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**University of Michigan  
School of Information  
SI 675 Digitization for Preservation (Winter 2011)**

**Assignment 2: Digitization Quality Assessment**

**Assignment Guidelines**

**Purpose.** The purpose of the assignment is to reinforce foundational concepts of digitization quality, by utilizing specific software and calibration targets to evaluate scanner performance and digitization benchmarking. The exercise will utilize the GoldenThread analysis software and associated benchmarking targets developed by Image Science Associates (ISa) of Rochester, NY. This assignment is partly a hands-on exercise in using a flat-bed scanner or camera with specialized targets and physical materials. The assignment is also an opportunity to synthesize the readings and reflect on digitization quality metrics.

**Materials Needed.**

1. GoldenThread Target Set.
2. Object packet for digitization.
3. USB drive.
4. MS Excel.
5. ISa GoldenThread software.
6. One flatbed scanner or overhead camera (not point and shoot) on campus.

**Procedure.** Students will work in teams of two. Each team is responsible for carrying out the steps of the assignment and for developing jointly the deliverables. The following are the general steps of the assignment.

**1. Prepare.**

Identify a scanner or camera for testing from one of the many publicly available scanners on campus. Groundworks in the Duderstadt Center and the Hatcher Graduate Library are promising locations. Do not use your own personal scanner without explicit permission of the instructor. Read the GoldenThread Use and Interpretation Manual sufficiently well so that you know how the manual is laid out. The manual is on CTools in the Resources/Assignment 2 section.

**2. Obtain the GoldenThread Test Targets and Test Packet.**

The package of device target and object target may circulate from student to student or be placed on reserves, depending upon student preference. Same goes for the Test Packet.

**3. Digitize Device Target.**

Create a digital image of the entire scanner test target (**Fig. 1**), placing it carefully face down on the scanner. From the scan options, try to select settings that allow for the following

parameters: (1) gamma = 2.2; (2) 24 bit color; (3) no sharpening; (4) 300 dpi. Depending upon your experience, it may be necessary to experiment with the scanner to get a result that satisfies you. Don't worry if it is unclear if you have selected the right parameters. User interfaces for scan devices can be ambiguous. Do your best. Name the file in some meaningful way and save the results of your acceptable scan to a USB drive as either an uncompressed TIFF or standard JPEG format. For practical reasons, try to insure that the final image size is no greater than 80 Mbytes. Optionally, repeat the scanning for one or two different dpi settings (not greater than 800 dpi). Record the following information:

- the manufacturer (e.g. Epson) and model (e.g., 10000XL) of the scanner that you use for your test
- the name of the software used to control the scanner (i.e., the software driver)
- the scan settings from the scanner software (resolution, bit depth, gamma)



Target used for full Field-of-View  
Image Quality Analysis  
"Device-Level Target"

**Figure 1**



Target used for *In-situ*  
Image Quality Analysis  
"Object-Level Target"

**Figure 2**

#### 4. Digitize Object Packet Contents.

Create five digital images using the contents the test packet on the same scanner that you used for the test target. Place individual items on the selected scanner platen and place the object target alongside. Top, bottom left, right, it shouldn't matter. Try not to obscure the target with the object being digitized. Be sure to place the object target on the scanner surface along with each document. Do a preview scan to insure that both target and object will be captured. (**Fig. 2**). Using the same scanner settings as above (300 dpi, 24 bit depth, 2.2 Gamma), digitize each object with the object target. Name the files sensibly (e.g., "Bob color map 300dpi.jpg"), to enable you to distinguish

your image files from others in the course. Save each image as either an uncompressed TIFF or standard JPEG format and be sure to document the settings used for each scan. Optionally, repeat the above using an auto-contrast mode for one or two objects; or adjust the resolution or depth settings for the software to see what happens at higher and lower resolutions. Save results to a USB drive as either an uncompressed TIFF or standard JPEG file format.

Record the following information:

- a short description of each item scanned (with file names used for each object)
- the settings for each scan shown by the software associated with the scanner.

### **5. Run Evaluation using GoldenThread.**

Gain access from your personal computer or a campus workstation by following the instructions in a separate handout. Using the ISA GoldenThread software, complete a full analysis on each of your saved files (1 Device and at least 5 Objects). Follow the specific guidelines in a separate document for the analysis.

### **6. Compile information from the analysis.**

The data from your analysis of the device and object analysis is automatically saved in separate MS Access databases associated with the GoldenThread software. Open the appropriate database by double-clicking on the appropriate .rdf program (Object or Device) icon on your desktop. Identify your analysis files in the database. Choose the analyses to export (probably all six of them). Export them as Excel files, saving the data to a USB drive or to your desktop. The “Save as...” path may be complicated due to the virtualization of the application. For each analysis selected for export, you will have to click OK in a dialog box.

After export, open the Excel workbooks and create a single unified Excel workbook with multiple worksheets representing your analyses, one sheet for each analysis. Name the worksheets appropriately. Submit the single Excel workbook to CTools, named “SI675 Assignment2 YourTeamNumber.” Make sure that the worksheets are populated with data from your analysis by opening the file from your USB drive after you have saved it.

### **7. Prepare report.**

See separate document for reporting guidelines.

### **8. Submit your team report.**

A single report from the team will contain the analysis/interpretation of your results and the name of the Excel file that includes your data. Acceptable file formats for the project report are: .doc, .docx, .pdf, and .rdf. Open Office files are not acceptable. It may be advisable to produce a succinct narrative report and then use appendices to report data or other information. Screenshots or extracts from the Excel assessment data are acceptable either inside the report or as appendices. The report may be as long as necessary to deliver the findings and include the data. Plan on a minimum of 2,000 words for the narrative report, plus whatever content is included in the appendices.

**9. Deadline.**

The Excel data can be submitted to CTools as soon as you have completed the GoldenThread analysis.

The team report is due Friday 18 February 2011 @ 5:00 pm. Late reports will be penalized 10%. Reports turned in after Noon, 21 February 2011 will be penalized 25% of the grade.