UI/UX Automated Designs in the World of Content Management Systems

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ABSTRACT

User Interface and User Experience automated designs in the world of content management systems at present, many tools are used for creating UX designs to fulfill further requirements in website development using HTML, CSS, JS, Bootstrap, React, Angular technologies. This article is about facilitating those raw UX designs automated so that fewer human errors are involved. The designs are dynamic and unique with pixel mappings compared to any other designs where humans need to get involved. Automation of UI/UX designs is the use of software to automatically carry out normal human jobs and tasks with little or no assistance from human experts.

Source of Support: User Interface, User Experience, Automation, Content Designs, Artficial Intelligence (AI), Robot

INTRODUCTION

Modern technological advancements have brought about a desire in most persons to experience the most advanced technologies without losing time and handling more workloads. This is quite similar to web surfing on internet-enabled devices. Also where the responses from the website are effective and fast, and the results are successful. Most web and internet application service providers have positioned their products in the best ways to optimize user experience and satisfaction (Neogy & Paruchuri, 2014). This can be possible with the User interface and User Experience Design being personalized for the users. Even though the terms are sometimes confused and mixed up.

UI and UX significantly affect the success and failure of most mobile apps, and websites with the most successful apps have an excellent user interface and experience users to appreciate and feel the app as they use it. Users want applications that appeal to them and feels very good during use (Vadlamudi, 2016). An application that appeals to users visually results from a compelling User Experience and User Interface.

Expert developers place a huge emphasis on UI/design as it affects the success of the app. A well-designed UI will result in an immediate appeal from users to the app, and an excellent UX will leave a lasting impression on the user's mind. Therefore, getting both UI and UX design right is quite important for a greater chance of success.

Automation of UI and UX designs using Artificial Intelligence, Robotic Process Automation, and machine learning remains largely explored. However, several developers have tools

that can design websites and applications with human assistance. These tools will be very useful to expert designers as they can carry out mundane and repetitive tasks and allow the experts to focus on a more creative and complex task. In the future, automated designs may likely advance to bring about personalized UI and UX for users.

ARTIFICIAL INTELLIGENCE

Machines through technology advancement can be programmed to simulate human intelligence. They are programmed to mimic human actions and think like humans as well (Ganapathy, 2016a). This would enable them to carry out human jobs. Artificial Intelligence has been used to refer to machines that show human-like behavior. E.g., a machine that not only processes data based on its initial programming but can also learn from input and output of data to enable it to solve problems (Vadlamudi, 2017).

An important feature of AI is its ability to process data like a thinking man and take the best possible action towards a particular objective. Machine learning is part of artificial intelligence components where machines can learn automatically from input and output data and find a way to adapt to new data. Machine learning brings AI machines to a point where they no longer need human interference. A subset of machine learning, deep learning copies the working pattern of the human brain. It processes the data and creates patterns for actions. Deep learning in AI, the system gathers data and learns about the data automatically without human assistance. These data are maybe random or already in patterns. Deep learning is also called Deep Neural Network (DNN).

Using AI has pushed the boundaries of machine functionalities

Using AI has pushed the boundaries of machine functionalities. Some advantages of using Artificial intelligence generally include:

- **Reduces Errors by humans:** From time to time, humans make mistakes. "Human Error" a phrase that came about as a result of human mistakes over time. With the right programming and commands, computers, systems, and machines do not make human-like mistakes. AI gathers data and information by applying particular algorithms and making decisions based on them. This way, mistakes and errors are reduced significantly with a higher level of precision and accuracy. For instance, the use of AI in weather forecasting has increased forecast accuracy and reduced human error.

- **Reduces the need for humans to take risks:** Artificial intelligence machines can be programmed to carry out various types of jobs. Moreover, they can be programmed to handle risky tasks. It is a huge advantage as this can save human life. For instance, AI robots can be programmed to defuse a bomb, explore highly dangerous places like Mars and the deepest parts of the oceans, and so on.

