Quick Start Guide

Introduction:

This "Quick-Start-Guide" provides basic instructions on how to operate *DFIQI* software. This guide is not intended to be comprehensive and users are encouraged to reference the User Manual for more details regarding operation, interpretation, limitations, and troubleshooting.

Basic Operating Instructions:

1. Open *DFIQI* by double clicking on the *DFIQI* icon on your desktop.

2. Left click on the "open" icon on the *DFIQI* user interface. Open the image of a single friction ridge impression.

3. If features have already been annotated on the images for *DFIQI* entry[1], proceed to step 4. If features have not been annotated on the images for *DFIQI* entry, follow the steps below:

    a. Left-click on the image window to ensure it is the active window.

    b. Click the "f" key on the keyboard to activate the feature annotation tool. A "ROI" window will appear.

    c. Annotate each feature by left-clicking the mouse on the base of the feature, hold down the left-click button and drag along the ridge flow to indicate the feature tail angle. Release the left-click button to annotate the feature. Features will appear in red. These are "tentative" and can be edited.

    d. If a feature needs to be edited or deleted, select the feature identifier using the ROI Manager window (the feature selected will become highlighted on the image) and then select "delete". Then re-draw, if necessary.

    e. When finished annotating, click the "space" bar on the keyboard once. This will "Accept" the feature annotations, turn them blue color, and flatten them onto the image. Once this occurs, the user can run *DFIQI* analysis. NOTE: when annotating in the *DFIQI* application, the same rules outlined in the User Manual apply for feature annotations – the most important one being that features cannot overlap one another.

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[1] Feature annotations for *DFIQI* entry require the following: The features must be annotated using color annotations (any color <u>except</u> red) *after* the image itself has been converted to grayscale and then back to RGB-color mode (to ensure only colored pixels are those corresponding to feature annotations). Features must not overlap one another. Once features are annotated, the images must be saved in a "lossless" file format (e.g. TIFF) to avoid obscuring the feature annotations during compression. Refer to the User Manual for more details on feature annotation requirements.

4. Left-Click on the "Run *DFIQI*" icon.

    a. Confirm or input the accurate resolution for each image (scaled 1:1).

    b. Select each GQS score to have calculated for the image. Options include: Value$_{GQS}$, Complexity$_{GQS}$, and Difficulty$_{GQS}$.

    c. Select the box next to "Show feature overlay" to have the feature overlay included on the output.

    d. Click "OK" to run.

5. Once *DFIQI* is finished running, a copy of the image will be created and the results will be displayed in the upper left corner of the image.

Troubleshooting:

a. Users may view the *DFIQI* LQS feature overlay indicating features detected and the color-coded output for each feature score (green, yellow, or red) by left-clicking on the image window, left-clicking on the "Options" icon in the *DFIQI* interface, and selecting "Show Overlay" or "Show Overlay with Labels". To remove the feature overlay, left-click on the "Options" icon and select "OK" (without any options checked).

b. Users may view how *DFIQI* is expected to detect features by left-clicking on the image window and click the "t" key on the keyboard. This will make a copy of the image and highlight (in red) what *DFIQI* detects to be annotated features. Feature annotations not highlighted in red will not be detected by *DFIQI* when it is run. If pixels are highlighted in red that do not correspond to feature annotations, then it indicates there are other color pixels in the image. The image will need to be converted to grayscale then back to RBG-color mode and the features re-annotated.