

Fine art astrophotography

Creating stunning and natural looking astro images



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Introduction

Purpose

Documentation:

- documentation for fun
- professional data recording, measuring

Challenging astrophotography

- technical challenge (telescope making, programming, etc)
- pursuing details, resolution, limiting magnitude, FOV, etc.)

Aesthetic photography

- capturing the objects in their natural colors, contrast – pure beauty (minimal processing)
- artistic images (using a lot of processing, selective proc, unnatural colors, etc.)
- spectacular images
 - most of the time they lose their naturalness, extremely detailed images
- **„Fine art” astrophotography - spectacular and natural looking at the same time**

„Fine art” astrophotography - spectacular and natural looking at the same time

That means:

- pleasure to look
- fine details, good resolution
- everything looks natural, details are not forced
- fine art photography value

Content

Planning

- object choosing
- composition

Acquisition

Processing

- contrast
- balance of stars and nebulae
- rotate, crop

Planning

Object choosing

We have to consider:

- FOV
- resolution (camera, telescope, seeing) – avoid oversampling!
- exposure time we need
- sky conditions
 - light pollution (city and moon),
 - seeing,
 - altitude

Good to have a 2nd plan, in case of wind, bad seeing, or other problems.

Planning

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- **the exposure time we need**
 - the fainter the object the longer exposure needed
 - telescope diameter
 - camera sensitivity, pixel size
 - sky quality

Planning

Fill the background

If our object is small, then we have a lot of background

- better to go deep and fill the background with faint stuffs
- if it is not possible, better to crop the image

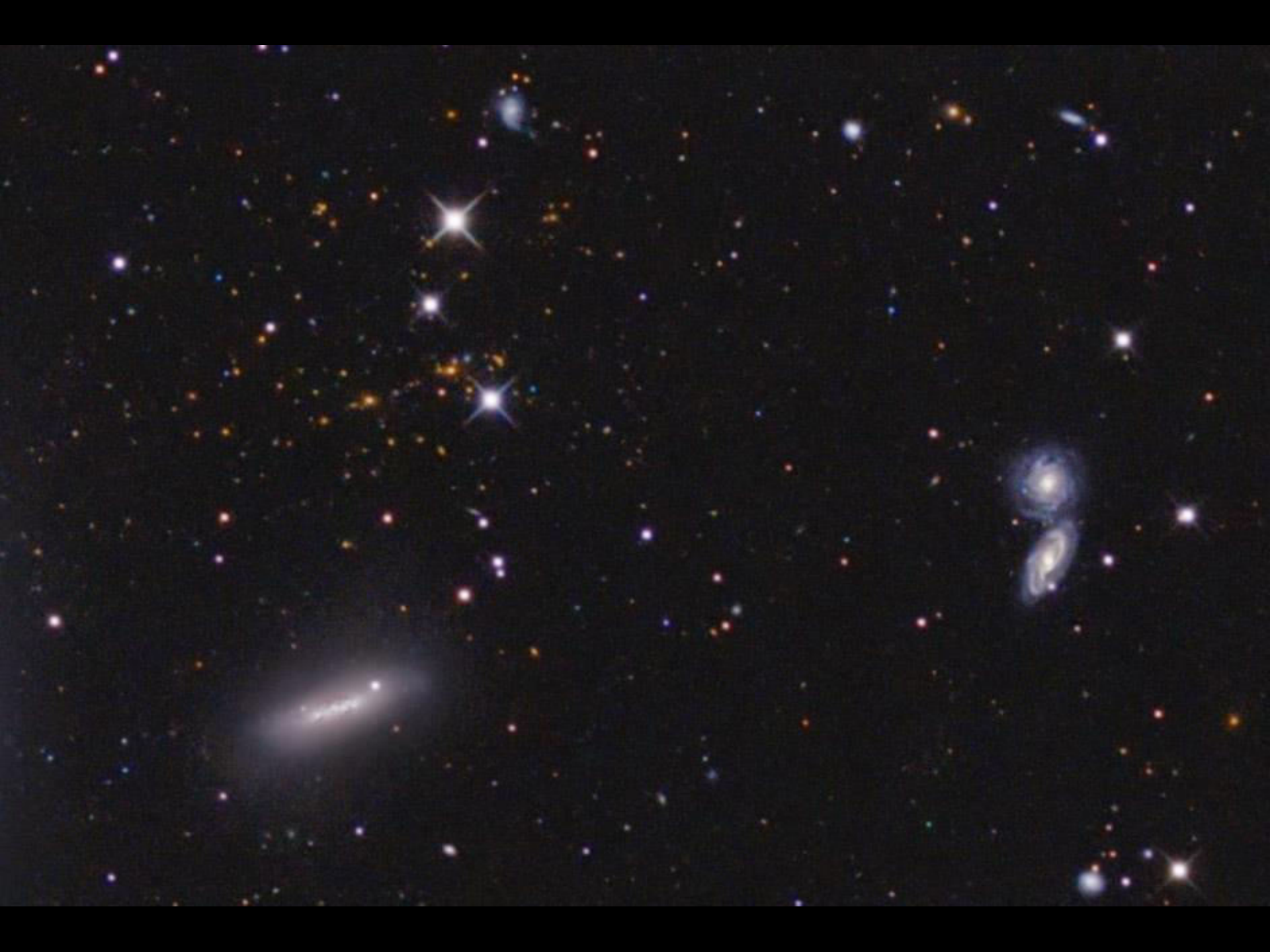
Fill the background



Fill the background















Planning

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Planning

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- **sky conditions**
 - **light pollution (city and moon),**
more light p = more problem
gradient, noise, colors, etc



Planning

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 - light pollution (city and moon),
 - **seeing**
- star size = balance problems



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Composition

Where and how to place and object into the image?

