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Implementing Facial Recognition Technology in a Municipal Archives Digitization Project

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The City of Miami Beach Digital Archives collection in FIU's online repository dPanther contains thousands of images of prominent individuals integral to the city's history, however, like many archives, some images are missing identifying metadata. Facial recognition technology shows promise for archivists trying to label or find individuals in their digitized collections.

FACIAL RECOGNITION TECHNOLOGY USED



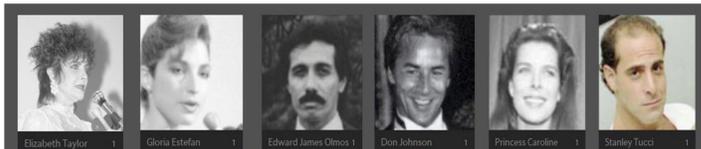
Adobe Lightroom CC and Adobe Lightroom Classic

- Already installed on FIU's Digital Collections Computers
- Images remained on local server
- Embedded Adobe Sensei AI technology
- Analyze patterns based on an individual's facial geometry



FIRST ATTEMPT: UNORDERED CHAOS

- Imported hundreds of images from collection into Adobe Lightroom CC, 2015 version
- Manually tagged images featuring celebrities and prominent individuals who were easy to identify



REALIZATIONS:

- Doesn't work like modern images in social media
- Imported too many photographs with too many people
- Very low accuracy
- Many "non-faces" picked up from background



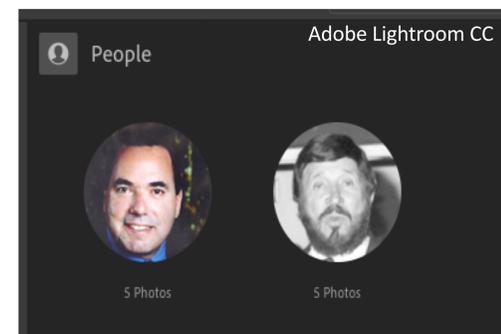
SECOND ROUND: SYSTEMATIC TESTING

- Compared versions of Lightroom
- Used two different training set of photographs
 - 24 photos: 5 people shown at least 5 times in various pictures, included background faces
 - 25 photos: 5 people shown in 5 different pictures, no background faces
- Tested accuracy based on the number of correct suggestions yielded from sets of confirmed individuals



GENERAL RESULTS

- Correct suggestions varied depending on which confirmed images were used
- More confirmed sets often yielded more incorrect suggestions
- Some faces lent themselves to better identification
- Many faces not identified at all (profiles, low-resolution)
- Higher accuracy on newer versions of Lightroom



- Newer version of Lightroom CC automatically clusters faces into one person, but has less options to manually tag

SUGGESTIONS FOR USE IN ARCHIVES

- Work in small batches of photographs, not entire collection
- Use high-resolution, unobstructed images of an individual's face to use as the confirmed image (pull from other sources, if necessary)
- Limit the amount of confirmed images, as more mismatches will be suggested with the addition of each confirmed face
- Helpful to search through images and create the metadata before ingesting into an online repository



TAKEAWAYS

- Beyond metadata creation, Lightroom gives a helpful way to visualize a collection of photographs and subjects
- Accuracy is improving with each new version
- Less accuracy with low light, damaged photographs, or profiles of individuals
- Training sets not always practical in trying to determine the individuals in a collection, especially if there are many unknown people in the photographs