

# Application of Face Recognition to Content-Aware Image Resizing Using Seam-Carving

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2007-2008

## Abstract

The goal of this project is to integrate a face recognition system into a seam-carving algorithm for content-aware image resizing. Current seam-carving algorithms can resize many images, but generally do not perform well on images of faces. This project aims to fix that.

## What is Seam-Carving?

Seam-Carving is an algorithm which allows changing the size and aspect ratio of images while preserving significant content. It finds horizontal or vertical seams of insignificant (low-energy) pixels, and then uses these seams to either expand the image by duplicating the insignificant data, or reduce the size by removing it.

## Procedures and Methods

The program currently reads in image data in a pgm format. Currently, it can only access data by individual rows or columns, and has methods for basic edge detection and bright pixel finding. In the near future, it will be migrated to use a recently released library which performs image resizing using seam-carving, allowing the implementation of face-recognition to begin.

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Current sample output of the program: Grayscale pixel values for an individual column of data in a pgm image of an airplane.

Original Image:

