EE 368 Project Proposal
The 'What Could Have Been' Photo

Team members:

1) Huimin Huang (huiminh@stanford.edu)
2) Tian Kai Woon (tkwoon@stanford.edu)

Project description:

The goal of the project is to create new scenarios in a supplied photo by replacing some of its elements with elements from other photos. This could be used to repair imperfectly taken photos (photo with shadow due to camera lens that was partially covered by finger), to remove elements that spoil the imagery of a picture (a garbage can in the middle of a rose garden), or to create an image with humorous out of place elements that children can identify and pick out as part of a game. In short, this image processing algorithm would create a what-could-have-been scenario, with the transposed elements woven smoothly into the original image.

We will collect a stock of 10-20 photos from which to select suitable elements for interleaving into a photo original. These photos should be large with sufficient details, and similar enough in their orientation and underlying themes to make the project manageable. The user will select the part of the original photo that he would like to have changed. A mask of the selected portion can then be created to facilitate the search for suitable replacement elements. The search and construction of the new image is automated, and will eventually generate 3 results for the user to select from. Our current strategy is to match details along/near the edge of the mask with details from the stock photos. The similarity of these details can be weighted and its statistical data evaluated as part of the decision making process. After the best 3 stock photo elements have been selected, blending of the transposed element into the original needs to be done. An array of interpolation techniques are currently available for this step.

The algorithm will be implemented using MATLAB and the group does not need a DROID camera phone.

References:

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