

Trimap Matting

Scuola d'Arti e Mestieri di Trevano (SAMT)

Abstract

Paolo Bettelini

Section: Computer Science

Year: Fourth

Class: Progetti Individuali

Supervisor: Geo Petrini

Timeline: 2022-12-12 - 2023-04-06

Presentation: 10:15, 2023-04-20

Abstract

Background removal has been a longstanding practice in digital image processing. While removing the background from images with simple borders is relatively straightforward, more complex borders, such as hair, require the use of more sophisticated techniques. Trimap matting is a novel and effective approach to solving the latter. This project involves the development of a user-friendly command-line and web graphical user interface to make use of this algorithm.

Execution

This project has been built using the OpenCV implementation of the Trimap Matting algorithm. The command-line interface program and the website backend were developed using the Rust programming language, which is known for its memory safety and high performance. The frontend has been built using plain HTML and JavaScript and by executing asynchronous requests to the backend API.

Results

The objective of the project has been successfully achieved, and all the requirements have been met. The final result is an exceptionally useful tool that offers a significant advantage over many existing image editing software applications when it comes to isolating objects with complex boundaries. The project was not hard to implement and I am happy to say that I am really pleased with the final product.