- **Availability:** Machines can work for more hours than humans. An average human may for a maximum of 6hrs per day aside from the breaks. Humans need to take time out for rest, refresh themselves, and prepare for a new workday. AI can be used to manage machines maximize working hours. This is because machines can work 24/7 and do not take breaks like humans. For instance, AI has been used by websites, educational institutions, and customer service centers to help solve customers' issues and queries.

- **Helping in reoccurring jobs:** There are so many reoccurring jobs that humans do liking emailing, document verification, checking for errors, and so on. This task could be automated using AI and free human time for humans to engage in other less boring jobs.

- **Quicker decisions:** AI, through Algorithms and other technological networks, can make decisions quicker than an average human being. Humans will need to conduct research and analysis before considering several things to reach a decision. The emotional and bias aspects will also be considered. Artificial intelligence machines work solely through their programming and reach conclusions and results without bias or emotions. For instance, games like chess-powered AI are almost impossible to beat because of the AI. It makes the best-calculated move in a short time as programmed by the Algorithms.

- **Innovations:** Artificial intelligence is enabling so many innovations in almost every aspect of life. It will help solve the majority of very complex issues. For instance, artificial intelligence has been used to predict breast cancer at the earliest stages.

WHAT IS WEB DESIGN?

Web design refers back to the layout of websites that might be displayed on the internet. It usually refers back to the consumer revel in elements of internet site improvement instead of software program improvement. Web design was centered on manipulating websites for computing device browsers; although, from the mid-2010s, web layout for other computer devices has become more and more critical.

A web planner works on the general outlook of the website, format, and, in few cases, material of an internet site. Appearance mainly looks out for the colors used, the size of the letters, and the photographs being deployed (Vadlamudi, 2015). Web Layout refers to how facts are arranged and categorized. An excellent web plan is simple to use, creatively pleasing, and fits the consumer members and image of the internet site. Many web pages are planned with a focal point on simplicity so that no other facts and other functions that would alter the focus or confuse customers appear (Ganapathy, 2017). As the keystone of an internet planner output is a website that wins and fosters the belief of the interested audience, casting off as many capability factors that would make the consumer distrust or lose interest frustration is also a vital consideration.

Two popular strategies for designing websites that perform nicely on computing devices like desktop and mobile are responsive and adaptive layouts. In responsive layout, content material actively moves around relying on display screen size; in adaptive layout, the internet site content material does not move actively and are in format sizes that healthy for typical display screen sizes. Preserving a format that is as regular as feasible among gadgets is essential to keeping consumers' believe and continual use. The responsive layout becomes difficult in this regard; designers ought to be cautious about managing ways their various site work would appear. If they may be accountable for the content material also, even as they want to develop their ability and skill, they'll experience the complete product's benefit.

HOW DESIGN PROCESSES ARE CARRIED OUT?

Various User Experience design experts operate several ways and methods to arrive at an entire work; no predetermined way exists for designers worldwide to follow; although designing becomes vital to make sense of the numerous phases & parts that the process of designs may have. A design group carrying out a specific job may have a researcher for the customer, an experienced customer designer, a planner for customer interface, amongst others. Though there are times when a specific person needs to take on all of these various parts, and therefore, it is essential for the person to understand the disparity between each part and that you may have to switch among various roles. The contrast between a UX and a

UI designer.   What is UX? The UX designer is saddled with the responsibility for shaping the experience consumers have when using a product. UX planners emphasize the usability of products for the consumers. UX designers always place the user's needs in high esteem to allow the consumer to get the highest satisfaction from the products. The basics of UX design include:

- problem definition
- User Understanding
- persona creating
- user flow and task generating
- making sketches, high and low fidelity wireframes, and prototypes
- Usability testing UX designers make it a focal point to test and validate their designs to achieve and meet users' expectations.

WHAT IS UI?