Balance, harmony, equilibrium – golden ratio

We find beauty in music, arts, architecture and nature based on golden ratio. It is everywhere around us, it is in everyday's life.

- balance
- off centre - try to avoid putting objects to the centre of the image
- diagonals
- golden ratio, golden spiral

- Rotate the camera!
- consider diffraction spikes!

Composition

Main points

- Balance
- Off centre - try to avoid put objects to the centre of the image
- diagonals
- Golden ratio, golden spiral

Planning

Composition

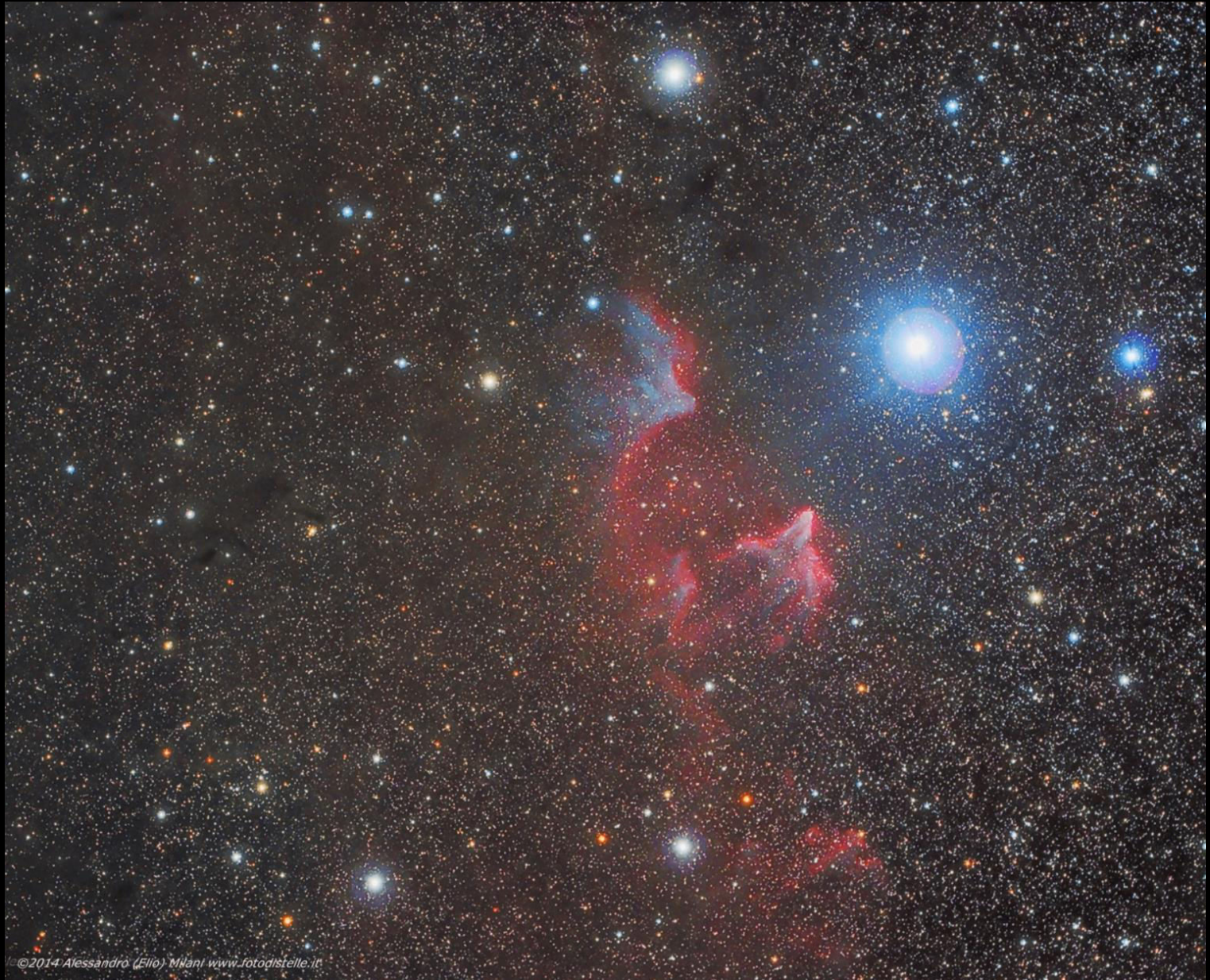
Balance

- keep image balanced

Planning

Composition

Balance



Planning

Composition

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Planning

Composition

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Planning

Composition

Balance

