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RadPro

Radiography Processing Tool

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Outline

- Objectives

- Operations & Order

- Interface & Usage

- File Nomenclature

- Enhancements

- Future & Summary

Objectives (Original)

- Process Cygnus Radiographs
- Simplicity in processing data
- Simplicity in modifying options/parameters
- Read and display images
- Perform basic processing methods:
  - De-Star, Subtract, Normalize, Rotate, Tile Boundaries, De-Warp
- Batch Process a list of shots

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Operations & Order

$$\frac{Dose_{FF}}{Dose_{Img}} \left(\mathcal{T} \left(\varpi \left(\mathcal{R} \left(\frac{\mathcal{D}*(Img) - \mathcal{D}*(DF_{Img})}{\mathcal{D}*(FF) - \mathcal{D}*(DF_{FF})} \right) \right) \right) \right)$$

- Tile glow correction – disabled
  - After *Rotation* operation

- De-Blur – disabled
  - After Tile Boundary correction operation

Interface – Single Shot

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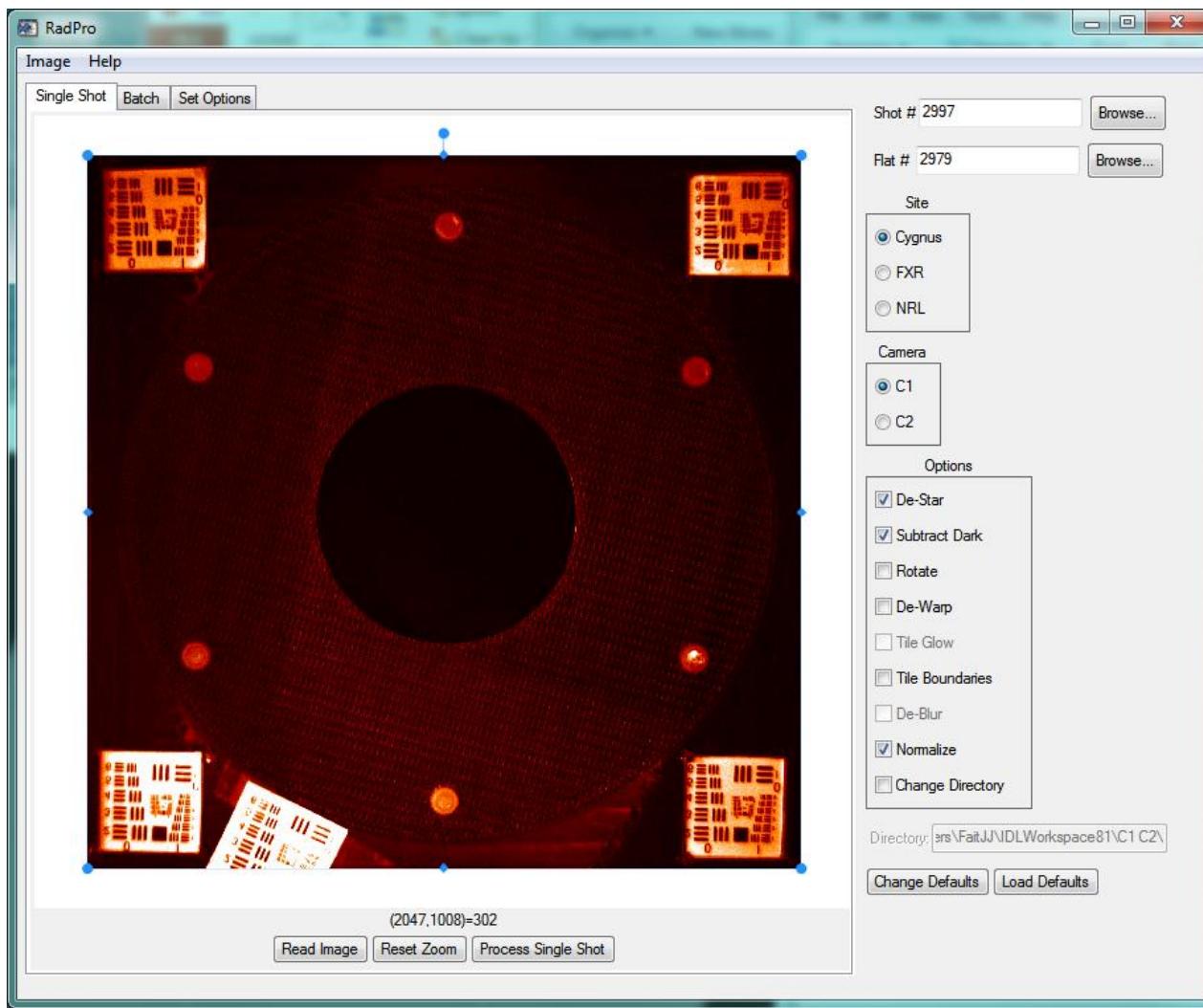
Interface – Set Options
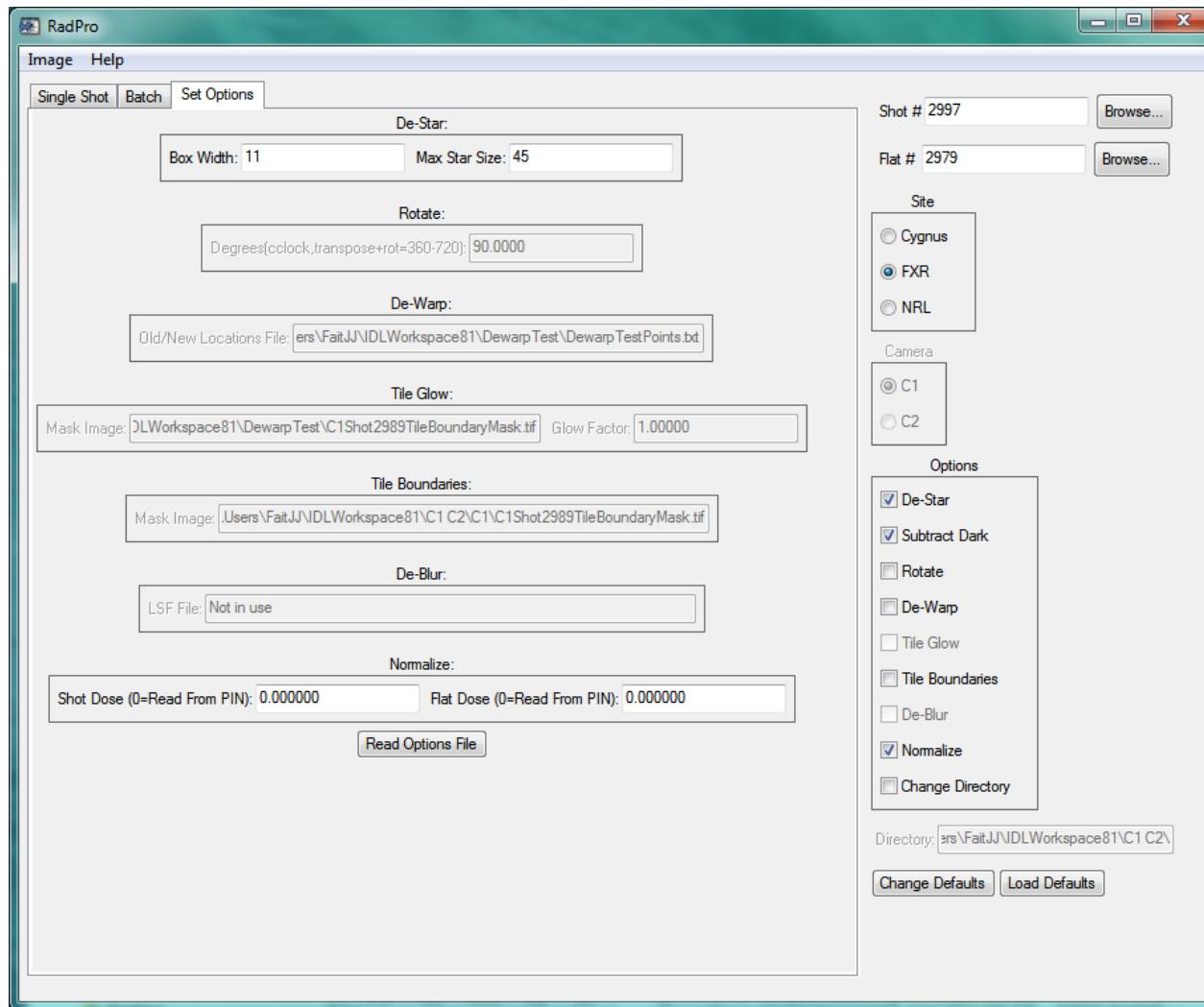
Interface - Batch
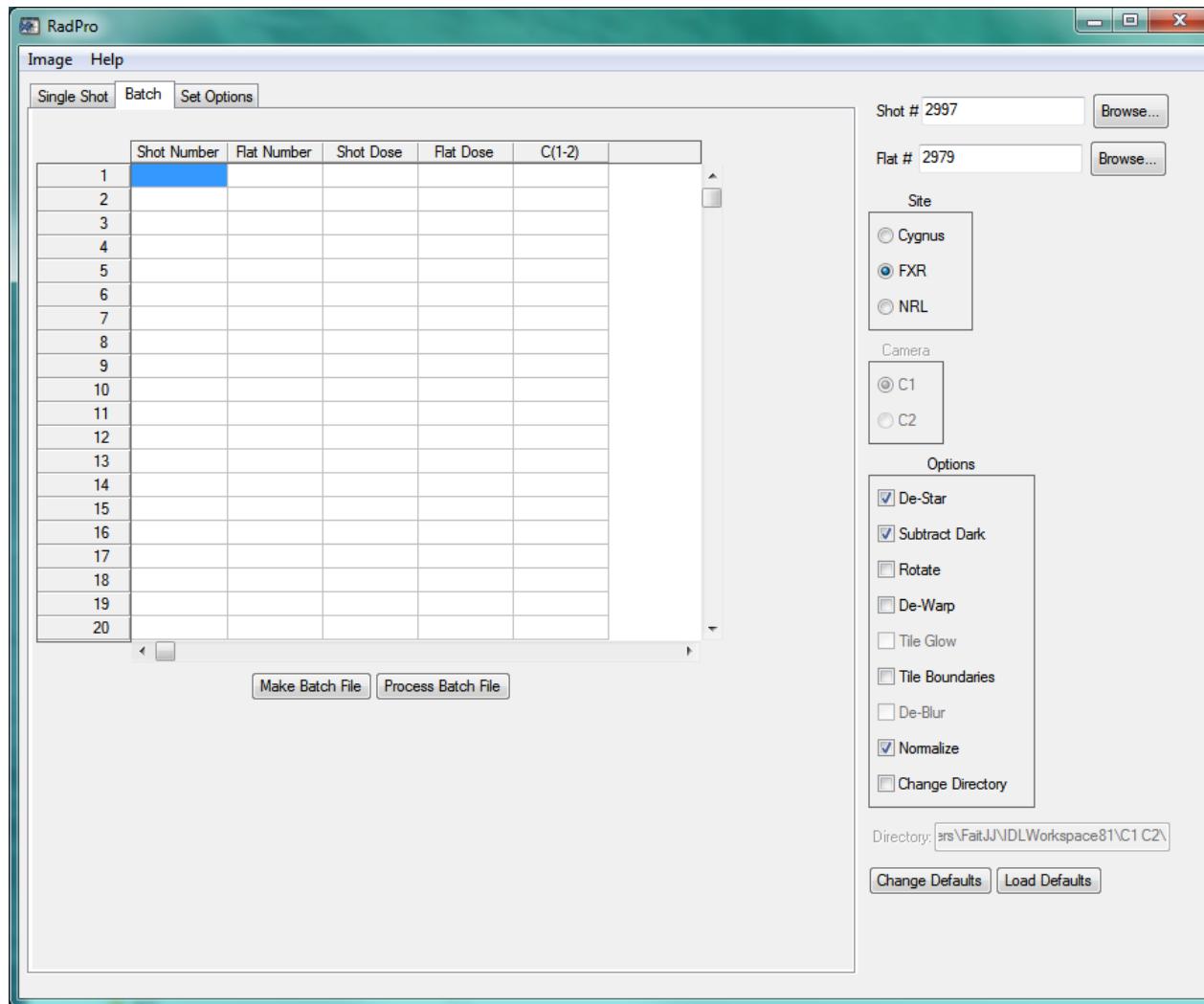
Default Options
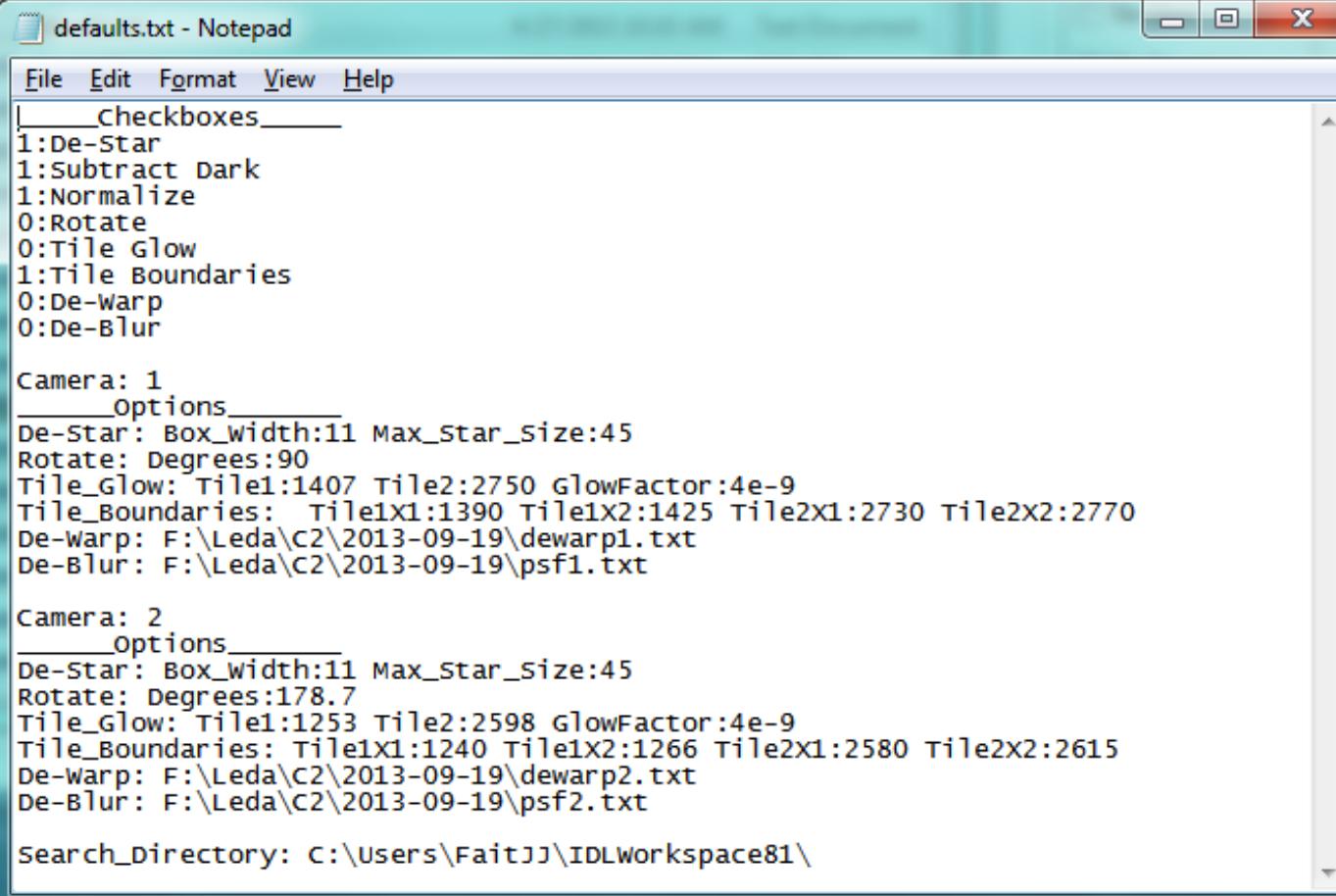
```
defaults.txt - Notepad
File  Edit  Format  View  Help

|_____Checkboxes_____
1:De-Star
1:Subtract Dark
1:Normalize
0:Rotate
0:Tile Glow
1:Tile Boundaries
0:De-Warp
0:De-Blur

Camera: 1
_____Options_____
De-Star: Box_Width:11 Max_Star_Size:45
Rotate: Degrees:90
Tile_Glow: Tile1:1407 Tile2:2750 GlowFactor:4e-9
Tile_Boundaries:  Tile1X1:1390 Tile1X2:1425 Tile2X1:2730 Tile2X2:2770
De-Warp: F:\Leda\C2\2013-09-19\dewarp1.txt
De-Blur: F:\Leda\C2\2013-09-19\psf1.txt

Camera: 2
_____Options_____
De-Star: Box_Width:11 Max_Star_Size:45
Rotate: Degrees:178.7
Tile_Glow: Tile1:1253 Tile2:2598 GlowFactor:4e-9
Tile_Boundaries: Tile1X1:1240 Tile1X2:1266 Tile2X1:2580 Tile2X2:2615
De-Warp: F:\Leda\C2\2013-09-19\dewarp2.txt
De-Blur: F:\Leda\C2\2013-09-19\psf2.txt

Search_Directory: C:\Users\FaitJJ\IDLWorkspace81\
```

