Deep Learning and Generative, Interactive Design

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Abstract: *In this paper, we design, and analyze for the first time a combined generative design, interactive design with millisecond lag, in interactive design of new geometries, dimensions and product use designs for industrial use in manufacture industries for quick, rapid, generative and interactive design with analysis for rapid manufacturing of product design use industrial use manufacture industries. We use DANN deep learning use inbuilt in AIDesign software product design, generative and interactive design in milliseconds the design and analysis for real industrial use Thermal management applications in manufacture industries on a daily basis. AIDesign software is commercially made available for industries under AIDesign PVT LTD software industry legally approved and patent approved and AIDesign software is available under payment fee from https://aidesign.today.*

Keywords: Generative Design, Interactive Design, Artificial Intelligence, AIDesign, Product Design

1. Introduction

Product design is a new field of engineering, where the product is necessiated to design at extreme rapid time for manufacture industries as manufacture industries are well automated to design new products, while the design of new products does not have an automated tool to manufacture on a daily basis for new products that humankind demands [1]. The conventional CAD/CAE designs take a long approval from manufacture industries as CAD/CAE designs are stringent in rapidly intuitively and intelligently come with new product designs in alignment with the progress in civilization of human kind. With the great growth in manufacture industries to use their manufacturing tools with big equipments intelligently for quick rapid speed manufacturing of any 3D product designs for meeting humankind of new 2020 era. Design world is still behind in this lead to meet with manufacture industries to provide the manufacture industries quick rapid new 3D product designs for meeting the humankind of 2020 era [1].

Artificial intelligence with deep learning advancements was initially introduced as an automatic feature extraction system, requiring minimum pre-processing effort by the user [2, 3]. This is an old technique that has existed from 1940 and is known by different names such as - Cybernetics and Connectionism [2]. It was reintroduced as deep learning in 2007 [3]. The sudden increase in popularity of this field was due to the development of niche algorithms for training these networks. The most popular deep learning models are Convolutional neural network (CNN), which uses images to identify similarities and patterns. They take in image pixel information as input and learn patterns based on the RGB values of the pixels. Advancements in CNN architecture led to the development of sophisticated algorithms such as Recurrent Neural Network (RNN) [3].
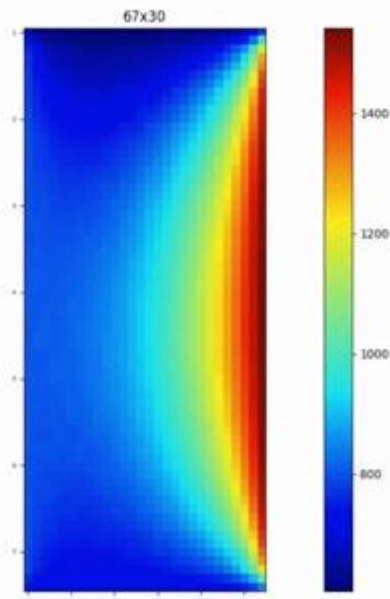
2. Generative Design

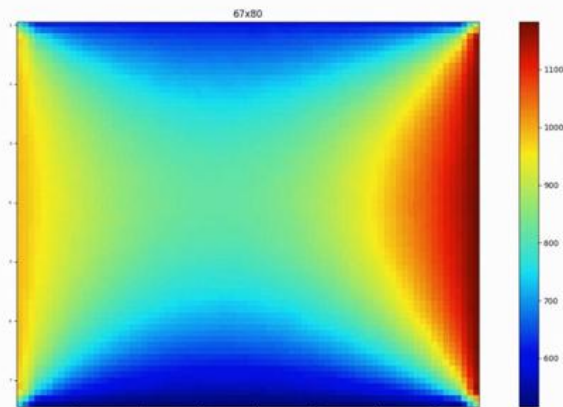### A. Interactive Design and Analysis with AIDesign Software

Figure 1 (a-c) shows the Generative Design and Interactive Design, in millisecond lag time to change to new geometries and dimensions for an industrial use Thermal management application to product design and analyze the designs in millisecond to generate the product designs of various dimensions and geometries for manufacture industry to meet humankind of 2020 era. The Generative Design and Interactive Design for product design and analysis is made with AIDesign software that is patent approved, manufacture industries approved and AIDesign software is commercially made available for industries under AIDesign PVT LTD software industry, and AIDesign software is available under payment fee from https://aidesign.today.
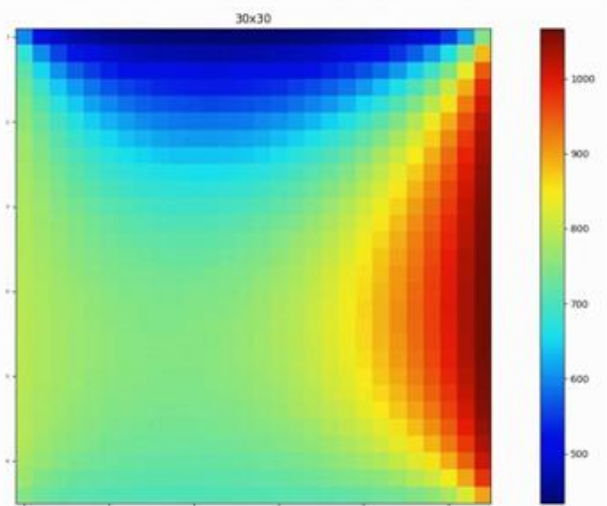
Figure 1(a): Generative Design, Interactive Design, with AIDesign software on Thermal management use. The software is accessed under payment fee from https://aidesign.today

Figure 1 (b): Generative Design, Interactive Design, with AIDesign software on Thermal management use, with change in geometry dimensions interactively real time in milliseconds, for design and analysis. The software is accessed under payment fee from https://aidesign.today

Figure 1 (c): Generative Design, Interactive Design, with AIDesign software on Thermal management use, with change in geometry dimensions interactively multiple times in real time in milliseconds, for design and analysis. The software is accessed under payment fee from https://aidesign.today

3. Conclusions

Here, a generative design with interactive design in millisecond lag to interactive change the product design dimensions, geometries for industrial use for manufacture industries use is made with DANN deep learning use inbuilt in AIDesign software that is commercially made available for industries under AIDesign PVT LTD software industry, legally approved and patent approved and AIDesign software is available under payment fee from https://aidesign.today. The generative design with interactive design in millisecond lag to interactively change to new product designs is made for Thermal management industrial use applications.

References

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