

Detecting Diffuse Sources in Astronomical Images

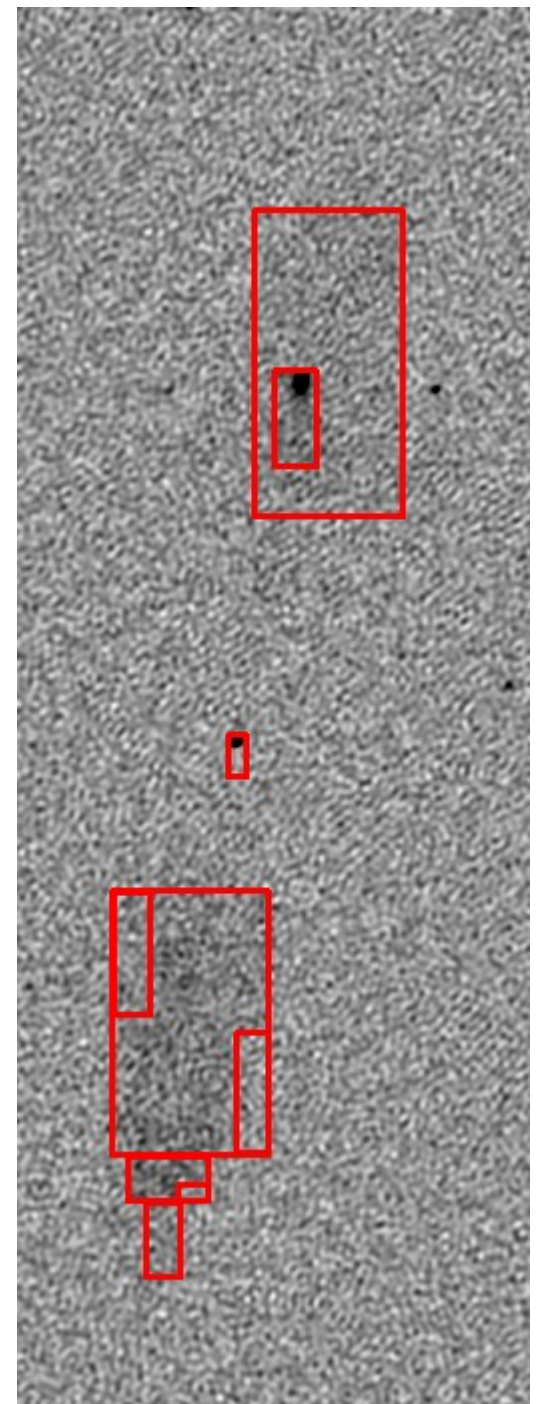
Tony Butler-Yeoman, Marcus Frean,
Christopher Hollitt, and
Melanie Johnston-Hollitt
Victoria University of Wellington
New Zealand

