

Parascript Review

I created a test deck of 238 checks. The test deck was designed to stress the CAR/LAR process, so expect the recognition rates to be lower than most real world data. Many of the checks had complex backgrounds, center symbols, and teller writing on them. Here are some of my findings:

- Parascript has a problem with skewed documents. I scanned a couple of documents that were skewed 2 to 3 degrees and CAR/LAR was missed. When the documents were re-scanned, Parascript read them fine. This is mostly a document preparation issue and might have been made worse by the fact that the Canon CR-190 does not have a black background so skew area was white which is harder to detect and correct.
- Four years ago when I reviewed Parascript CAR/LAR while working on a Wells Fargo project, we determined that Digital Check thresholding was significantly better than either Canon or Panini. During the past four years, both companies have improved their results and all were within 5 documents over the 238 checks of getting the same results for CAR/LAR with a confidence of at least 80.
- Again four years ago when I reviewed Parascript CAR/LAR, the grayscale CAR/LAR was much slower (on the order to 10 to 20 times slower) than black/white Tiff G4 capture. Now grayscale CAR/LAR is only 30 to 40% slower and about the same as using Digital Check, Panini, or Canon Tiffs (all were within the 5 documents again at 70 to 72% accuracy).

At first the results from UniSoft Imaging were lower than DCC, Panini, or Canon. But we found and fixed the following:

- 1) Removed a false ghost streak caused by edge detection thresholding.
- 2) Increased min Black Threshold level from 32 to 48 and lowered White Threshold from 220 to 210.
- 3) Changed edge detection algorithm to remove single white speckles. This was much faster than finding and then filling in the speckles as a post process.
- 4) Found the CR-190 Canon scanner we were using was mis-calibrated and adding 4 horizontal lines to the grayscale images. Switched to different scanners when it was determined that one of the lines was sometimes passing through the CAR area of the image. Note: in order to re-calibrate a Canon scanner one needs to send it to one of the 10 service centers in the United States.
- 5) We wrote a new function to find a Dollar sign on a check and enhance the area around the dollar sign in order to improve CAR/LAR results.

Therefore, the actual CAR/LAR numbers were similar on all tested scanners. I would need significantly more CAR/LAR clicks and real world documents in order to test and verify the results more accurately. In fact, many of my test documents were from almost 20 years ago. A much better test would be using real world checks currently being used, since standards on personal checks have been improving.

But the Parascript MICR reading tells a different story. Here are the results from all different types of images (Note: one image was double encoded so it should be missed):

Method	MICR Miss	Miss Read	Notes
JPEG Images	10	3	
Panini Tiffs	14	0	
Canon Tiffs	12	5	2 Drop Outs/2 OnUs read as Dash and 1 read as 3
Digital Check Tiffs	7	2	Drop Outs Missed
UniSoft Tiffs	3	0	

I believe this is an indication of the quality of the edge detection thresholding we have created where our Tiff Group 4 images are clearer and easier to read (and therefore would be easier to use for correction in the long run or for image exchange or image review).

I know this sounds subjective, but the image quality is slightly better with the UniSoft Imaging thresholding. I would provide images, but the images still contain customer data which I am not permitted to share with anyone outside of UniSoft Imaging.