- Located in same directory as radpro.sav

Files Nomenclature

c1Shot2731_proc.png	4/22/2015 10:23 AM	
c1Shot2731_proc.TIF	4/22/2015 10:23 AM	
c1Shot2731_DS_N.TIF	4/22/2015 10:23 AM	
c1Shot2731_DS.TIF	4/22/2015 10:23 AM	
c1Shot2731_DS_Reject.TIF	4/22/2015 10:23 AM	
c1Shot2731_DS_Map.TIF	4/22/2015 10:23 AM	
2731_Options.txt	4/22/2015 10:22 AM	
Shot2731.txt	4/22/2015 10:22 AM	
Shot2731df.txt	4/22/2015 10:22 AM	

- c1Shot2731_proc.TIF – Processed image
- c1Shot2731_DS.TIF – Destar images
- 2731_Options.txt – Checkbox/Option Params
- Shot2731(df).txt – Tiff header info

Enhancements

- Processing FXR/NRL data

- Portability – Directory structure flexible

- Editable dose information for batch processing

- Dual Shot included for batch processing

- Correcting for curved Tile Boundaries

- Avg. Destar ~30 seconds, other algorithms ~5 minutes

- Custom algorithm to replace FILE_SEARCH

  - Faster on mapped drives

  - One case showed 16x speedup (S: Drive)

- Batch Mode

- Auto Scale – Histogram

- Drag 'n Drop images

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Additional Enhancements

- Middle Mouse Button Zoom/Box Zoom
- Edit Color Table
- Resizable Image Window
- Options update based on camera selection
- Tested on Window 7/Mac OS X

Future & Summary

- Implementing T. Tunnell's latest, additional De-Star functionality

- Use the mask from De-Star to auto-correct Tile Boundaries

- Including improved Tile Glow algorithm

- Handle tile boundary mask with more than 2 regions (Including bad column data)

- Flexibility to De-Star Shot and not Flat

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