David Hogg
NYU

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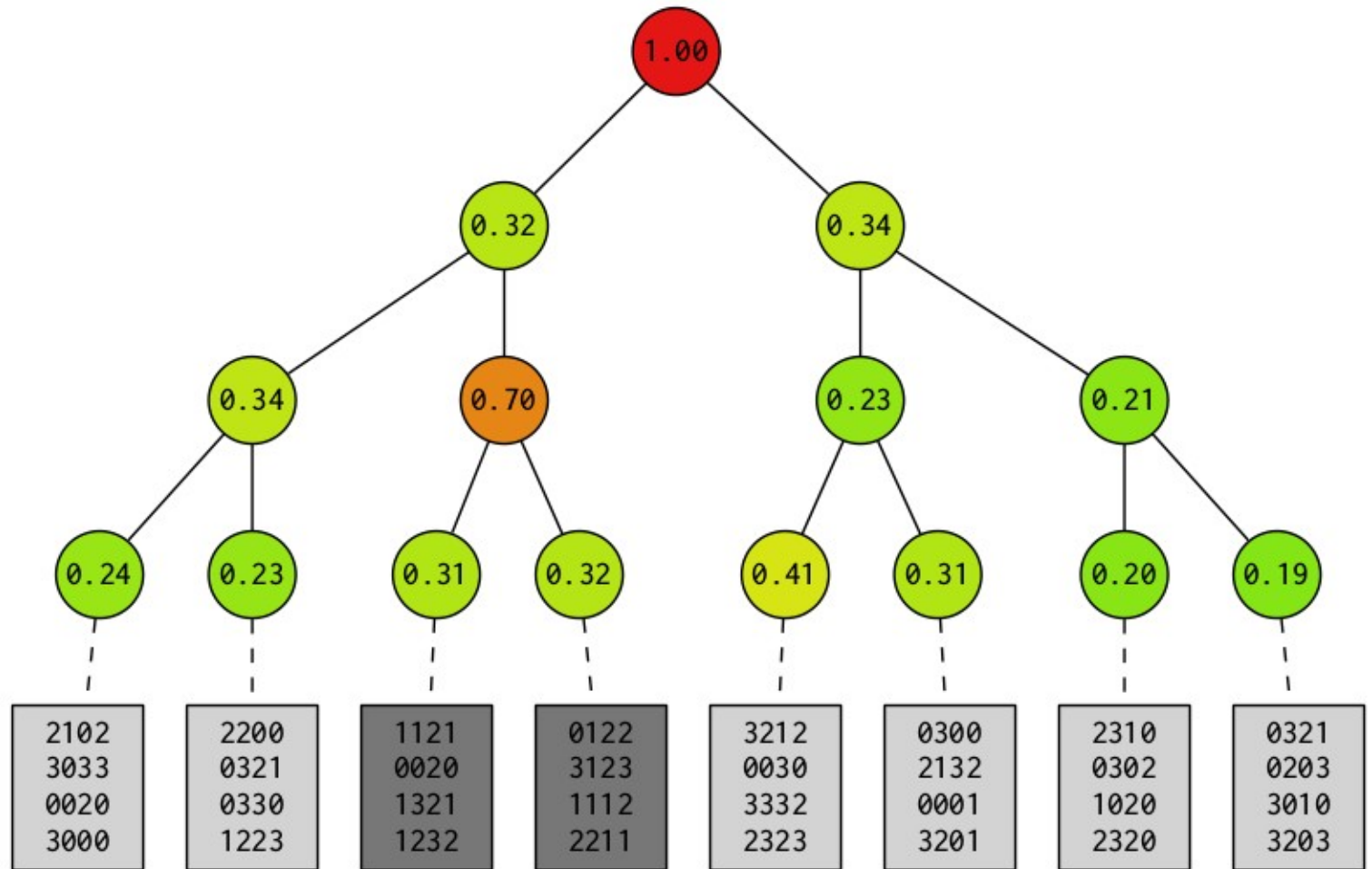
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