SIFT FOR IMAGE STITCHING

Nazariy Bachynsky

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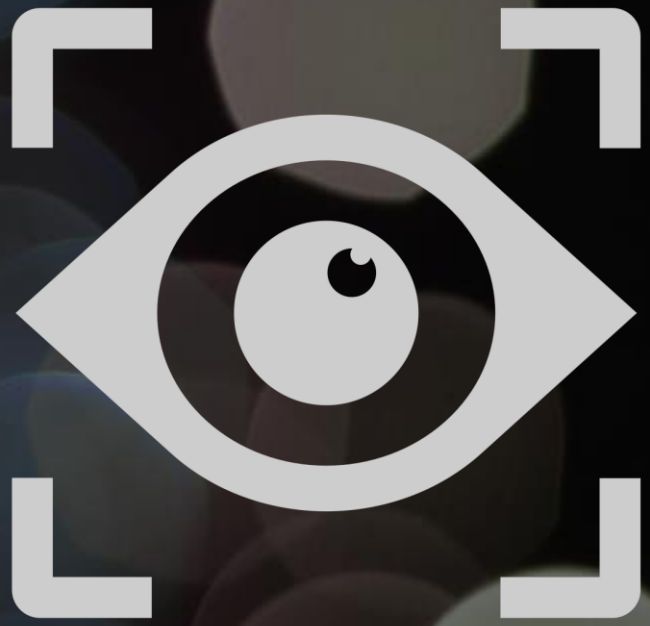

DO SOMETHING WITH IMAGES...

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IMAGE STITCHING

Image stitching or photo stitching is the process of combining multiple photographic images with overlapping fields of view to produce a segmented panorama or high-resolution image

(a) Image 1

(b) Image 2

(c) SIFT matches 1

(d) SIFT matches 2

(e) RANSAC inliers 1

(f) RANSAC inliers 2

(g) Images aligned according to a homography

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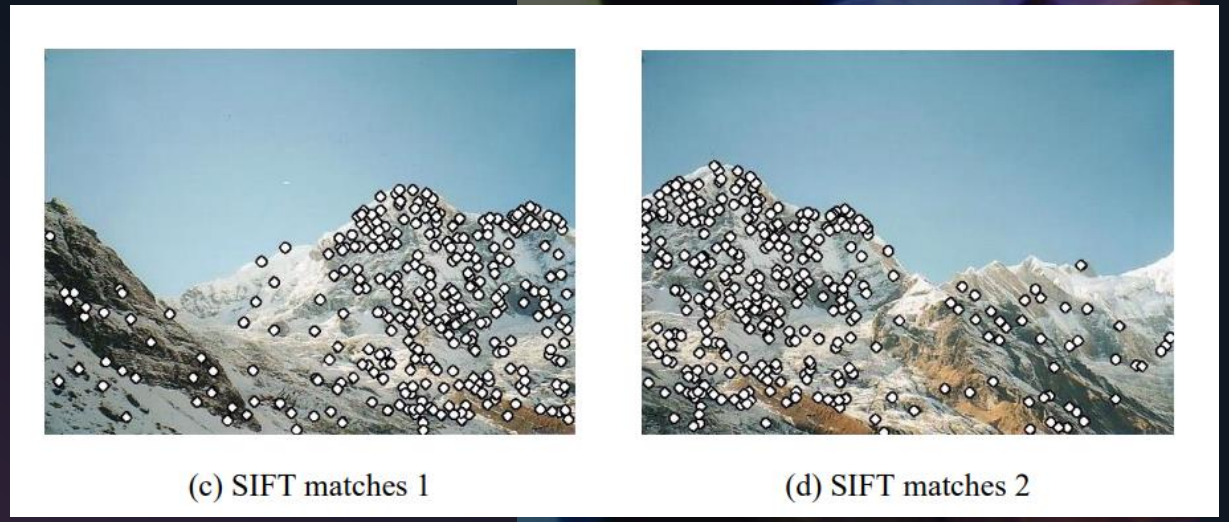
SIFT

