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# Generative Machine-Learning Model for Preference-Based Attribute Editing and Photorealistic Image Generation

**Limited ability to implement user preferences into personalized content**

The market for image generation, user preference modeling, content recommendation, and machine learning models is experiencing significant growth. This market encompasses various industries, including social media platforms, e-commerce, entertainment, and personalized advertising. Businesses and platforms in these sectors are actively adopting technologies to improve user experiences, enhance content recommendation systems, and deliver personalized products or services. Existing challenges facing global content recommendations include limited user control over image attributes, difficulty in capturing nuanced preferences, and the growing demand for personalized content and product recommendations.

**Generative model for image creation and modification based on user input**

This invention presents a simple and innovative method for users to generate and modify attributes of images, demonstrated on human faces. Through a straightforward system of paired queries, user preferences are captured and used to control a powerful generative model. This model can produce high-resolution, photorealistic images of diverse subjects, ranging from human faces to clothing and scenery. What sets this approach apart from others is its reliance on paired queries as an effective means of extracting user preference information, particularly for concepts that are difficult to articulate. Additionally, this approach can use previous responses to dynamically select an informative next query to save a user time when deducing their preferences. Queries can also be passively collected from widely available data sources such as search engine mouse clicks. By mining existing information, the system systematically generates and recommends images that align with user preferences across various internet platforms. This can utilize information, like watch time and likes, to generate and suggest relevant and appealing content to users.

**Summary Bullets**

- User-controlled image attribute editing and generation through paired queries
- Effective extraction of difficult-to-articulate preferences for personalized content

- Applications in social media, e-commerce recommendations, and entertainment industries

Solution Advantages

- **User control:** Users have greater control over image attributes, allowing for personalized customization.
- **Dynamic queries:** Previous query responses can be used to dynamically prompt the user with the most informative next query, saving time in deducing their preferences.
- **Capturing complex preferences:** Difficult-to-articulate preferences are effectively extracted through paired queries.
- **Utilizing existing data:** Widely available data sources enable content recommendation without extensive user input

Potential Commercial Applications

- **Social media:** The technology can be utilized by social media platforms to enhance user experiences by analyzing user preferences through paired queries and recommending personalized content, such as images, videos, or advertisements, that align with individual tastes.
- **Commerce recommendation system:** By understanding user preferences for attributes like clothing or accessories, the system can generate tailored product suggestions, increasing customer satisfaction and boosting sales.

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## IP Status

<p>Patent application has been filed</p>: US63/493642

## Publications

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## Images

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