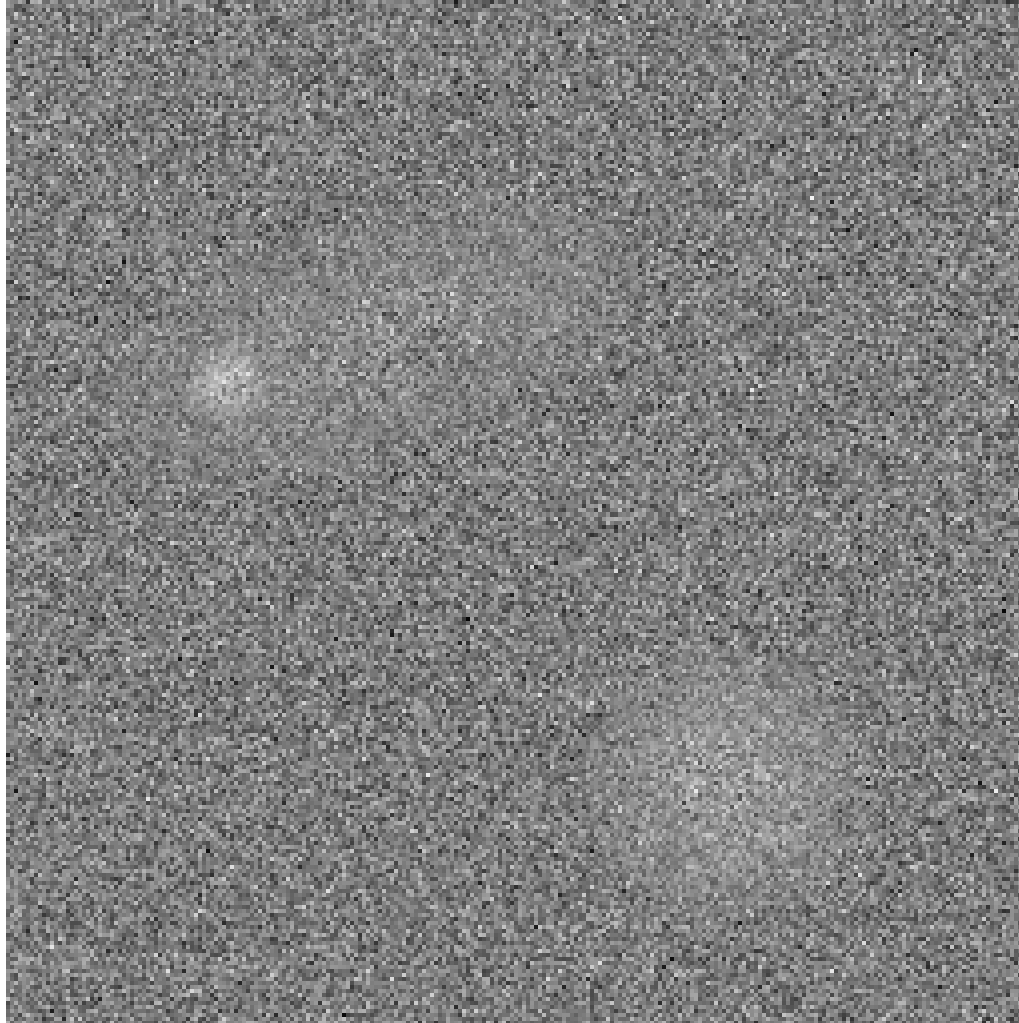
“Oddity”

The basic idea

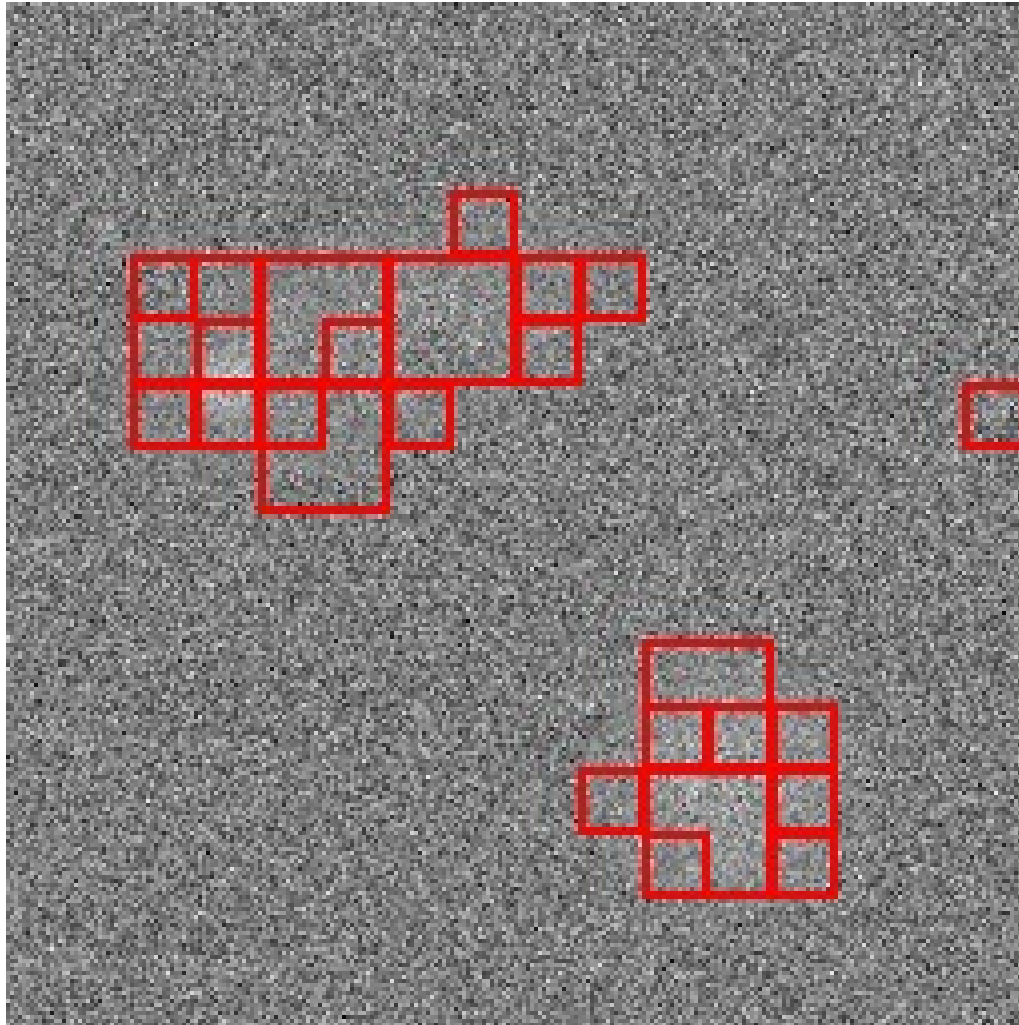
- tree-based generative model of the sky
- “invert” this model in 2 stages



