in predictive data analysis.

- 6) **Synthesis and Comparative Insights** The reviewed literature collectively signals a rapidly growing interest in using AI to enhance web development and design processes. While promising, it is apparent that AI is still in the very early stages of integration. Likely, it is already possible to gain efficiency with AI and to try out new creative design approaches. The depth to which AI can be practically integrated into these processes, however, remains largely uncharted territory and is something that needs to be empirically investigated.

With the integration of custom ChatGPTs in web development and design, we are entering a new era of digital innovation. This era is characterized by the potential to significantly enhance production efficiency and creativity while placing a stronger emphasis on user centric design. However, achieving this potential requires overcoming challenges related to the accuracy of AI generated outputs, ethical considerations in AI use, and the practical implementation of these technologies. Future research directions should focus on empirical studies that validate the effectiveness of AI in web development and design, ensuring that AI not only supports but also potentially guides both production and design processes towards creating more intuitive, engaging, and user focused digital experiences.

### III. RESEARCH METHODOLOGY

To better understand how custom GPT models perform in UI/UX design and development compared to standard versions, we developed our own GPT and put it to the test alongside ChatGPT 3.5 and ChatGPT 4. In the table below, you'll see the questions we asked all three models, along with the responses we received. This side-by-side comparison will give you a clear picture of how each model handles similar tasks and which one is best suited for UI/UX challenges.

TABLE I  
COMPARING GPT'S ANSWERS

Prompts	ChatGPT 3.5 Response	ChatGPT 4 Response	Custom GPT Response
How do you handle errors or inconsistencies in the data provided for generating designs?	Relatively time-consuming and less efficient when needed to be quick	More time-consuming and less efficient suggestion	More efficient and timeless suggestion
Can you explain the difference between UI and UX design?	Clarity response is high, Depth moderate, Relevance moderate, technological integration low	Clarity response is high, Depth high, Relevance high, technological integration moderate	Clarity response is high, Depth high, Relevance high, technological integration high
What are the key principles of effective user interface design?	Clarity response is high, Depth moderate, Relevance high, technological integration low	Clarity response is high, Depth high, Relevance high, technological integration moderate	Clarity response is high, Depth high, Relevance high, technological integration high
How would you incorporate a minimalist design in a website UI?	Clarity response is high, Depth moderate, Relevance high, technological integration moderate	Clarity response is high, Depth high, Relevance high, technological integration moderate	Clarity response is high, Depth high, Relevance high, technological integration high
How can I make my website accessible to people with visual impairments?	Clarity response is high, Depth moderate, Relevance high, technological integration moderate	Clarity response is high, Depth high, Relevance high, technological integration moderate	Clarity response is high, Depth high, Relevance high, technological integration high
How can I use GPT with Figma to automate design tasks?	Clarity response is high, Depth low, Relevance moderate, technological integration low	Clarity response is high, Depth high, Relevance high, technological integration moderate	Clarity response is high, Depth high, Relevance high, technological integration high
What types of interactions enhance user engagement on educational platforms?	Clarity response is high, Depth moderate, Relevance high, technological integration moderate	Clarity response is high, Depth high, Relevance high, technological integration high	Clarity response is high, Depth high, Relevance high, technological integration high