User Interface design, or UI, focuses on incorporating a visual step into a plan so that users can follow those steps. This mostly means turning ideas sketched out on a wireframe into a high-fidelity design with that visual hierarchy. UI designers make interacting with products fun. UI designers take the low and medium-fidelity plans for a project and start refining them into designs. UI designers focus on visual hierarchies and patterns that provide visual cues for clients and consumers (Ganapathy, 2016b). These elements can be -

- Color Scheme
- Layout
- Iconography
- Fonts

Figure 1: UI (Source: yukti.io)

Differences among UX and UI as UX and UI designers cooperate to make an eventual outcome, there are some vital differences between the two that we'll investigate straightaway. DeUX designers will, in general, focus on fostering a product that solves an issue. In contrast, UI designers work on the product's design patterns and tiny details. UX designers ponder how best to make a product user-accommodating. UI designers can contemplate how to make best a product delightful and agreeable. UX design can be used for both actual and theoretical products, while UI design is more restricted to advanced interfaces.UX is the thing that we experience as a user, while UI is what we see when using a product. In an optimal design process, UX design usually comes before UI design. We should take a gander at a model. As most of us know, Uber was established in 2009 by Travis Kalanick and Garrett Camp to reduce direct shipping costs. In this case, the issue for

the design group was to discover a solution that would "reduce transportation costs." To more readily understand the responsibilities of each group.
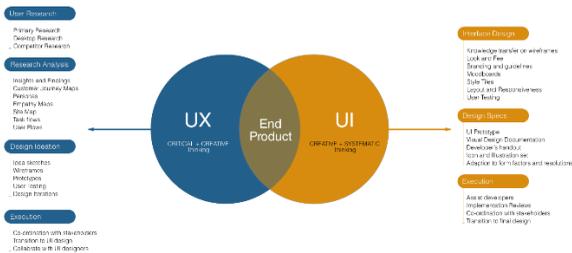

Figure 2: UI (Source: venturebeat.com)

HOW ARTIFICIAL INTELLIGENCE AND AUTOMATION WILL AFFECT UI/UX DESIGN?

Artificial intelligence and automated machines are highly connected to UX in modern trends. They have now brought a new era of design in UI and enhance UX. AI and UX both play a crucial role in the ways each of them works. Many people believe that artificial intelligence will result in the loss of jobs as AI will eventually replace human designers and reduce the need for Human design UX. According to experts in automated machines and artificial intelligence, the end for human-driven UX is near.

Figure 3: AI and UX/UI (Source: wittysparks.com)

According to Thomas Frey, over 1.5 billion human jobs will be lost as robots and automated systems take over these jobs. As a result, AI has been deployed in several sectors and industries. For instance, chatbots for customer service, self-driving cars, delivery drones are part of the AI and Robotic driven processes. The primary cause for concern for designers is whether AI and automated tools will take over human jobs and replace designers. Unfortunately, this may not be possible in the nearest future. For instance, an AI-enabled web development and designing tool, The Grid, released a few years ago, was a disaster. It is a system that can develop interactive patterns and site modules without human designer assistance (Paruchuri, 2015). However, the Grid's first site design was a disaster.

A large portion of the jobs done using automated processes will be mundane and repetitive tasks. Designing is a complex art expert human designers unlike Artificial Intelligence and machines can design with empathy and emotion for users and develop a design background. In the end, both expert designers and robots will have to work together

collaboratively in making UI/UX designs. Here few benefits that may likely result from the partnership between experts and robots.

- **Robots training for automated tasks:** Artificial Intelligence can handle tasks like adjusting colors, resizing images, and enhancing the productivity of human designers. For instance, Airbnb innovation can detect sketches and convert the sketches into coding in computer time. By doing this, expert designers will be given more time to handle the more critical tasks and enhance decisions quicker. Furthermore, with time, robots will learn to carry out this task through machine learning.

- **More enhance and modular design system:** Designers of small businesses and large industries must make sure that there consistency of system for consistency among service and users. Artificial Intelligence and automated systems can examine the ways users interact with the User Interface elements and the most effective functions. Artificial Intelligence technology and software have been deployed by web development platforms like Wix and Squarespace to assist users in making minor design choices.