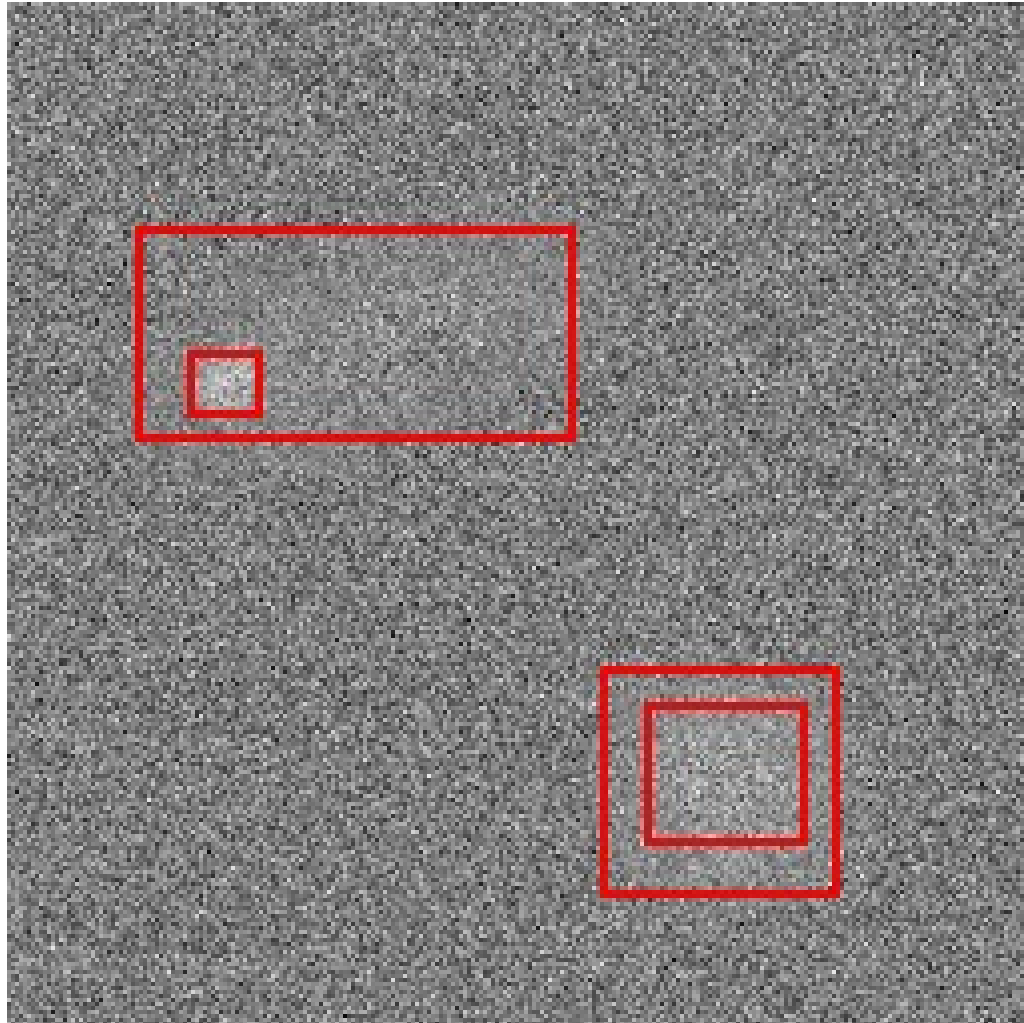
Two stages



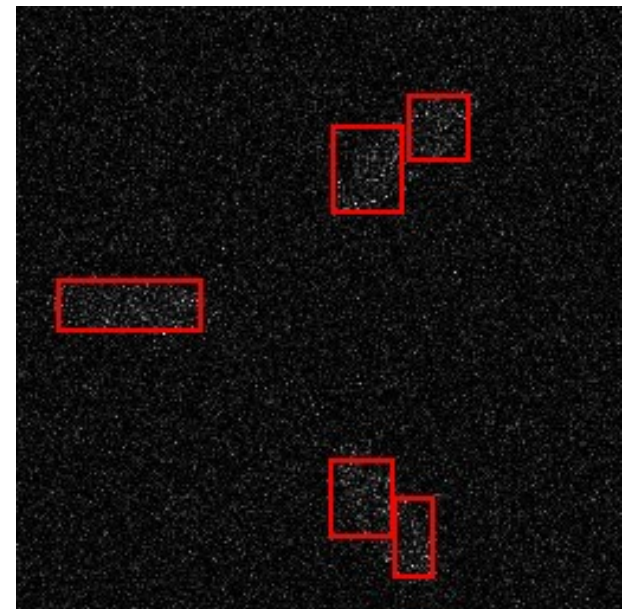
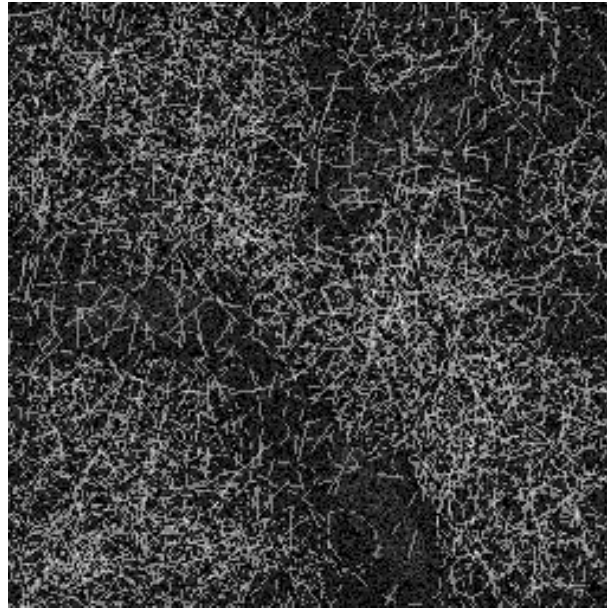
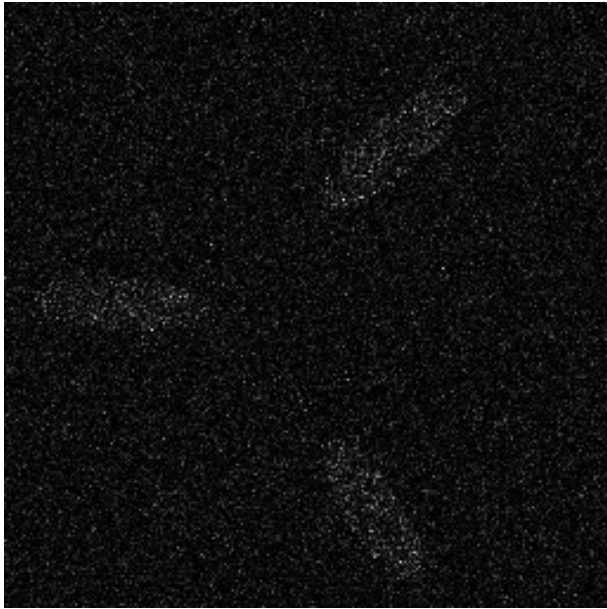
Two stages



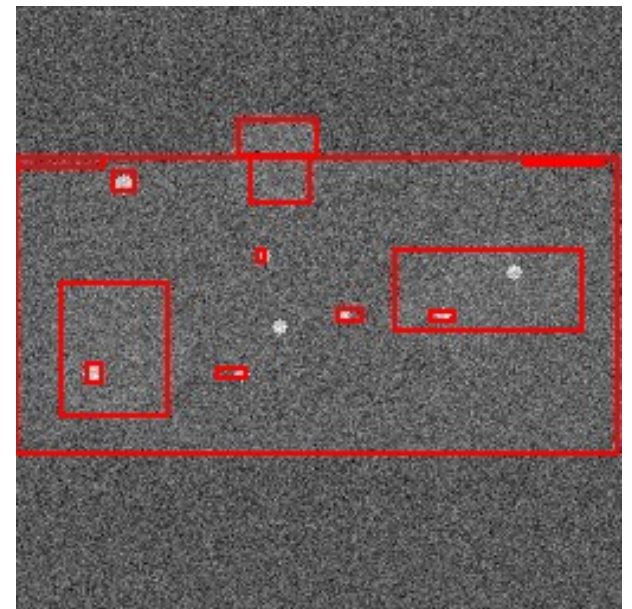
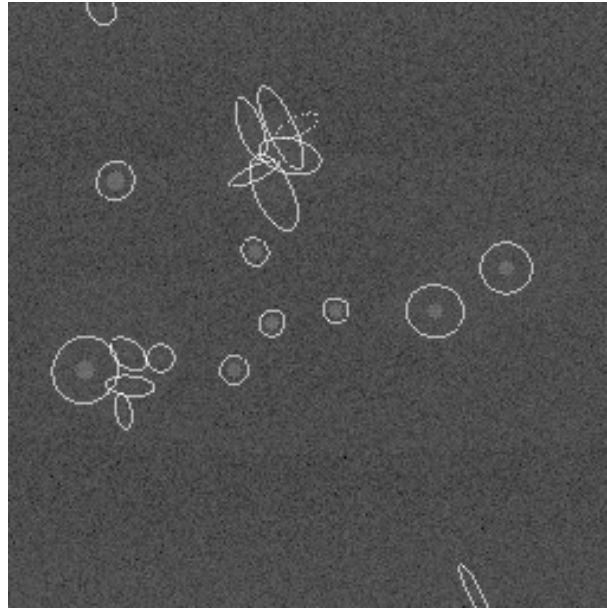
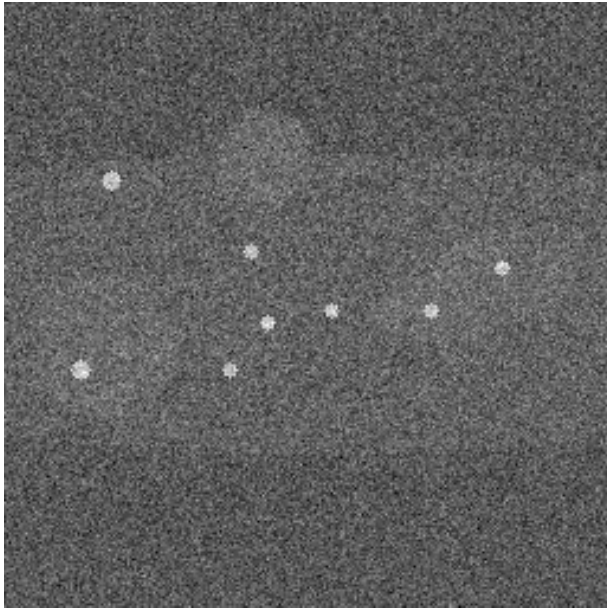
Two stages