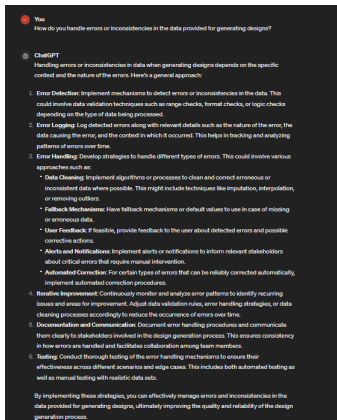


Fig. 3. ChatGPT 3.5 Answer for prompt 1

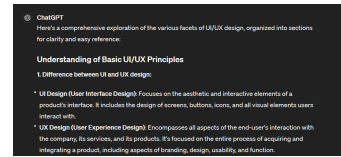


Fig. 6. ChatGPT 4 answer for prompt 2

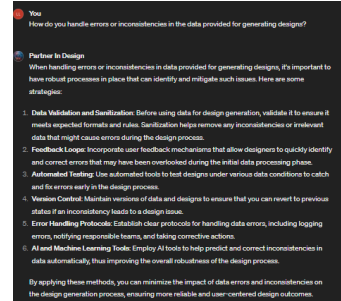


Fig. 4. CustomGPT answer for prompt 1

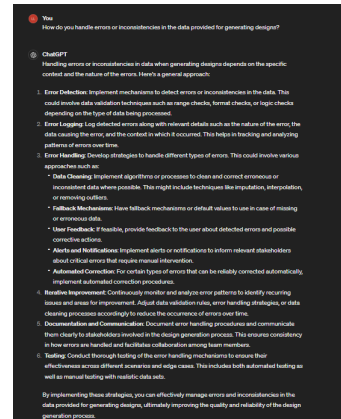


Fig. 5. ChatGPT 3.5 Answer for prompt 2

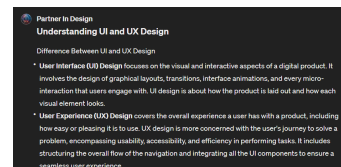


Fig. 7. CustomGPT answer for prompt 2



Fig. 8. ChatGPT 3.5 Answer for prompt 4

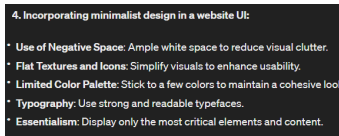


Fig. 9. Chat GPT 4 answer for prompt 4

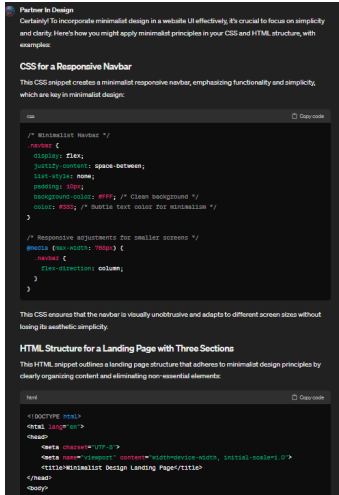


Fig. 10. Custom GPT answer for prompt 4

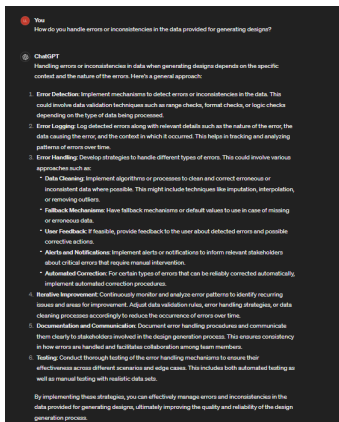


Fig. 11. ChatGPT 3.5 Answer for prompt 4

The pipeline outlines a path for carrying out AI research. It starts by pointing out the main questions and setting goals. Next review existing studies to support the project. Data is then gathered as needed and everything is set up technically to handle and analyze data. Special prompts are used to interact with the custom GPT and Ready made models GPT to generate useful results. These models are then tested to see how well they perform. After that, the collected data is examined to pull out insights and answer the research questions. The results are looked over to understand what they mean for the bigger picture and any possible issues. Finally, everything is written up clearly ensuring the research is conducted thoroughly from start to finish.

