TOPIC

Generative Methods to Enhance Creativity in User Interface Design

SUPERVISORS

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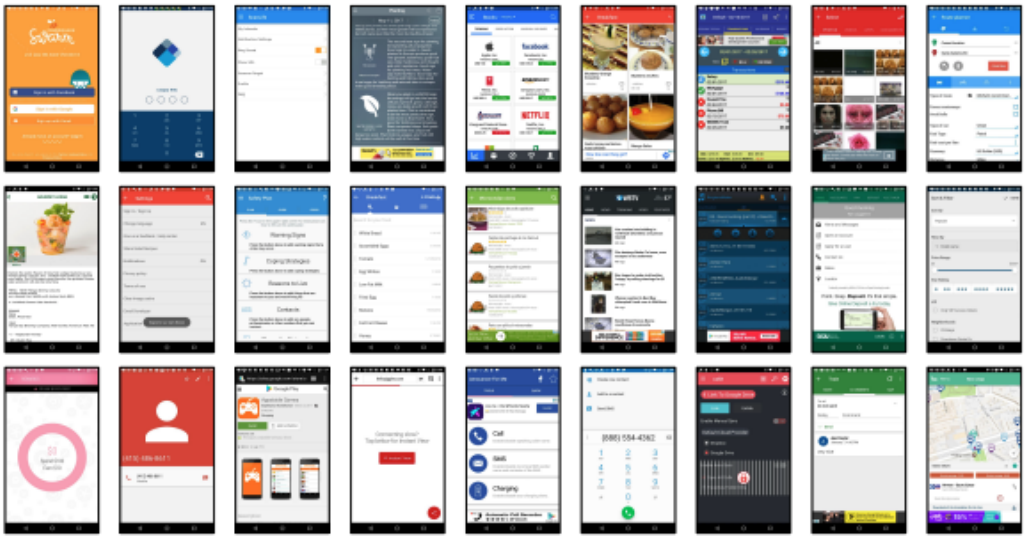
KEYWORDS

Generative Adversarial Networks
Human-Computer Interaction
User Interface
Machine Learning

CONTEXT

This thesis focuses on the use of generative methods to enhance creativity in User Interface (UI) design. The emergence of generative methods, particularly deep learning techniques, has provided new opportunities for computer-aided design. Recent developments in generative adversarial networks (GANs) and autoencoders have shown promising results in generating creative content in various domains such as graphics, music, and text. However, the application of these methods in the field of UI design remains largely unexplored [1].



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UI design is a critical aspect of software development that greatly impacts user experience. However, the design process can be challenging due to the necessity of considering multiple factors, such as aesthetic appeal, usability, and accessibility. Generative methods have the potential to provide designers with novel and innovative design options, enhancing their creativity and supporting them in overcoming design challenges.

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[1] Mohammad Amin Mozaffari, Xinyuan Zhang, Jinghui Cheng, and Jin L.C. Guo. 2022. GANSpiration: Balancing Targeted and Serendipitous Inspiration in User Interface Design with

Style-Based Generative Adversarial Network. In Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (CHI '22). Association for Computing Machinery, New York, NY, USA, Article 537, 1–15. https://doi.org/10.1145/3491102.3517511

GOAL

The main goals of this thesis are:

1. Review the current state of the art in generative methods and their applications in creative design.
2. Develop a generative model for UI design that can provide creative and usable design options.
3. Evaluate the effectiveness and usability of the generated designs through user studies.

METHODOLOGY

The student will begin by reviewing the current literature on generative methods, focusing on their applications in creative design. The student will then develop a generative model, likely using deep learning techniques, to produce creative UI designs. The student will need to consider important aspects of UI design, such as usability and aesthetic appeal, when developing the model. The generated designs will then be evaluated through user studies to assess their usability and the creativity they inspire in users.

PROFILE **(e.g. rather theoretical/rather practical implementation, foreknowledge (courses, methods, computer language(s) etc.))**

Literature and study – 20%
Implementation – 60%
Experiments – 20%

Good programming skills are required.
Python knowledge is required.