

### Background

OpenCV provides a useful and flexible toolset for developers to experiment with image processing algorithms. However, developing an OpenCV application can be tedious and lack the truly desired functionality. Glimpse provides a plug-and-play framework for quick and easy video processing applications.

Glimpse features:

- Tutorials
- One line video processing
- Custom seam carving algorithm

## **Open Source**

Glimpse is completely open-source, the source code and detailed documentation, is hosted on Github. The documentation provides example applications, algorithm descriptions and explains hardware setup for use in the Raspberry Pi. By contributing to the open-source community, we make video processing more accessible for those who don't have a background in the subject.

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	<b>Image sharpening</b> , or <b>image deblurring</b> is the name for the process of removing motion blur from an image. When a photograph is taken in low light (hence high exposure time), with a shaky camera, or of a moving scene, the resulting image may come out blurred. This is due to the scene moving relative to the camera over the exposure time of the image.		n blur a shaky the scene Home Computer Vision Glimpse Image Processing	Home Computer Vision Glimpse Image Processing	
	There are four kinds of deblurring methods		Image Sharpening Image Smoothing		
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	4. Using data from a series of images to	deblur.	- Add a custom side	ebar	
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### **Open Source Economic Image Processing** Scott Ireton | Tianqi Xu | Devin Reed | Jiayi Jiang

## Overview

Image processing and computer vision have many applications, including face recognition for home security, artificial intelligence for robots, self-driving vehicles, and medical imaging. The topic is still being explored because it's one of the keys to the technology of the future. However, developing image processing and computer vision software requires a tremendous amount of knowledge.

The goal of Glimpse is to reduce the startup effort for live video processing so that developers can focus on the other core aspects of their applications.





When we change the aspect ratio of an image, we either must distort the shape or crop out important information. Seam carving preserves information-rich portions of an image, without distorting them or cropping them out. In order to evaluate the "path of least resistance" through the image, a cost function is applied to the image. Many different cost functions are possible, but here we use a squared gradient cost map, where C is our cost matrix and I is the image.







# Seam Carving Algorithm

### $C(x,y) = \sum_{x,y} [|I(x,y) - I(x+1,y)| + |I(x,y) - I(x,y+1)|]^2$

# Other Features

Abstracted video processing provides a platform to transfer single image processing methods into live video.

One line color inversion allows for quick implementation.

Single line method calls allow users to create live video

Our image transformations (translation, shear, scale, rotation) allow easy adjustment of a live video stream.

Our custom color histogram equalization feature allows users to broaden the dynamic range of a live video

