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Faces of Time: Developing Protocol for the Crowdsourced Annotation of Time Magazine Images

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Faces of Time: Developing Protocol for the Crowdsourced Annotation of Time Magazine Images

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Introduction

This project focused on the development of a crowd-sourced interface to analyse Time Magazine issues from 1927-2012 in order to view the context and progression in the usage of images of women and ethnic minorities. My tasks included establishing a proper protocol for identifying and labelling images, exploring inter-rater reliability between multiple image extractors/raters, and developing data quality control procedures for future Mechanical Turk workers. Throughout this project I worked collaboratively with both faculty and students at SUNY Polytechnic Institute in Utica, NY.

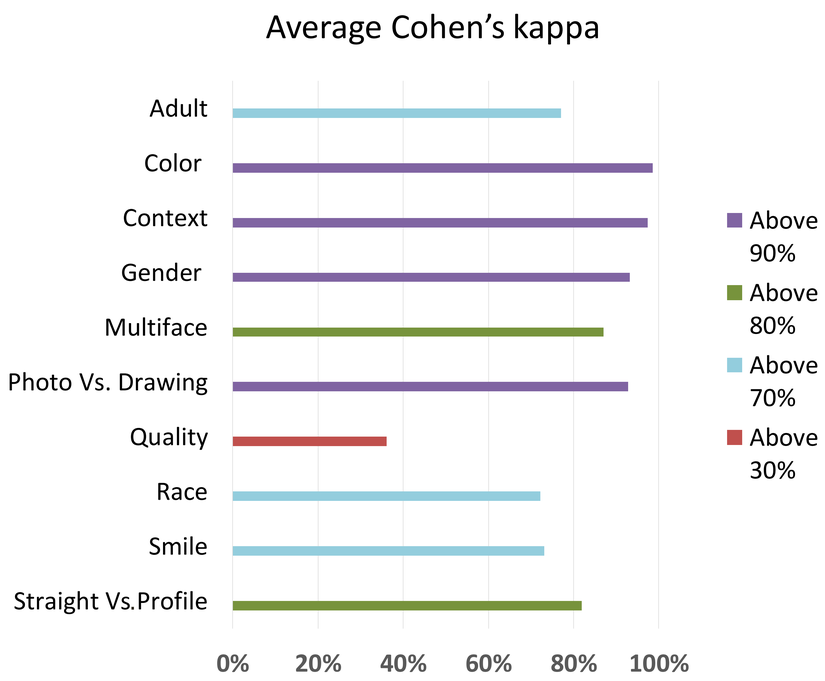
Analyzing Issues

Before utilizing crowdsource labor with Mechanical Turk we needed to understand how the process works. How long it would take and create clear guidelines that others would have to follow. By processing and classifying multiple issues before any other student we quickly realized categories that need adjustments.

Prior to Refinement	*Obstacles Observed*	*Solution*
6 Emotive classes (Anger, Fear, etc.)	Difficult, inconsistent	Smiling vs. Not Smiling
No consideration of Age	Ambiguity in gender/race of children	Age category added
All faces considered	Masks and animal faces included	Eliminate masks/animals faces from consideration

Inter-rater Reliability

Utilizing an R-script that was created between myself and my advisor, two-way comparisons were produced to analyse the inter-rater reliability between three university students' responses to classifying images from an issue of Time Magazine from 1966. Interrater reliability was established by using Cohen's kappa. The overall average across all categories was 0.740. All categories were above 0.723 minus image quality. The Cohen's kappa for image quality was 0.363.



Acknowledgement

SUNY Polytechnic: Dr. Ana Jofre, Dr. Kathleen PJ Brennan
Students: Carl Bennett and John Harlan.

Checks for Mechanical Turk

The data corpus of magazine issues would take far too long for a few individuals to process. Therefore, we will make use of crowdsourced labor on Mechanical Turk. However, in order to check the validity of their work, we have input test pages throughout each assignment which they must pass in order to receive compensation. An R-script has been created to verify if an individual passes these checkpoints. The guidelines for passing a test page with only 1 face is to match the face exactly. If there are 2 or more faces, then the participant needs to be within plus or minus 1 face.

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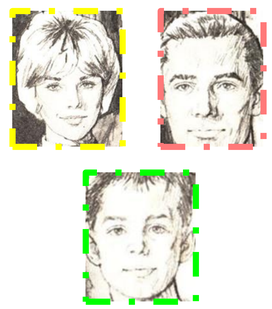
Faces Cropped



Note: Participants would need to be within the range of 2-4 faces to pass this checkpoint.

What's Next for Us

- Analyzing incoming data from participants finishing cropping faces.
- Post the cropped faces on Mechanical Turk for classification.
- Developing machine learning algorithms to automate the tasks so that future databases can be analyzed.

IRB: Approved from SUNY Polytechnic, NY.