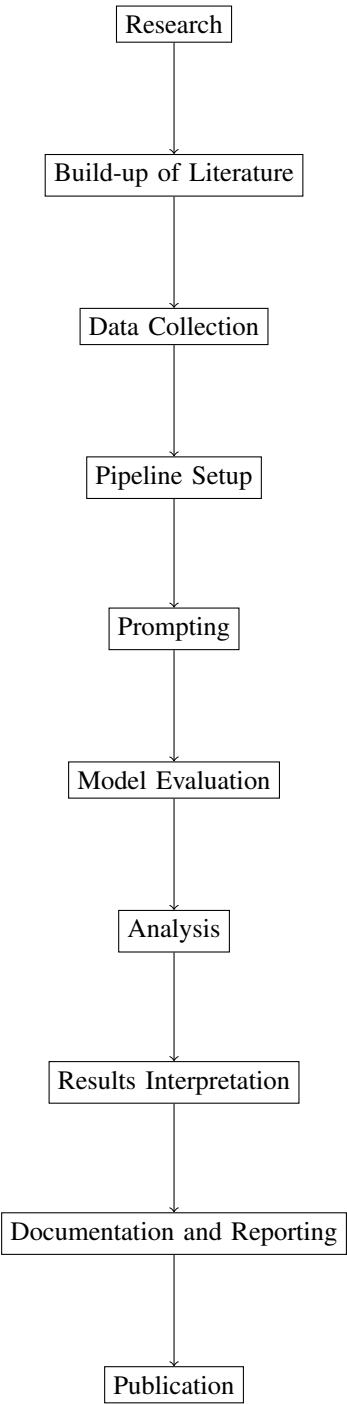


Fig. 12. Pipeline

#### IV. FINDINGS & DISCUSSION OF RESULTS

This section outlines the key findings derived from the application of AI in the design process, highlighting the impact on development efficiency and quality. And shows the finding that with the help of custom GPT the efficiency and time are improved even further.

##### *A. Clarity and Precision in Communication*

Custom GPT excels in offering clear, precise explanations. This clarity ensures that complex design principles are accessible to all team members, facilitating better understanding and collaboration across departments.

##### *B. Strategic Insights for Future-Proofing Design*

Looking ahead, Custom GPT provides strategic insights for developing scalable and flexible design systems. These insights are crucial for organizations aiming to adapt to future changes in technology and user expectations.

##### *C. Commitment to Accessibility and Inclusivity*

Custom GPT's strong emphasis on accessibility ensures that designs meet the needs of a diverse user base. This commitment not only broadens access but also enriches user experience, making products more welcoming and user-friendly.

##### *D. Impact on Development Efficiency*

The integration of GAI with tools like FIGMA has significantly streamlined the prototype development process, reducing the time from concept to prototype.

##### *E. Enhancement of Design Quality*

The use of conversational AI modalities has facilitated a more iterative and user-centric design process, improving the overall quality of the user interface designs.

##### *F. Comparative Analysis of AI Tools*

Our analysis revealed that ChatGPT, when integrated into the UX design workflow, not only accelerates the ideation phase but also provides actionable insights that enhance the final design output.

In summary, the findings underscore the potential of AI technologies to revolutionize the field of web development and design, advocating for their broader adoption and further research into their capabilities and limitations.

#### V. CONCLUSION

#### APPENDIX A

#### SUPPORTING MATERIAL

#### ACKNOWLEDGEMENT

#### REFERENCES

- [1] H. Ekvall and P. Winnberg, "Integrating chatgpt into the ux design process," Ph.D. dissertation, Human Computer Interaction and User Experience, 2023.
- [2] I. Anggreini, "Prototyping tools for the early stages of web design," Ph.D. dissertation, Institutionen för datavetenskap, 2006.
- [3] S. Bohm and S. Graser, "Ai-based mobile app prototyping: Status quo, perspectives and preliminary insights from experimental case studies," Ph.D. dissertation, University of Applied Sciences, 2023.

- [4] E. Fajkovic and E. Rundberg, "The impact of ai-generated code on web development: A comparative study of chatgpt and github copilot," Ph.D. dissertation, Blekinge Institute of Technology, 2023.
- [5] A. Henriksson and A. Wingardh, "Artificial intelligence for graphical user interface design," Ph.D. dissertation, Linnaeus University, 2023.