- keep image balanced

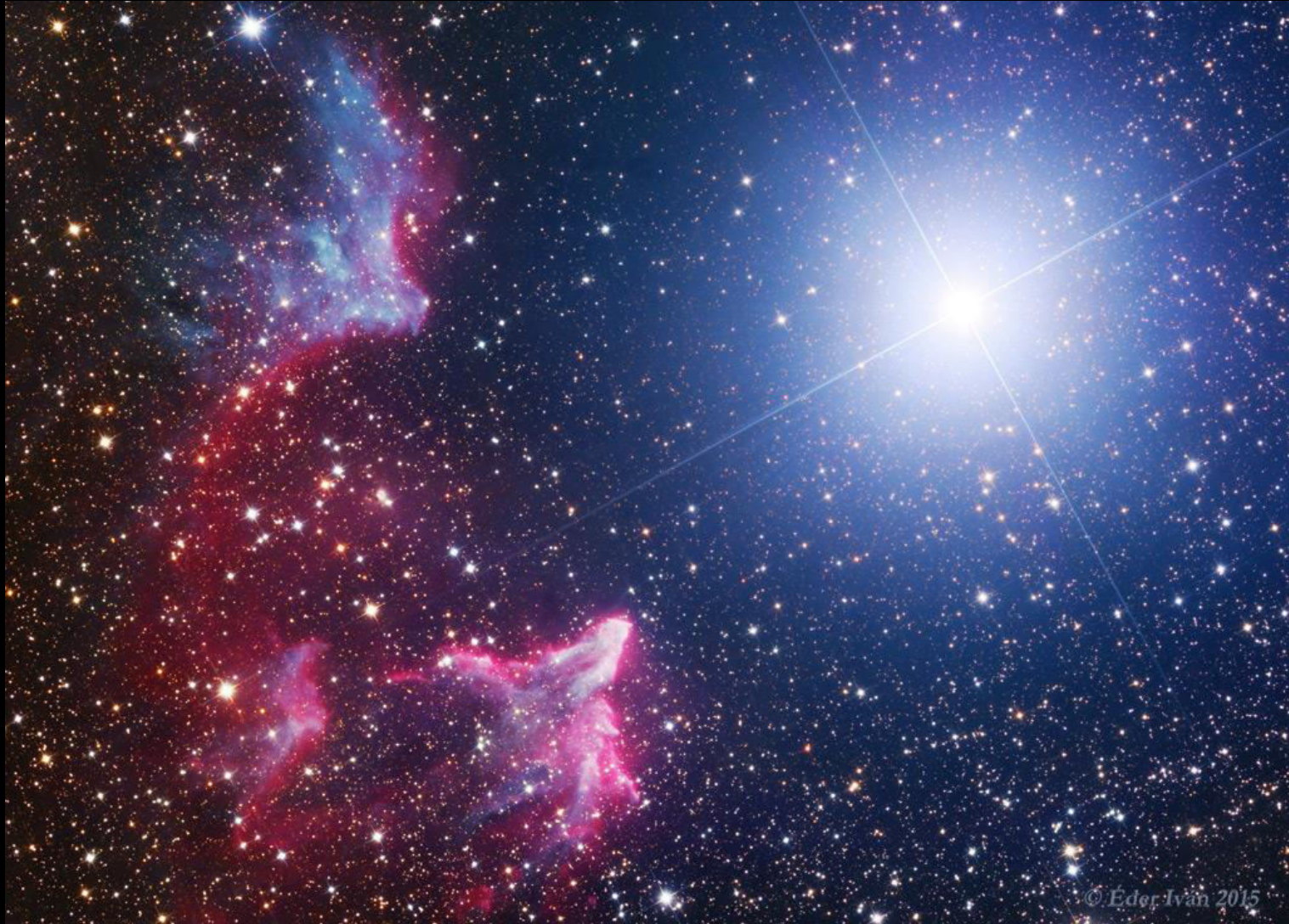


Planning

Composition

Balance

- keep image balanced



Planning

Composition

Put the objects off-centre, but keep the image balanced with other objects or details

Composition

Off-centre, but balanced



Composition

Off-centre, but balanced



Composition

Large objects should be centered with less background



Composition

Straight, symmetrical, standing forms



Composition

Composition rules - thirds



Composition

Composition rules – golden ratio



Composition

Composition rules – golden ratio



Composition

Composition rules – diagonals



Composition

Composition rules – diagonals, golden triangle



Composition

Composition rules – diagonals, golden triangle



Good composition – Conclusion

Keep the objects and overall image in balance!