- **Carry out personalized User Experience:** Carrying out a personalized user experience gives users an extra personalized experience based on the gathered information from the user, like the location of the user, the type of system used by the user, and so on. The collected data are essential in making the user experience personalized as the system detects what the users are looking for and their needs.

AUTOMATION IN UI/UX DESIGN

It would be challenging to teach Artificial Intelligence and automated machines the emotional part of UX and UI design. However, Artificial Intelligence and UX are both highly advanced technology that can evolve together. Machine automated task reduces human tasks by carrying out the repetitive task for workers. This would reduce the workload on humans, thereby enhancing human creativity as they engage majorly in creative thinking, management, interaction, and more complex needs to maintain competition among themselves. Artificial Intelligence can assist Small and media enterprises in getting the first draft primary quality judgment (Ganapathy & Neogy, 2017). For instance, Eyequant, is a site that assists with "I attended eye tracker" services. With this service, the computer can focus on the user's eye movements and also understand language through speech. Moreover, the design style can also be gotten a simple app style.

Coupled with the effect on design in practice, artificial intelligence can assist the development of a new design role, a trainer. Automating UX and UI designs would be enhanced as more design roles will be created. This will also help enhance the process of democratization for designs (Paruchuri, 2017). Various UI and UX automated tools like Autodesk can develop thousands of design patterns when the designer requests. The only thing left for the designer to do is choose and select his favorite designs and combine them to get the best results.

LONG-TERM EFFECTS AUTOMATED TOOLS ON UI/UX DESIGNS

Automated tools can possess all the characters and color pairing skills of human experts. However, the experience of the product cannot easily succeed. Based on user experience, automated tools in no distant time will play a crucial role in experience design, which looks out for user personality, personalized service delivery, behavior, mannerisms, and understanding particular contexts and scenarios to provide better service.

Automated tools that assist user's communication and experience examination will be significantly required, but the tools that only assist the user interface mapping will be forced to evolve or maybe gradually disregarded. UI and UX designers will have to be more concerned about using the tools for the best possible scenario and empowering themselves instead of losing their jobs to the machines. Also, thinking and logic, especially in designs, remain so essential (Ganapathy, 2015). These tools will help designers enhance creativity and communication and reduce the workload on human experts.
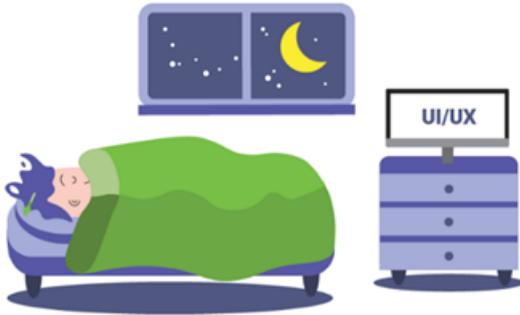

Figure 4: UI/UX (Source: uxplanet.org)