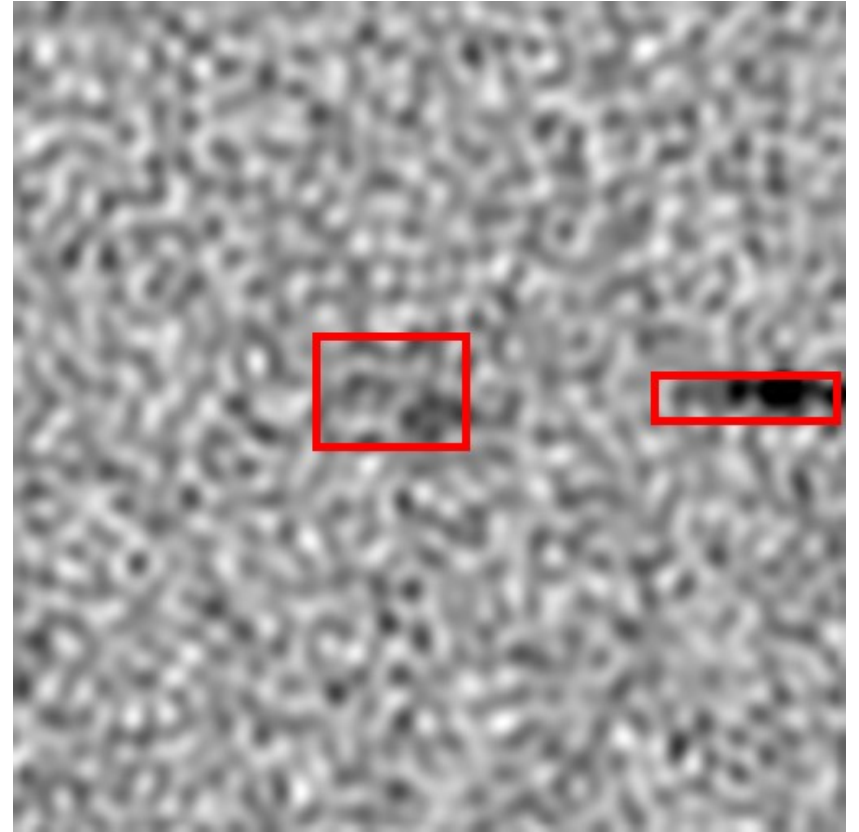
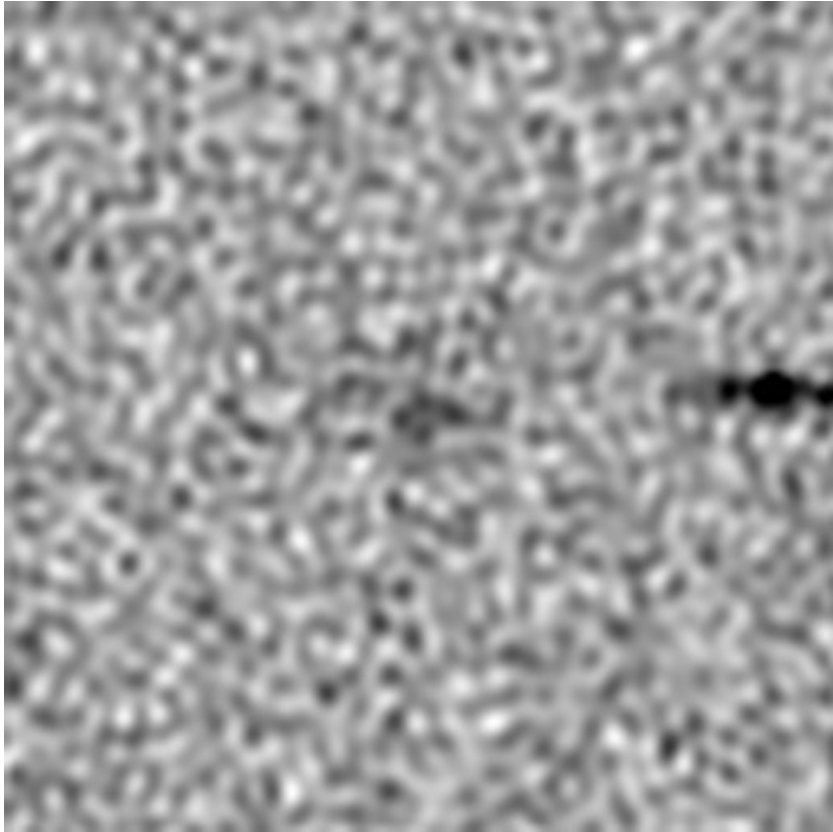
Non-Gaussian pixel statistics



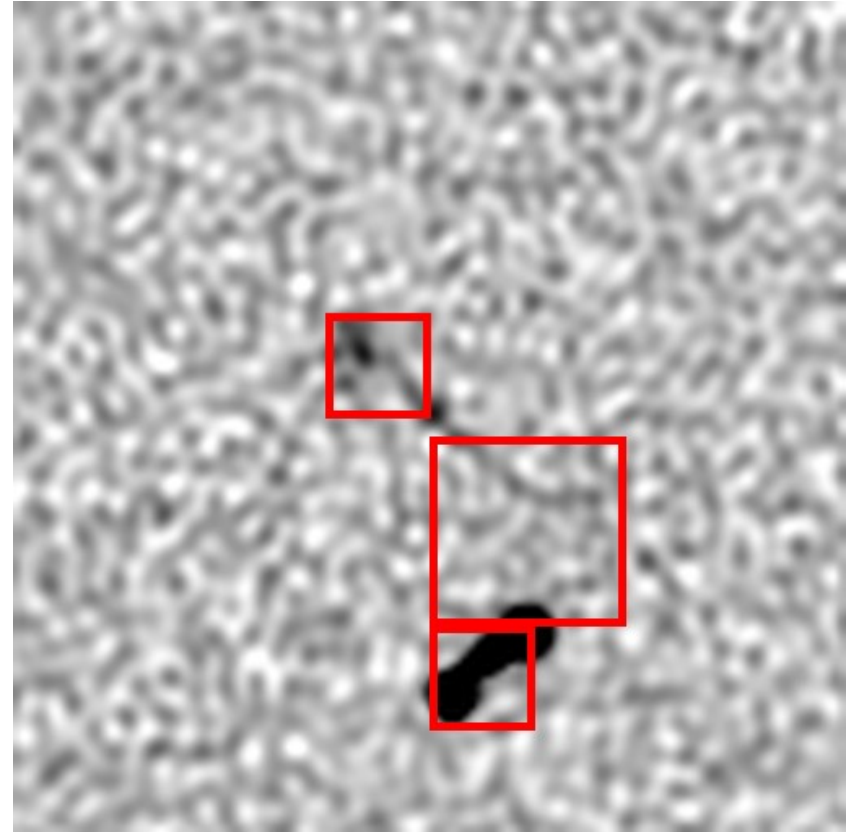
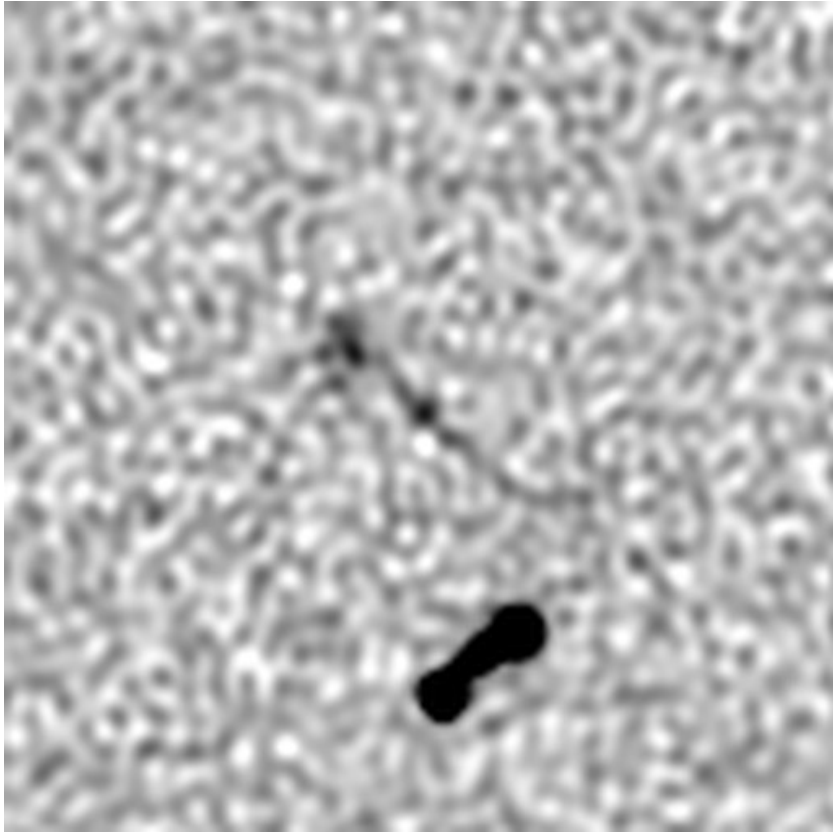
Complex nested data