Scale Invariant Feature Transform

- Scale-space extrema detection
- Keypoint localization
- Orientation Assignment
- Keypoint Descriptor



(c) SIFT matches 1

(d) SIFT matches 2

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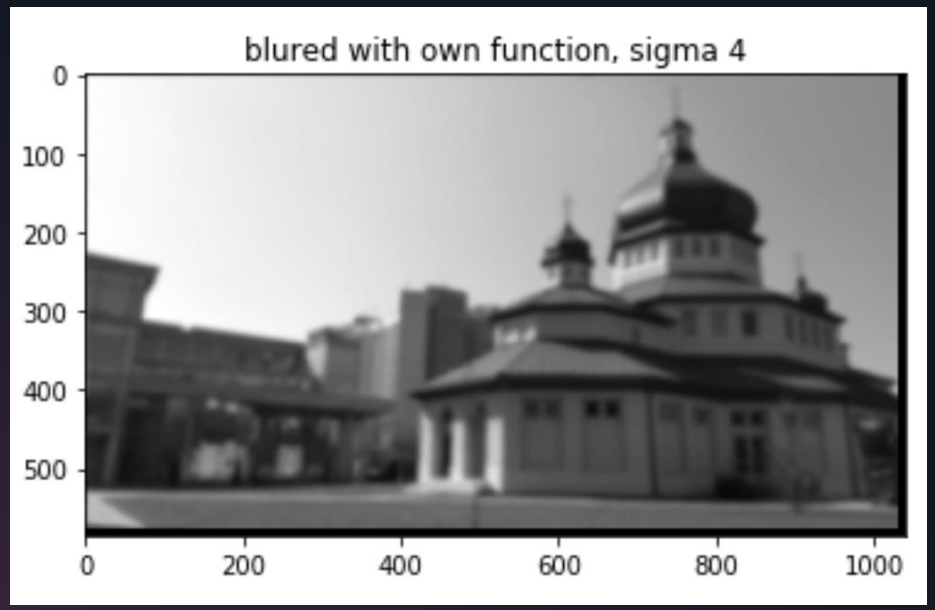
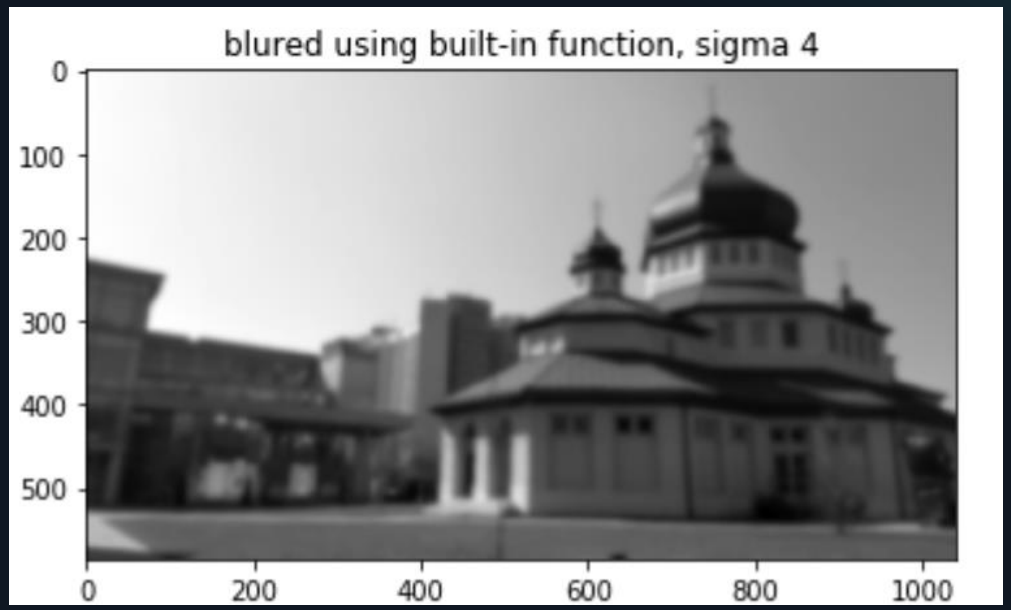
GAUSSIAN BLUR

