# Term Paper

Name - Anushka Ajay Ahire
Semester - Biomedical 5th semester
Roll no. - 19111011
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Assigned by : Saurabh Gupta Sir

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## 1 Abstract

Magic of Artificial Intelligence is here to save the world, making us giddy with excitement and terrifying us at the same time . AI has become an over-hyped buzzword across many industries and the design world is no exception.In this paper I will mainly focus on " Role of Artificial Intelligence in Design ". We will see the development using AI in different fields in design, mainly the physical product designing. We will also look at some futuristic approaches taken , experiencing pandemic. At the end of this paper we will answer one of the most hyped question that is "Will Artificial Intelligence replace designers?"

## 2 Introduction

Artificial intelligence has been with us for a while now. And we can clearly see that the technology is still being refined and growing. Irrespective of the field or industry it is stepping into, all we can see is amazing results and surprises. Design industry is no exception!
We found that AI does not undermine the basic principles of Design Thinking (people-centered and iterative). Rather, it enables to overcome past limitations (in scale, scope and learning) of human intense design processes. In the context of AI factories solutions may even be more user-centered , more

creative, and continuously updated through learning iterations that span the entire life cycle of a product. Yet, we found that AI profoundly changes the practice of design. Problem solving tasks, traditionally carried on by designers, are now automated into learning loops that operate without limitations of volume and speed. These loops think in a radically different way than a designer: they address complex problems through very simple tasks, iterated exponentially.

# 3 Body

The interest in using new artificial intelligence and other technologies to reach higher levels of product automation and accelerate innovation of new products is increasing with time.This revolution will enable a new type of design process, one where AI-enabled programs iterate and optimize with little human intervention. The resulting designs seem impossibly complex, but thanks to advanced manufacturing technology, they are no more difficult to print than conventional designs.Whether it is system design, design thinking, business designer, package designer, label designer, logo designer, editorial design, web designer, user interface (UI) designer, user experience (UX) designer, flash designer, motion designer, experience designer, exhibition designer, retail designer, textile designer etc, every designer can get astonishing results with less effort using AI.

**Product Design:** Design can be make prototype, production and process we are most concerned with the last aspect: "process" .Another hype-laden term is "Industry 4.0". It is a name given to the idea of smart factories where machines are augmented with web connectivity and connected to a system that can visualise the entire production chain and make decisions on its own. **Connected devices** (Internet of Things), the extension of Internet connectivity into physical devices and everyday objects. Alexa as an example, but why not other physical products? **Automation**, the technology by which a process or procedure is performed with minimal human assistance. **Learning algorithms**, in the sense that we can use machine learning techniques to improve a product or production.
We see a lot more examples of **"Physical product design"** coming these days ex:Alexa, Siri.The physical design process is important to you because:
(1) Training algorithms will shape physical products that affect you;
(2) This predicted behaviour may be based on your wishes, yet additionally notions of how you should behave;
(3) Creativity can lead to joyful or questionable outcomes as the design pro-

cess continues to change.
The product-design process has already been affected by existing artificial intelligence, and AI will change the way we embed connected sensors and employ mixed or augmented reality headsets going forward. Based on the current trajectory, it is likely we will see AI impact product design and the creation of engineering systems in three distinct stages in the coming decade.

First, artificially intelligent systems will ease the laborious tasks that designers face, such as having to continually search for appropriate content, fix errors, determine optimal solutions, communicate changes, and monitor for design failure. Machine learning will be able to take on those jobs and do them much, much faster.

Next, AI will be able to assist in the creation of sophisticated designs. Intelligent systems will work at the designer's elbow, suggesting alternatives, incorporating sensor-based data, generating design precursors, optimizing supply-chain processes, and then delivering the designs to intelligent manufacturing facilities.
The final stage would have more profound implications. Engineering systems that incorporate stronger AI will be able to function more like human assistants during the design and creation process. Actual human designers will be able to "design" merely by expressing intent and curating results, while intelligent systems and machines will act on these intentions to create new design iterations for review.

**Futuristic approach taken experiencing pandemic.**

Covid will bring new pressure to bear on developers and landlords. Employees will demand biosecurity measures such as the provision of air which is fresh and filtered air, not re-circulated. They may want to know how many people are in which parts of the building, to help them maintain physical distancing. This means more sensors, and more data.
The great unplanned experiment in working from home which we are all engaged in thanks to covid-19 will probably result in a blended approach to office life in the future. Working from home suits some people very well, reducing commuting time, and enabling them to spend more time with their families. But others miss the decompression that commuting allows, and many of us don't have good working environments at home. In the winter, many homes are draughty, and the cost of heating them all day long can be considerable.Tim Oldman thinks the net impact on demand for office space will probably be a slight reduction overall, and a new mix of locations. There are indications that companies will provide satellite offices closer to where their people live, perhaps sharing space with workers from other firms. This

is the same principle as the co-working facilities provided by WeWork and Regus, but whereas those companies have buildings in city centres, there will be a new demand for space on local High Streets.

# 4 "Will Artificial Intelligence replace designers?"

Robots are not replacing designers. IBM CEO Ginni Rometty recently expressed that "If I considered the initials AI, I would have preferred augmented intelligence."

AI is going to be mostly about optimization and speed. Designers working with AI can create designs faster and more cheaply due to the increased speed and efficiency it offers. The power of AI will lie in the speed in which it can analyze vast amounts of data and suggest design adjustments. A designer can then cherry-pick and approve adjustments based on that data. The most effective designs to test can be created expediently, and multiple prototype versions can be A/B tested with users.Speedy design prototyping could be done with an AI design tool where basic sketches are scanned in, a few parameters are entered and a library of established UI components spring to life to render a prototype in alignment with a company design system. Airbnb is already doing it, generating design components with production-ready code from hand-drawn wireframe sketches using machine learning and computer vision-enabled AI.

Designers are also faced with tedious day-to-day tasks such as product localization and creating the same graphics in multiple languages. Netflix is already using augmented intelligence systems to translate artwork personalization and localization of show banners into multiple languages. The system "reads" the master version, and the personalized and localized graphics are rapidly produced. All a designer has to do is check the graphics, approve or reject, and if necessary manually adjust them—a massive time-saver.

# 5 Conclusion:

**Designers need not worry**. AI and robots will not replace us—at least not in the short term. Instead of being a threat, augmented intelligence will present a series of exciting opportunities. Leveraging those design opportunities is not going to happen by magic, but by designers co-creating with AI as our creativity sits in the crosshairs of art, science, engineering, and design. Technology in the past made us stronger and faster. AI will make us smarter.

we just need to give it some time.AI has already started to change the world. Businesses that will not embrace this technology will soon be left in the dust by the competition who will have realized the immense profitability artificial intelligence brings to the table. With this in mind, we can embrace the technology and rise to new heights of business and profitability.

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