FEATURES PRESENTED BY UI AND UX AUTOMATED TOOLS

AI tools like UI Flow and Mind Map design systems can quickly create structures for users' conceptual design and page layouts in a clearer and simpler way. A huge library of designs, page templates, and icons of numerous shapes and device sizes can save users from the stress of finding the required design materials. Auto-data filling and Repeaters effectively help save time and carry out repetitive tasks and boost designers' productivity.
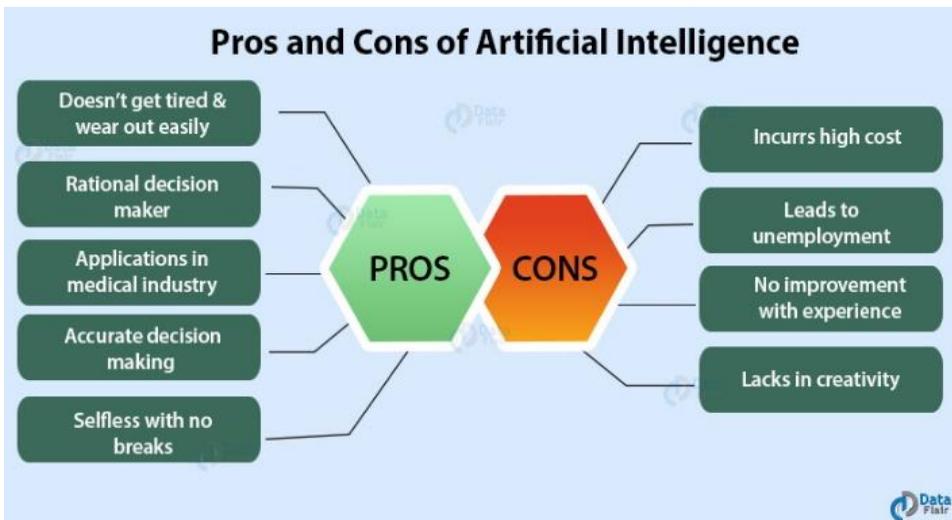

Figure 5: Pros and Cons of AI (Source: data-flair.training)

Drawbacks to the use of artificial intelligence in UI and UX

- **Expensive to create:** Artificial intelligence is a highly complex machine; this makes it highly expensive to create and costs a huge amount to make. Aside from creating an AI,

machines require maintenance from time to time. Maintenance like installing new software updates to prevent security breaches and repairing in case of faults is usually needed. This will usually cost some more.

- **It makes designers lazy:** As a result of its ability to automate and reduce human workload, artificial intelligence has made many humans lazy. Many people have passed on their Jobs to an AI to carry out. More tasks would be passed on to automated machines by humans as we tend to get addicted to innovations that can solve problems and reduced the workload. This may cause problems for future generations.

- **Job loss:** As more AI is invented to handle tasks usually handled by humans, the need for human personnel reduces significantly. AI will replace the majority of the reoccurring, and few humans may be needed for only monitoring. Also, many organizations are open to replacing human personnel with automated machines that efficiently handle the same task. However, it would leave many unemployed and make organizations more dependent on machines in the long run.

- **Lacks emotions:** Emotions, in a way, bring about team connection. But, unfortunately, artificial intelligence cannot have emotions for that connection even though humans perform tasks more efficiently.

- **No thinking outside the box:** Artificial intelligence performs based on its programming and algorithms. This means that they don't do anything outside their programming or the scripts. They might crash when they try to carry out an unknown operation. There are good sides and bad sides to every invention. AI, like other inventions, has both. It is the job of whoever wants to use and AI to decide whether or not to go on with the use by weighing the opportunities presented and the drawbacks.

Advantages of Artificial Intelligence to UI/UX Designs

- **Reduction of repetitive and mundane tasks:** An example of a mundane and repetitive task is the red-lining which the user interface and experience designer recognize too well. However, artificial intelligence and machine leaves have substantially affected how designers work and their time working on the processes. The use of machine learning and Artificial intelligence among designers is growing day by day as more and more of them are basing on AI and robotic in content design. Before the advent of AI and machine learning, tasks like translation had to be carried out manually. This was highly time-consuming. Applying AI and automated processes into UX and UI designing is a welcome development as mundane and repetitive tasks can be handled more effectively with greater precision. For instance, companies like Airbnb's Air-driven user interface technology detects design patterns and transforms them to code in real-time. This is an up-and-coming technology as it can mean that generated codes can be sent to expert designers to carry out the final touches.

- **Website design democratizing:** Design policies are currently being built into web protocols by companies such as Wix. This would likely enable clients to publicize user-friendly sites rich, notwithstanding the background of the design. All the user needs to do is to instruct the AI-enabled Wix software on the kind of site that he wants; it may be a business site, e-commerce, education, blog, etc., and that is it. After confirming the type of site, you then answer questions like the name of the business, situation, and theme. Numerous other Artificial Intelligence enabled software and tools exist aside from Wix. For instance, users can create color, style, and change navigation and apply on their site using impress.ly.