- it depends on the weight of the objects (brightness, size, shape)
- rotate the camera to the best position
- fill the background or crop the image
- give motion and life to the image by using the rules

Acquisition

Acquisition

- Conform (adapt) to our project to local conditions, seeing, transparency, elevation, light pollution
 - (don't expect very good image of the faintest objects from a light polluted sky)
- Calculate (think about) the length of exposure time needed
 - if the weather or our time (or sky) does not allow it, change to brighter obj.
 - noise reduction (better to image more than reduce noise after)
- Perfect focus, perfect guiding, and good data (incl. calibration frames) is essential

Processing

Contrast

- Local contrast - visibility of details
- Global contrast - overall looking – brings life to the image



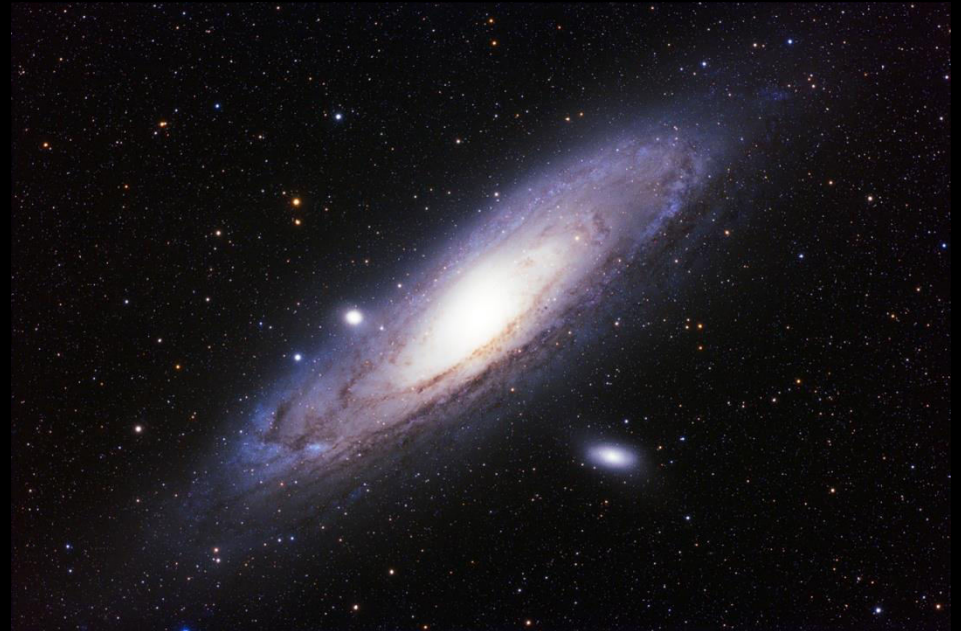
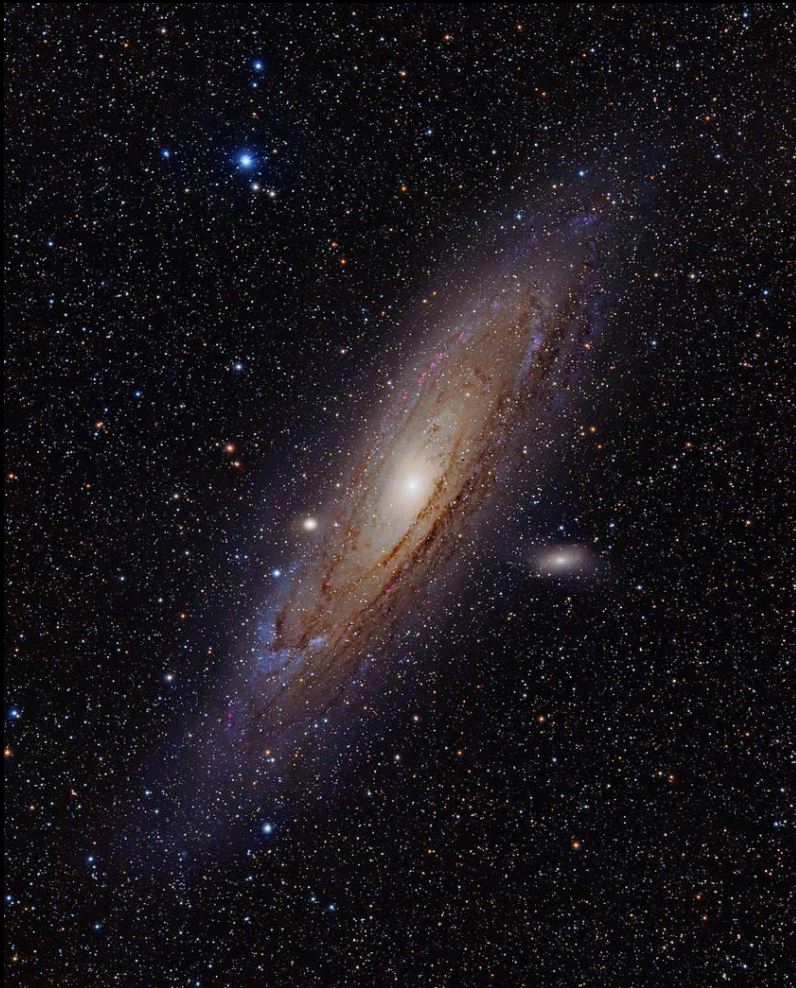
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Processing

