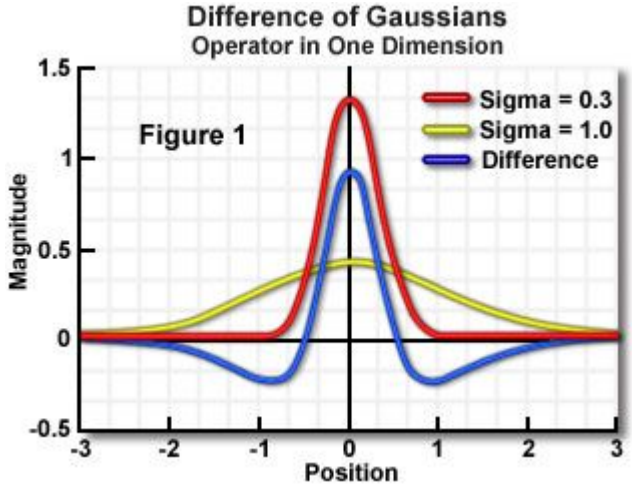
C++ for Computer Vision

Using OpenCV - Lecture 8

Difference of Gaussians (DoG) as an edge enhancer

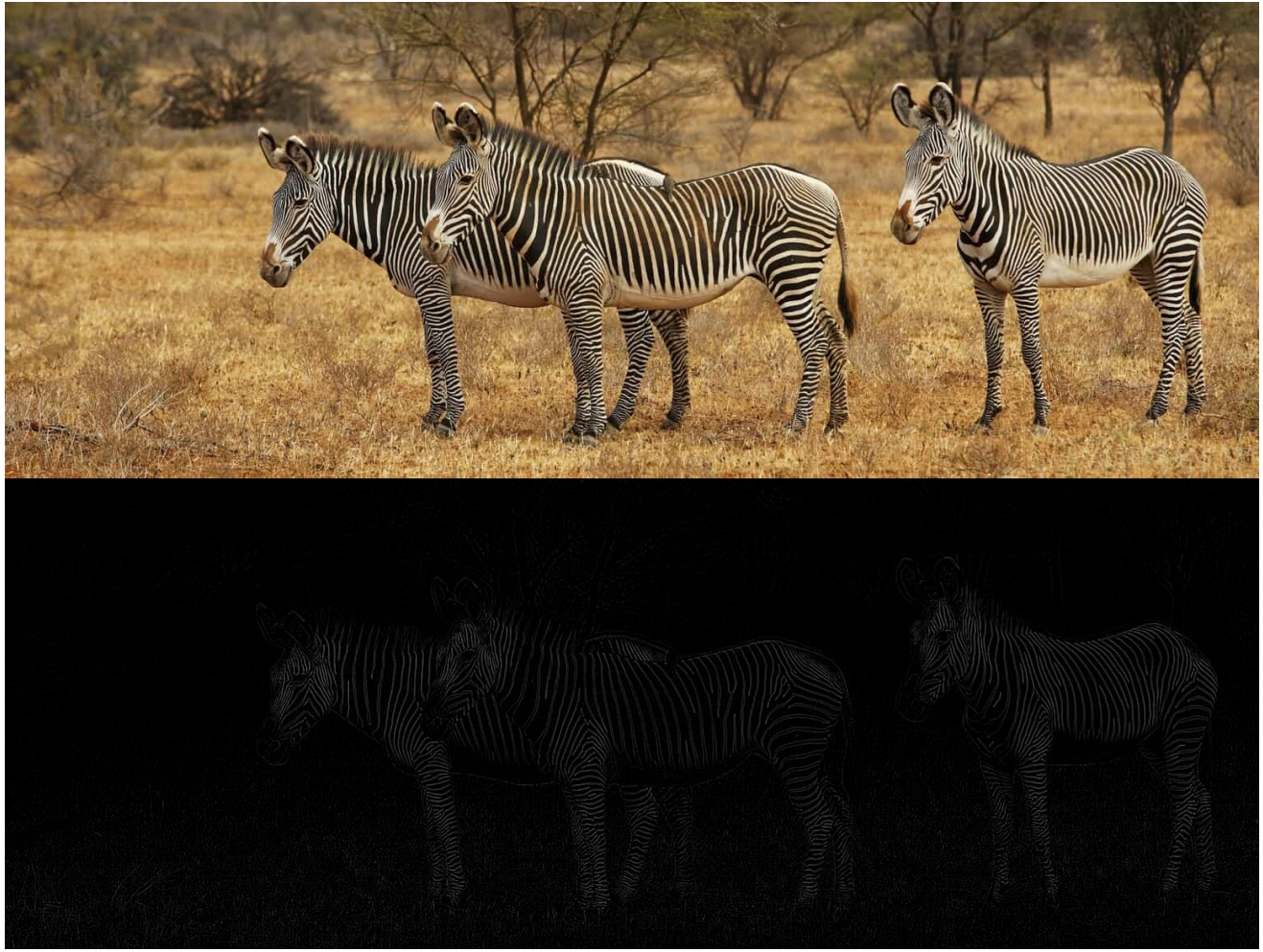
- Due to mathematical properties of Gaussian blur…
- Edge enhancing and noise reduction can be achieved easily
- By subtracting Gaussians at different levels from each other

```
GaussianBlur(src, g1, Size(1, 1), 0);
GaussianBlur(src, g2, Size(5, 5), 0);
subtract(g1, g2, dog);
```



