ADASS XXXV

DS9 FITS Segmentation with Linux and macOS Shell Script Metaprogramming

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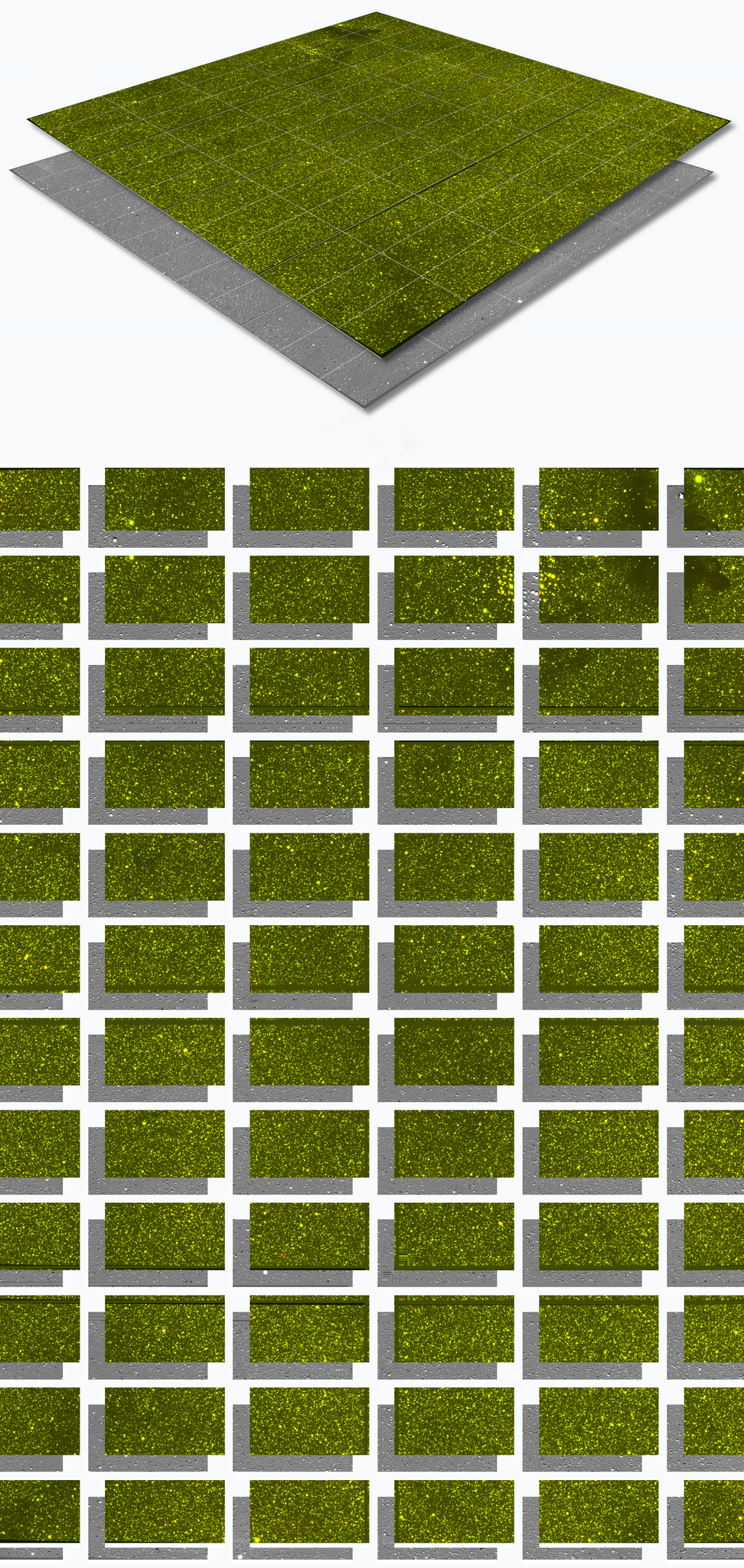

FITS File Segmenter

SAOImageDS9 (hereafter, DS9) is a well-known tool for FITS file inspection. Large FITS files can be difficult to traverse precisely with the DS9 pan tool. To address this, an automated FITS file segmenter was developed.

Small, segmented images can be inspected slideshow-fashion in third-party image viewers, such as Preview on the macOS. Additionally, complementary image segments (e.g., multiwavelength) are named to encourage easy blink comparison in such image viewers.

Bash shell scripting was used to metaprogram DS9 command line functions. Arbitrary-resolution FITS files and screen sizes are supported. Infrastructure needs are simple; Linux or macOS, DS9, and some OS-level utilities.

The segmenter has been tested with DS9 on:

- Debian GNU/Linux 13,
- Kali GNU/Linux Rolling (2025.3),
- macOS Monterey 12.7.6,
- openSUSE Leap 16.0,
- Ubuntu 24.04.3 LTS.

Early versions of this work have been discussed elsewhere, for planetary nebula searches. A refined (e.g., performance, portability, robustness) release is now available via GitHub:
github.com/tstenborg/DS9-FITS-Segmentation

Figure

CTIO Blanco 4 m telescope imaging toward the Galactic bulge (≈ RA 18 h 03 m, dec −28° 07′). Top: FITS [O III] on/off band data in an 8770 × 8886 pixel DS9 RGB frame and corresponding difference data frame. Bottom: FITS segmentation into smaller 1536 × 864 pixel images.

Acknowledgements

This poster used public data from the US National Science Foundation's (NSF) NOIRLab Astro Data Archive. The data were collected from observations at the NSF CTIO, NSF NOIRLab (NOIRLab Prop. ID 2008A-0549; PI: Q. Parker), which the Association of Universities for Research in Astronomy (AURA) manages under a cooperative agreement with the NSF. Community IRAF was used for data reduction. Use was made of SAOImageDS9, developed by the Smithsonian Astrophysical Observatory.