- Global contrast



Processing

- Global contrast



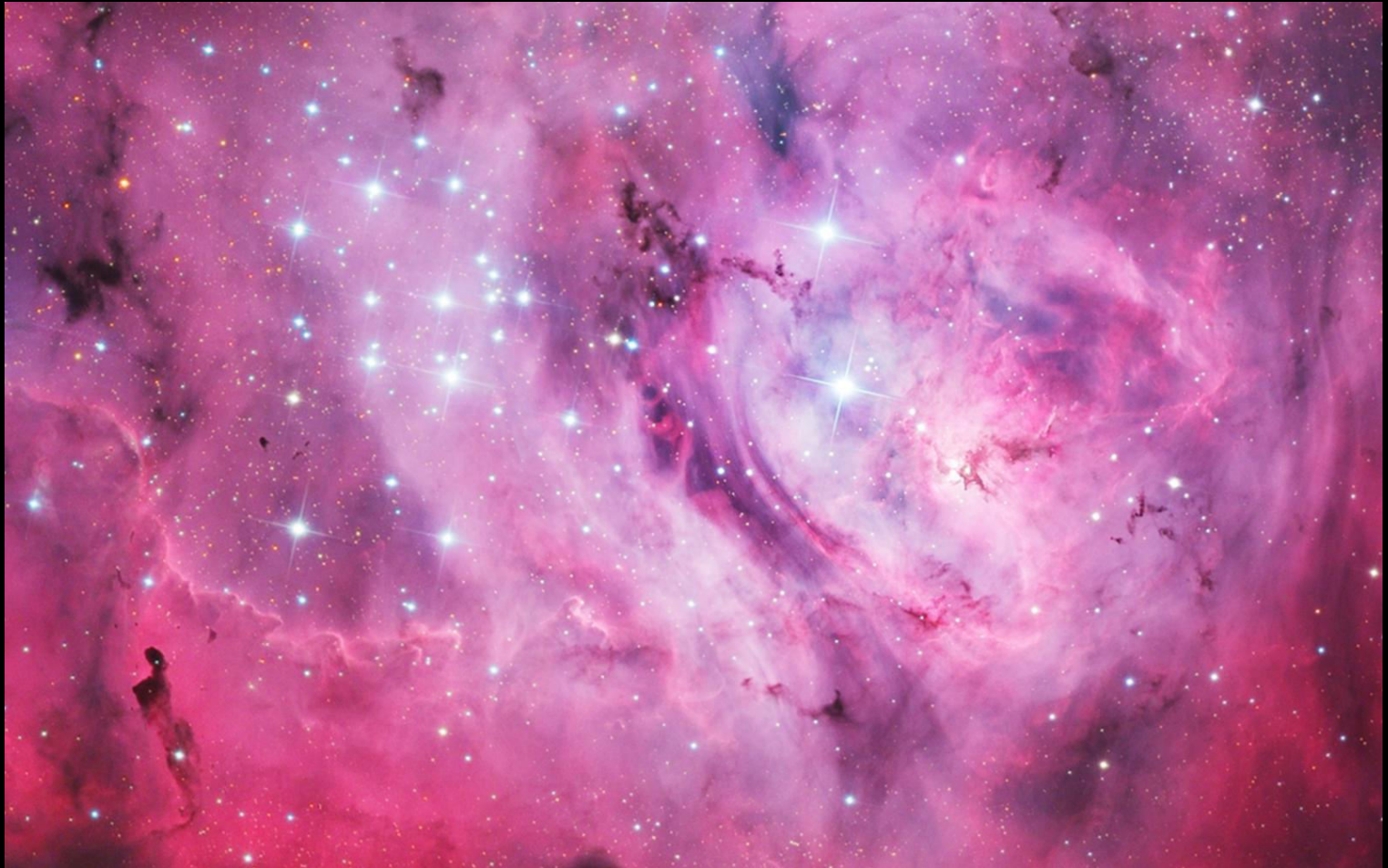
Processing

Adjust contrast and brightness according to the object size
- use the whole dynamic range!