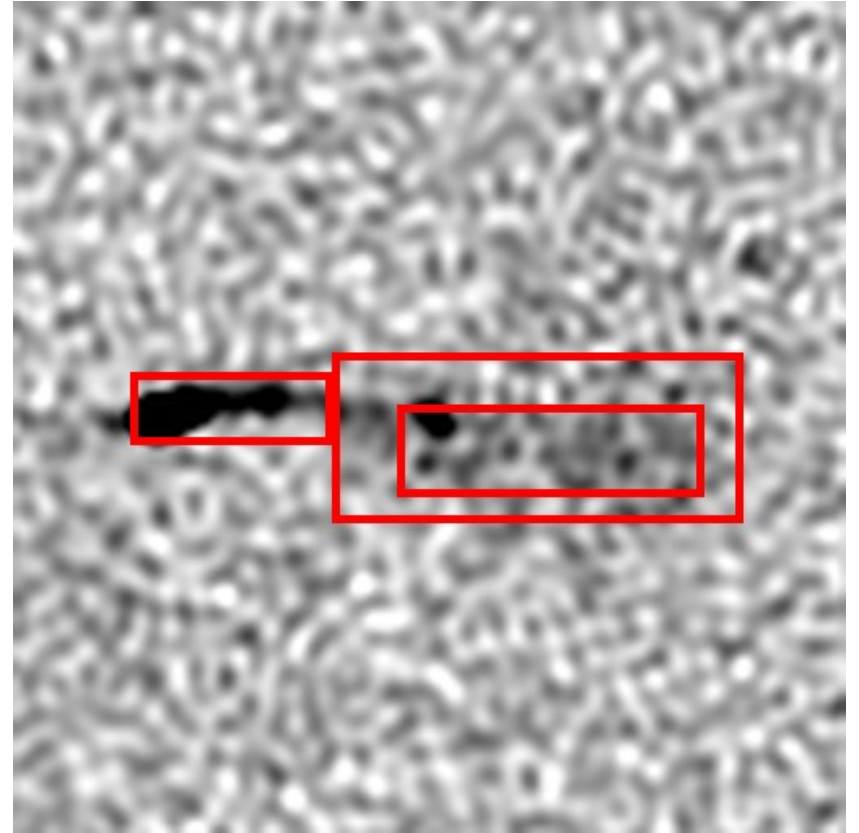
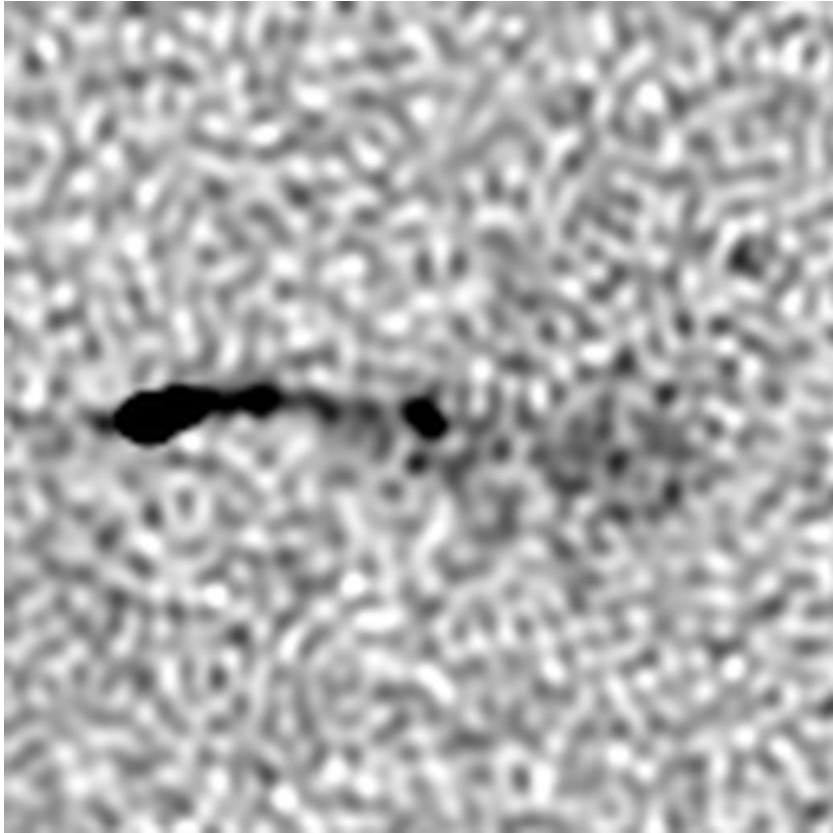
ATLBS examples