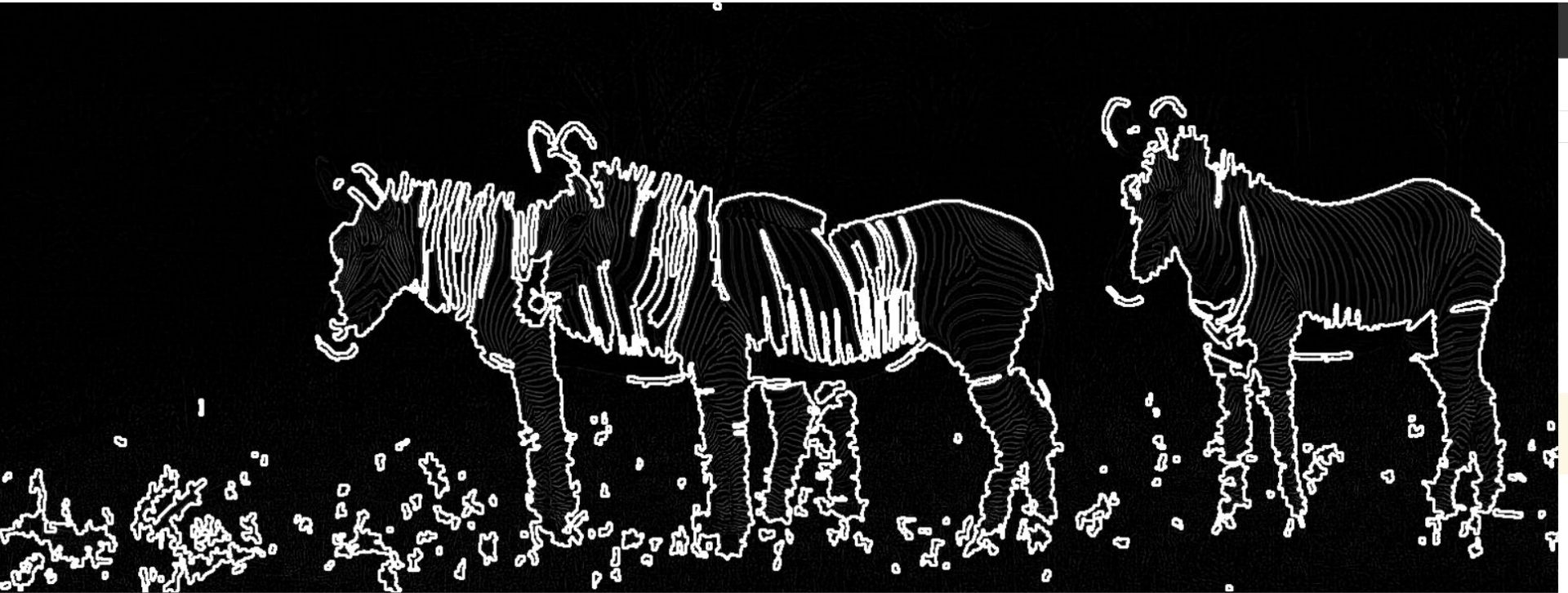
How DoG looks

- - Noise
- + Edges



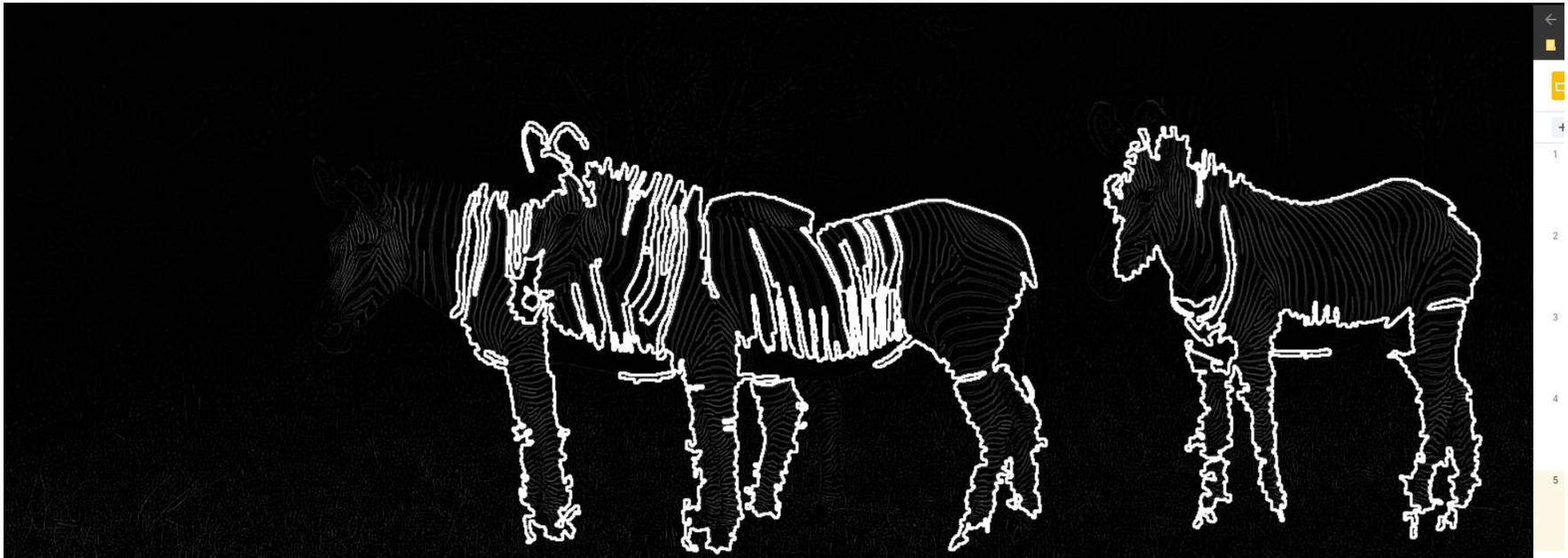
DoG use case: Wildlife detection and tracking

- Create contours from DoG using just Canny, dilation and findcontours():



Now filter by area…

- Only contours > 12000 in area
- Exactly 3 contours found - therefore works as counter
- Unoptimized program uses only 13MB RAM without resize!



Code

- Code is in the updated detectors.h and filters.h
- Run first DoG, then run getContourAreas() to get results shown in slides
- Lecturer shows in class