Processing

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Processing

Color contrast



Processing

Color contrast



Processing

Color contrast



Processing

Balance of stars and nebulae

Processing

Balance of stars and nebulae



Processing

Balance of stars and nebulae



Processing

Balance of stars and nebulae



Processing

Balance of stars and nebulae



Processing

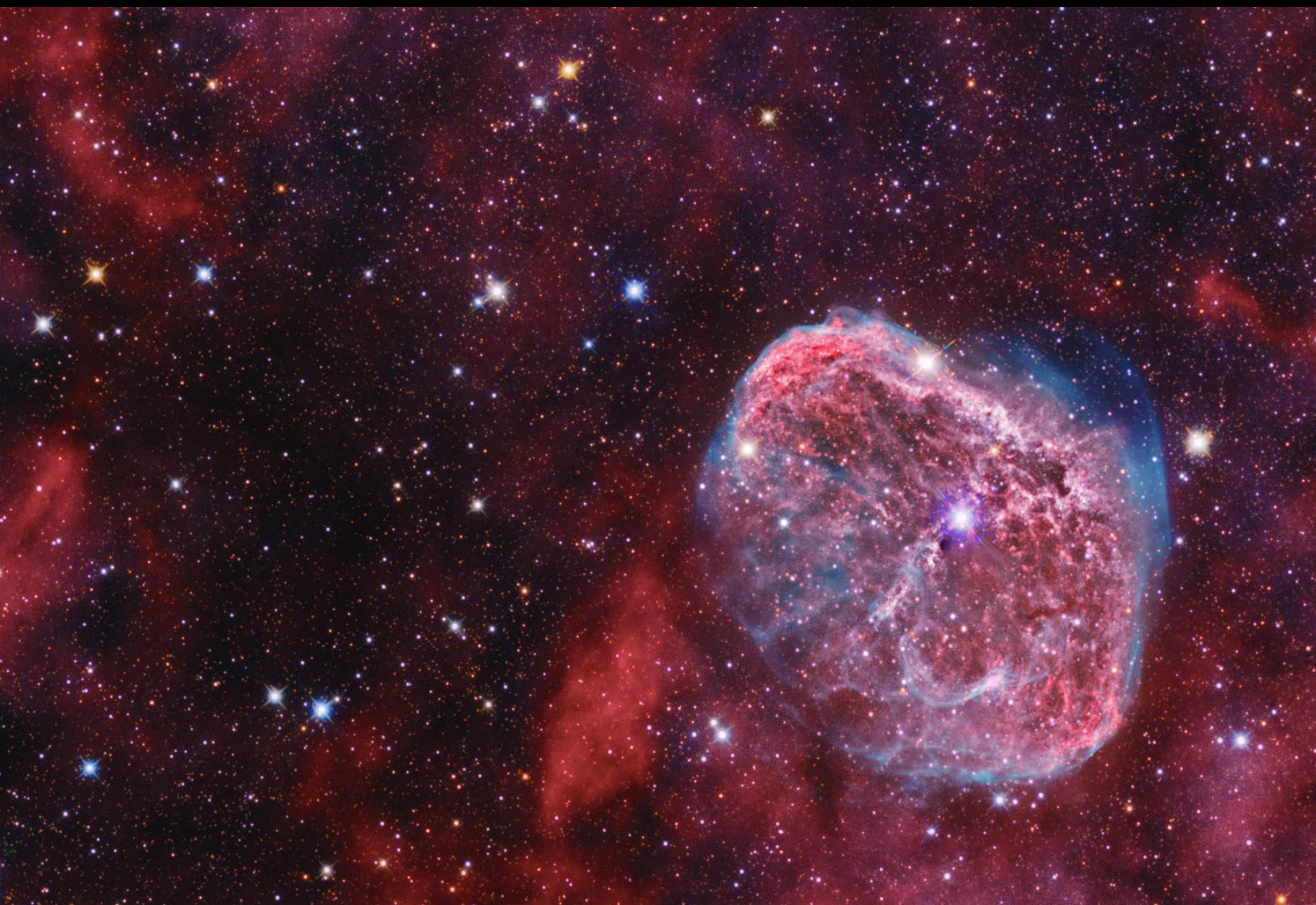
Balance of stars and nebulae



Processing



Processing



Processing

Final crop and rotation for best composition



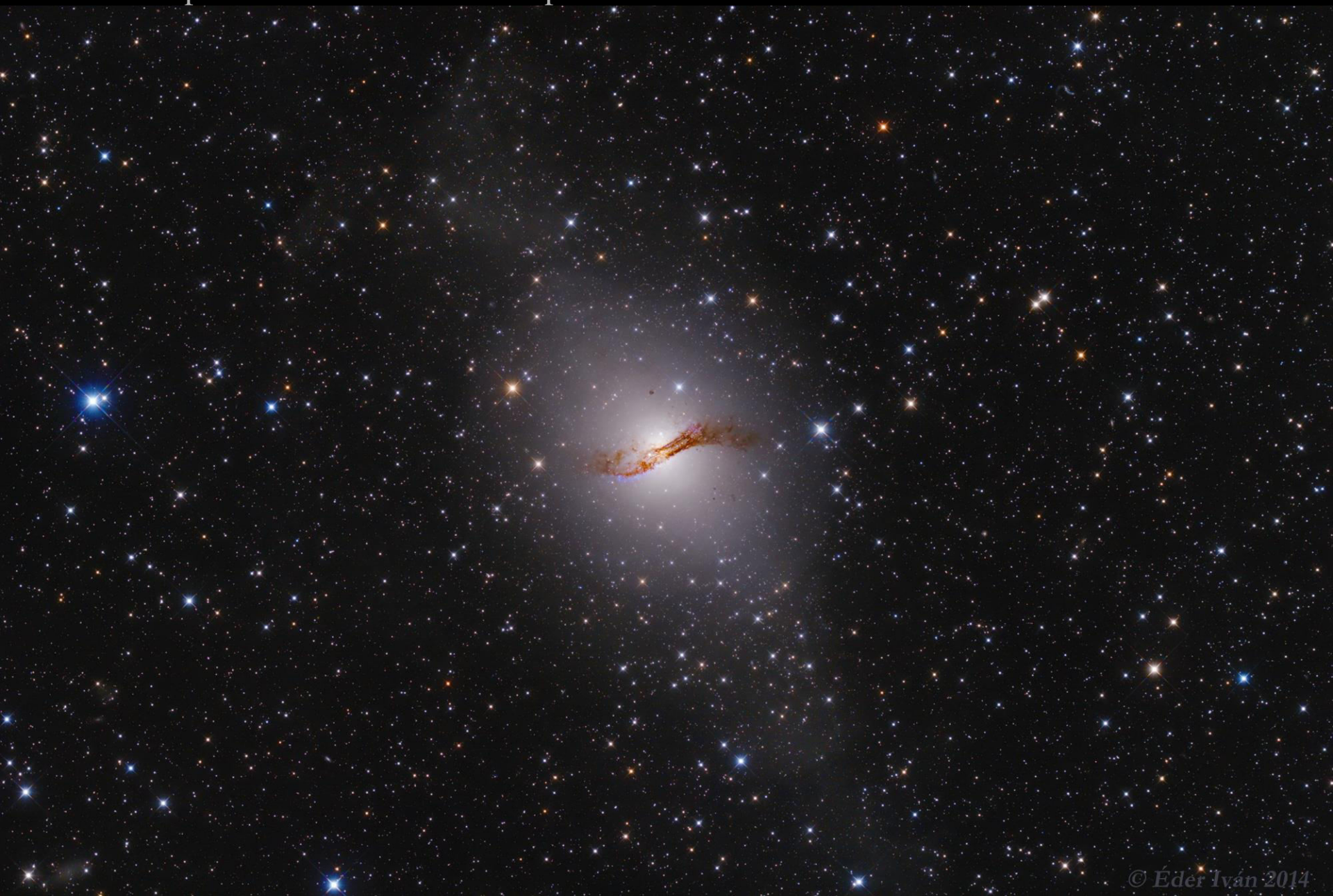
Processing

Final crop and rotation for best composition



Processing

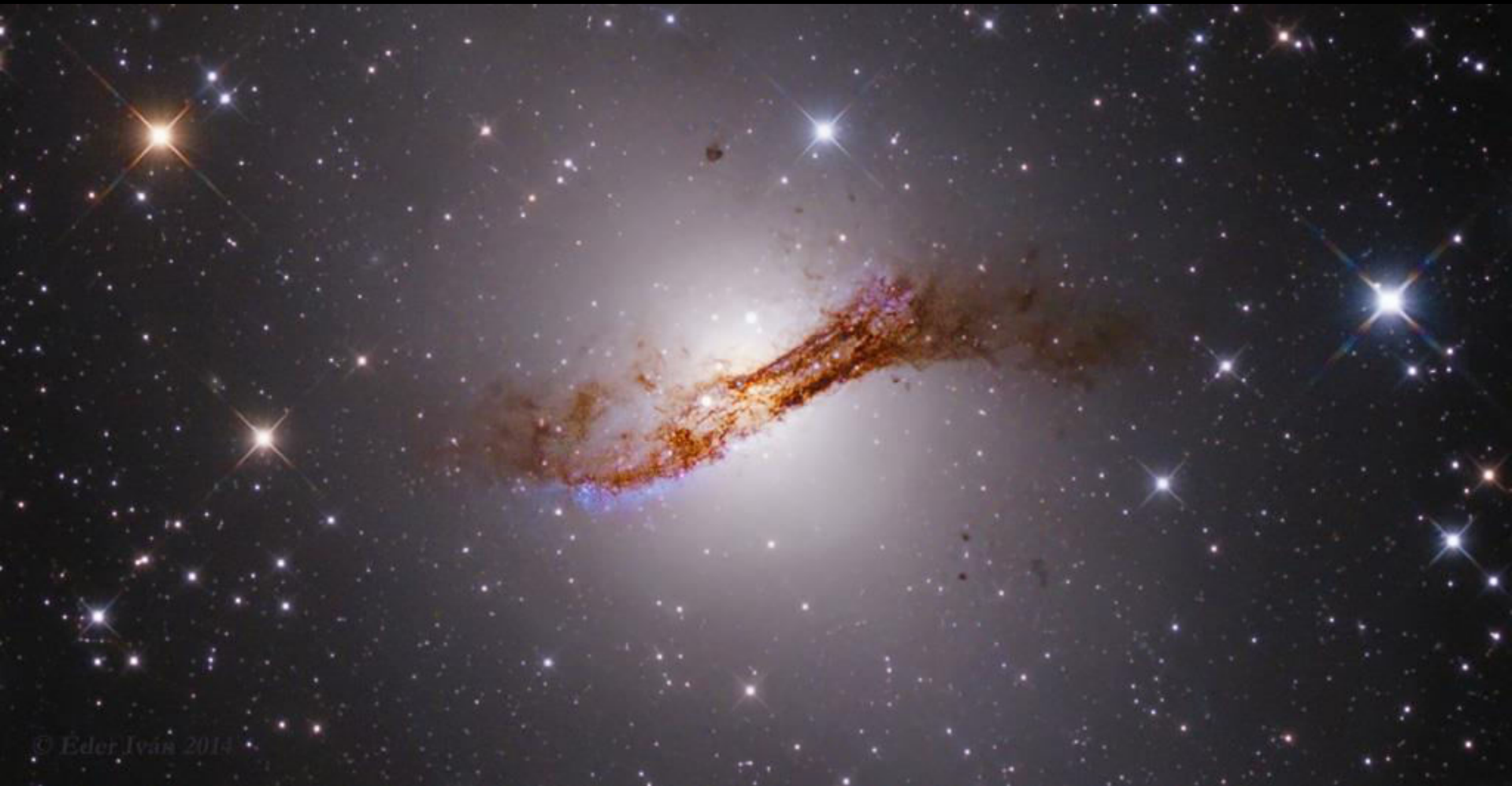
Final crop and rotation for best composition