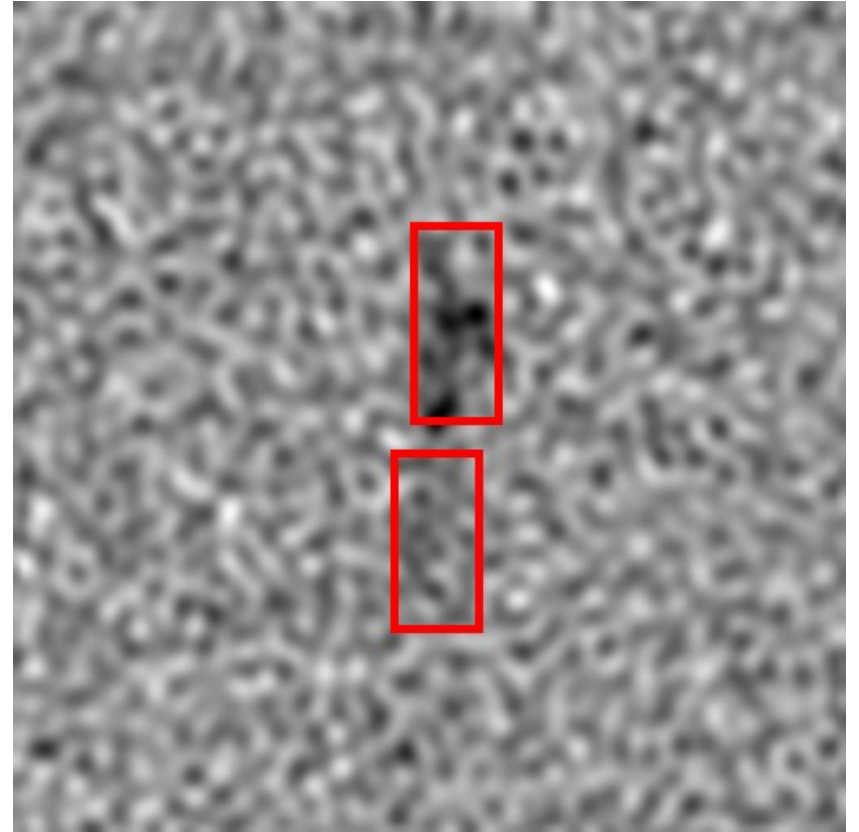
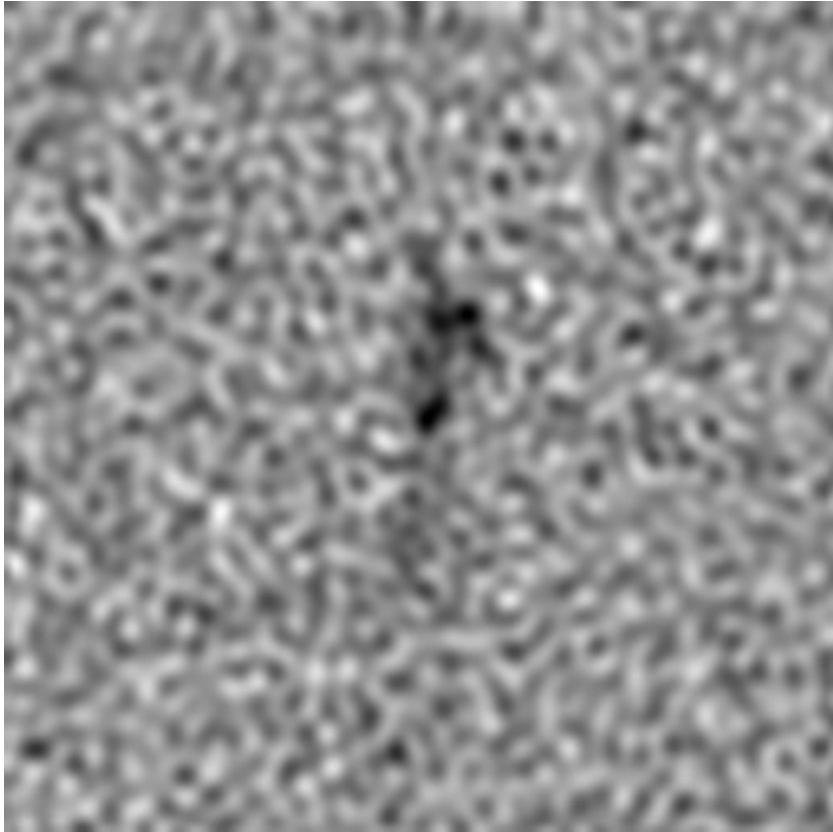
ATLBS examples

