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## Al-Powered Image Editing as a Service: Implementing Generative Fill, Object Removal, Recoloring, and Background Removal Using Stable Diffusion Models

Prof. M. U. Choudhari<sup>1</sup>, Mihir Deshpande<sup>2</sup>, Nishant Suman<sup>3</sup>, Parth Borse<sup>4</sup>, Suhas Sonawane<sup>5</sup>

Asst. Professor, Department of Computer Engineering<sup>1</sup> Students, Department of Computer Engineering<sup>2-5</sup> NBN Sinhgad Technical Institute Campus, Pune, India

Abstract: This project explores the implementation of an AI-powered image editing service that leverages Stable Diffusion models for advanced editing tasks, including generative fill, object removal, recoloring, and background removal. The service aims to offer users intuitive and efficient tools to enhance or modify images without requiring extensive manual editing skills. By integrating Stable Diffusion models, the system generates high-quality image edits through deep learning techniques, ensuring precision and consistency across different tasks. The application is developed using modern web technologies such as Next.js for server-side rendering and Tailwind CSS and Chakra UI for a responsive and user-friendly interface. MongoDB is utilized for efficient data storage, while authentication and payment features are handled using Clark authentication and Stripe, ensuring secure user management and transactions. This service has the potential to streamline image editing processes across various industries, including e-commerce, media, and design, by reducing the time and effort required for professional-level edits. The project showcases the capabilities of AI in automating complex image manipulations, with a focus on scalability, user experience, and integration of cutting-edge diffusion models to deliver high-quality, real-time image editing.

**Keywords**: AI-powered image editing, Stable Diffusion models, Generative fill, Object removal, Image recoloring, Background removal

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