- **Development of content from nothing:** Artificial Intelligence is very easy to use. AI-enabled content designs have a lot of value as they can generate something from nothing. User Interface on Adobe XD plug on connect. This Person Does Not Exist. Using User Interface, designers can create avatars on their projects using XD. All the user has to is select shapes and fill them with the avatar to get the wanted image.

- **Compliance Security:** Compliance with laid down regulations like GDPR and ADA is another part of the current creative design experience using automation tools. Staying in line with the latest rules and policies is very important for brands and companies. Some of the regulations come with instant penalties and fines for breach. AI can assist in UI and UX design for content. For instance, the compliance process can be enhanced by using an augmented intelligence-based machine learning system created by the Cognitive Scala brand. Also, Red Marker has the ability to manage compliance effectively through the conversion of legal checklists to digital rules.

CONCLUSION

Automated tools can be used for designing along with artificial intelligence to enhance User Interface and experience designs. The combination of these technologies will result in great advancement in UI and UX designs. The constant fear of job loss to human designers should be put aside as AI technology enables designers to focus on more strategic designs. This creates room for human/machine partnership between human and automation tools for the best possible results.

REFERENCES

Ganapathy, A. (2015). AI Fitness Checks, Maintenance and Monitoring on Systems Managing Content & Data: A Study on CMS World. *Malaysian Journal of Medical and Biological Research*, *2*(2), 113-118. https://doi.org/10.18034/mjmbr.v2i2.553

Ganapathy, A. (2016a). Blockchain Technology Use on Transactions of Crypto Currency with Machinery & Electronic Goods. *American Journal of Trade and Policy*, *3*(3), 115-120. https://doi.org/10.18034/ajtp.v3i3.552

Ganapathy, A. (2016b). Virtual Reality and Augmented Reality Driven Real Estate World to Buy Properties. *Asian Journal of Humanity, Art and Literature*, *3*(2), 137-146. https://doi.org/10.18034/ajhal.v3i2.567

Ganapathy, A. (2017). Friendly URLs in the CMS and Power of Global Ranking with Crawlers with Added Security. *Engineering International*, *5*(2), 87-96. https://doi.org/10.18034/ei.v5i2.541

Ganapathy, A., & Neogy, T. K. (2017). Artificial Intelligence Price Emulator: A Study on Cryptocurrency. *Global Disclosure of Economics and Business*, *6*(2), 115-122. https://doi.org/10.18034/gdeb.v6i2.558

Neogy, T. K., & Paruchuri, H. (2014). Machine Learning as a New Search Engine Interface: An Overview. *Engineering International*, *2*(2), 103-112. https://doi.org/10.18034/ei.v2i2.539

Paruchuri, H. (2015). Application of Artificial Neural Network to ANPR: An Overview. *ABC Journal of Advanced Research*, *4*(2), 143-152. https://doi.org/10.18034/abcjar.v4i2.549

Paruchuri, H. (2017). Credit Card Fraud Detection using Machine Learning: A Systematic Literature Review. *ABC Journal of Advanced Research*, *6*(2), 113-120. https://doi.org/10.18034/abcjar.v6i2.547

Vadlamudi, S. (2015). Enabling Trustworthiness in Artificial Intelligence - A Detailed Discussion. *Engineering International*, *3*(2), 105-114. https://doi.org/10.18034/ei.v3i2.519

Vadlamudi, S. (2016). What Impact does Internet of Things have on Project Management in Project based Firms?. *Asian Business Review*, *6*(3), 179-186. https://doi.org/10.18034/abr.v6i3.520

Vadlamudi, S. (2017). Stock Market Prediction using Machine Learning: A Systematic Literature Review. *American Journal of Trade and Policy*, *4*(3), 123-128. https://doi.org/10.18034/ajtp.v4i3.521

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