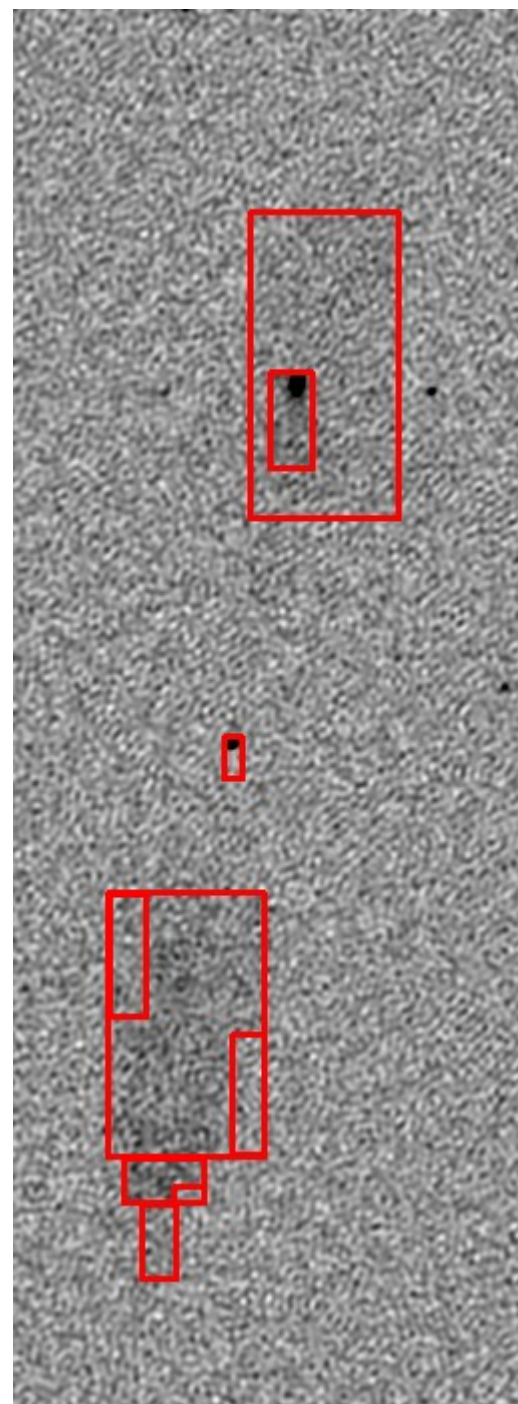
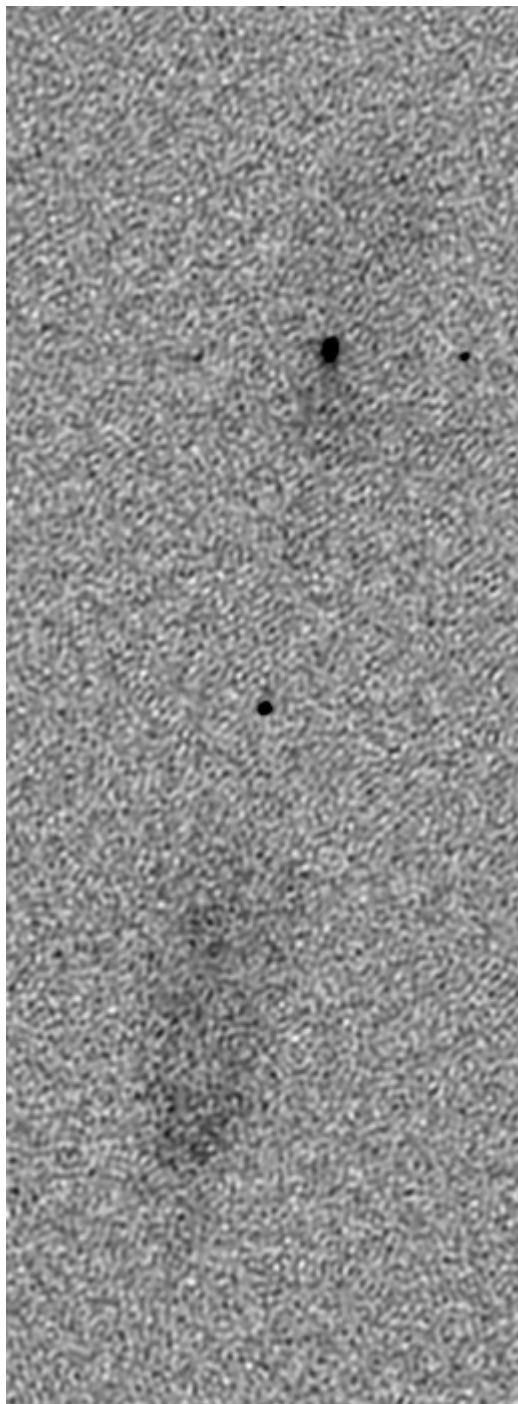


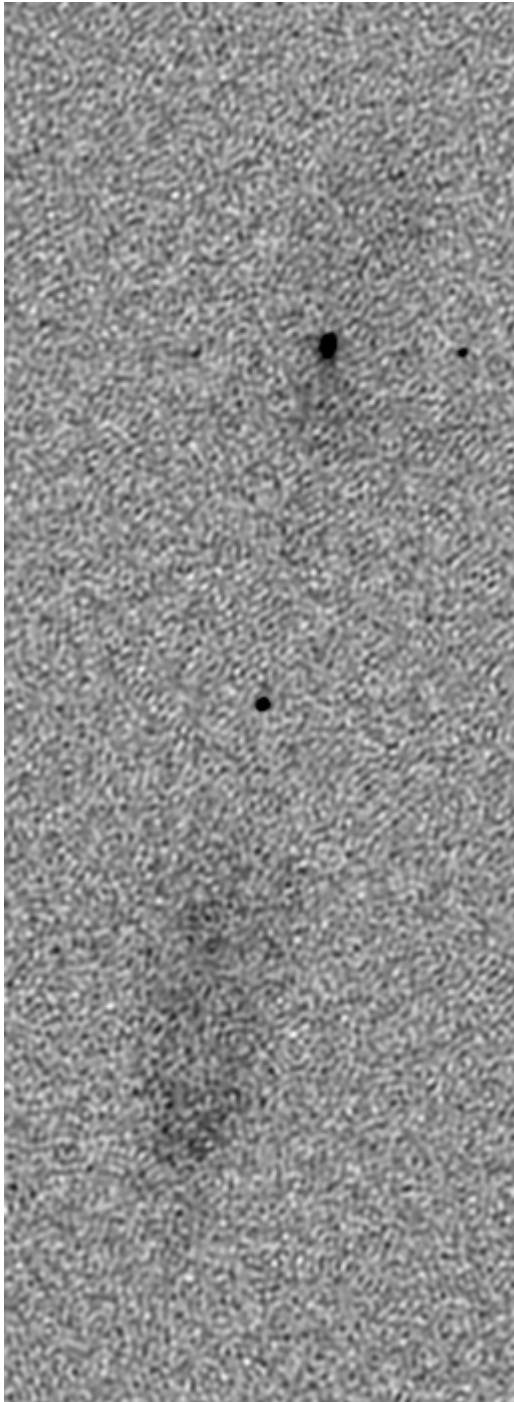
ATLBS examples



ATLBS examples







Oddity:

- dim, extended sources
- scalable
- robust
- very few assumptions about the data
- returns bounding boxes
- handles nested sources
- minimal parameter tweaking