Processing

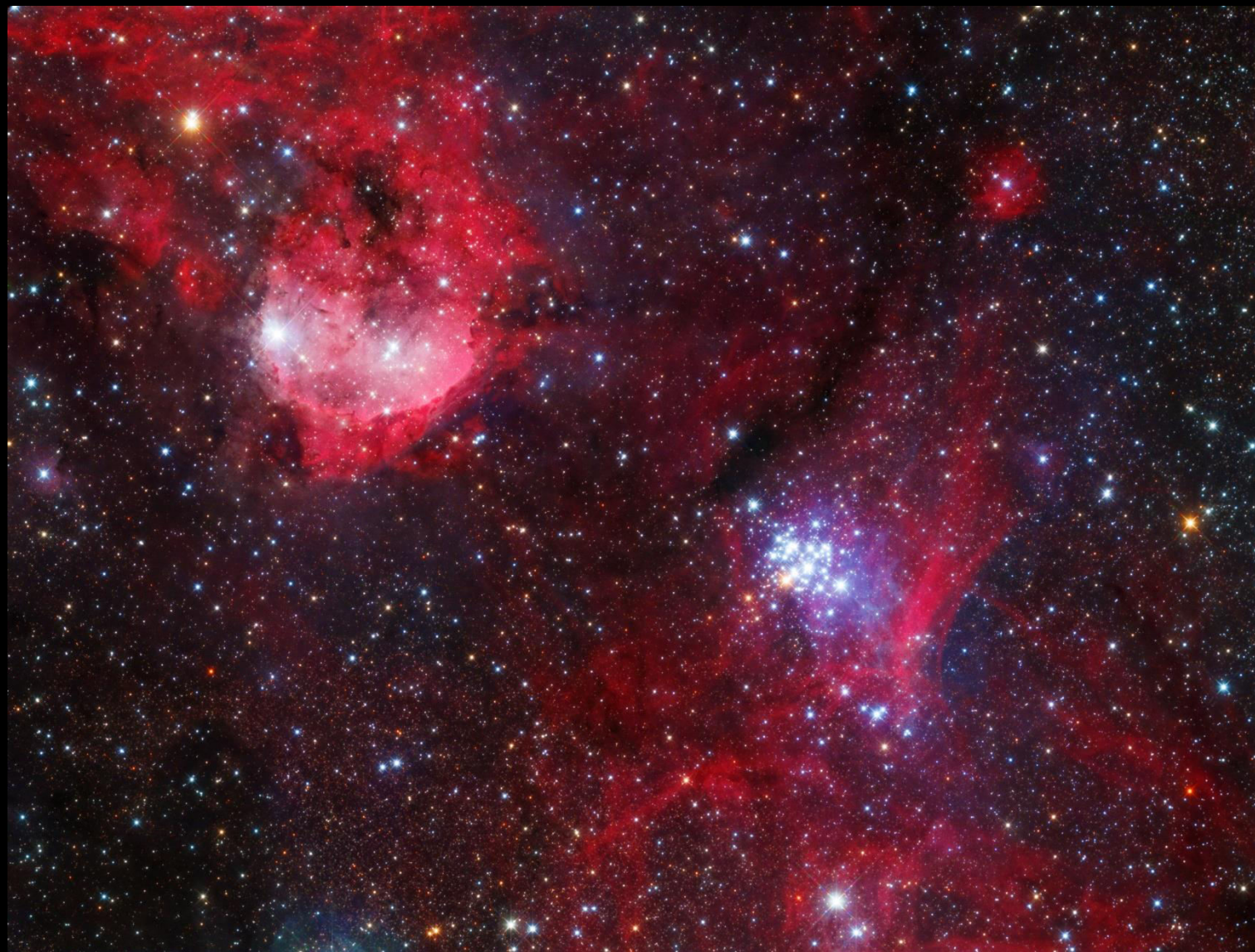
Final crop and rotation for best composition

Same image - different world



Processing

Final crop and rotation for best composition



Processing

Final crop and rotation for best composition



Processing

Original FOV



Cropped, rotated



Conclusion

Planning:

- good composition is important, don't hesitate to rotate the camera
- try to get a balanced composition

Processing

- Global contrast is important, use the whole dynamic range
- avoid flat, HDR like results
- balance of the stars and nebulae
- shining

Overall - recognize:

- many times it is hard to recognize what is wrong with the image,
- needs years of experience, patient and good eye



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