A little remark





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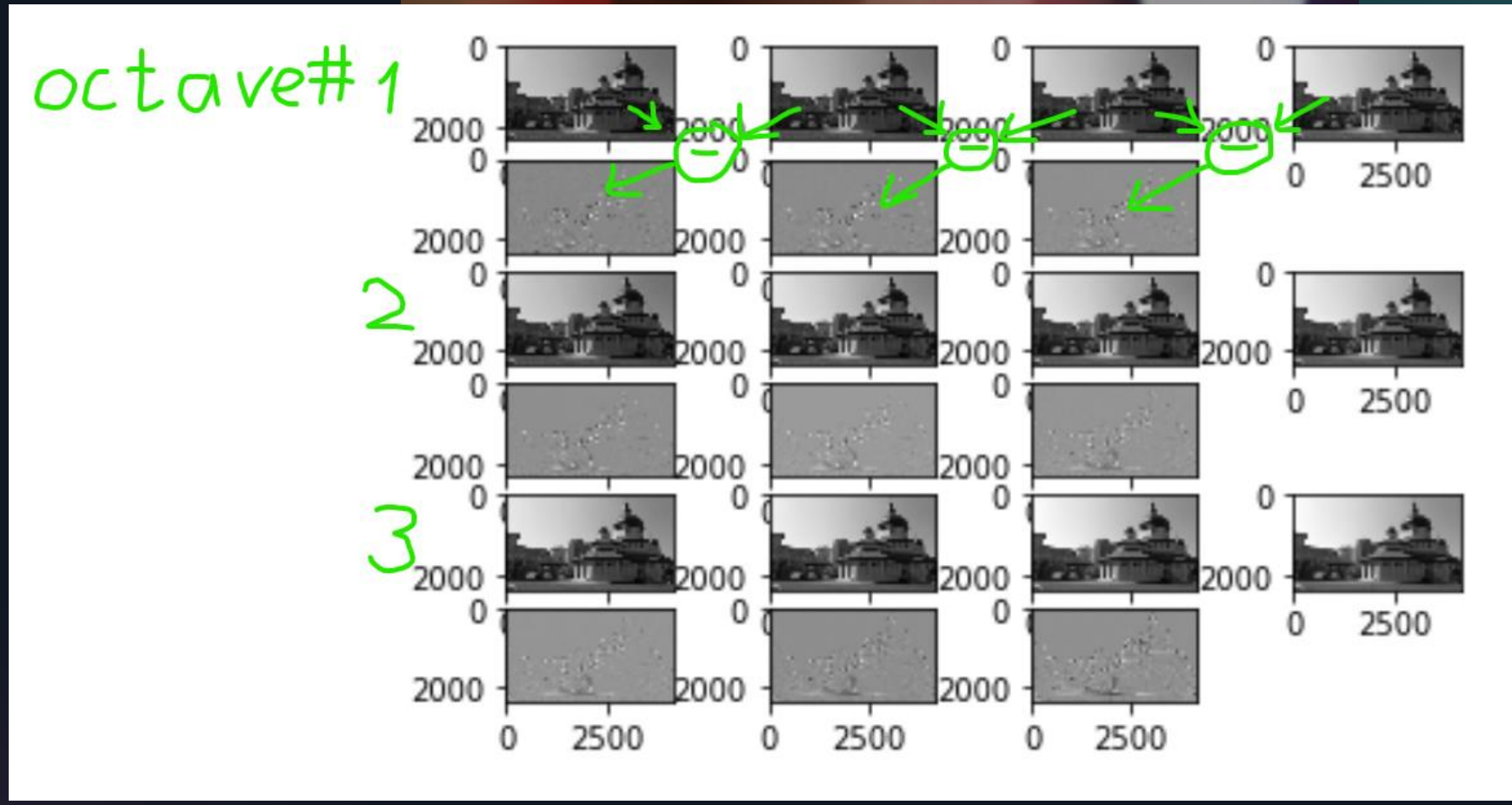
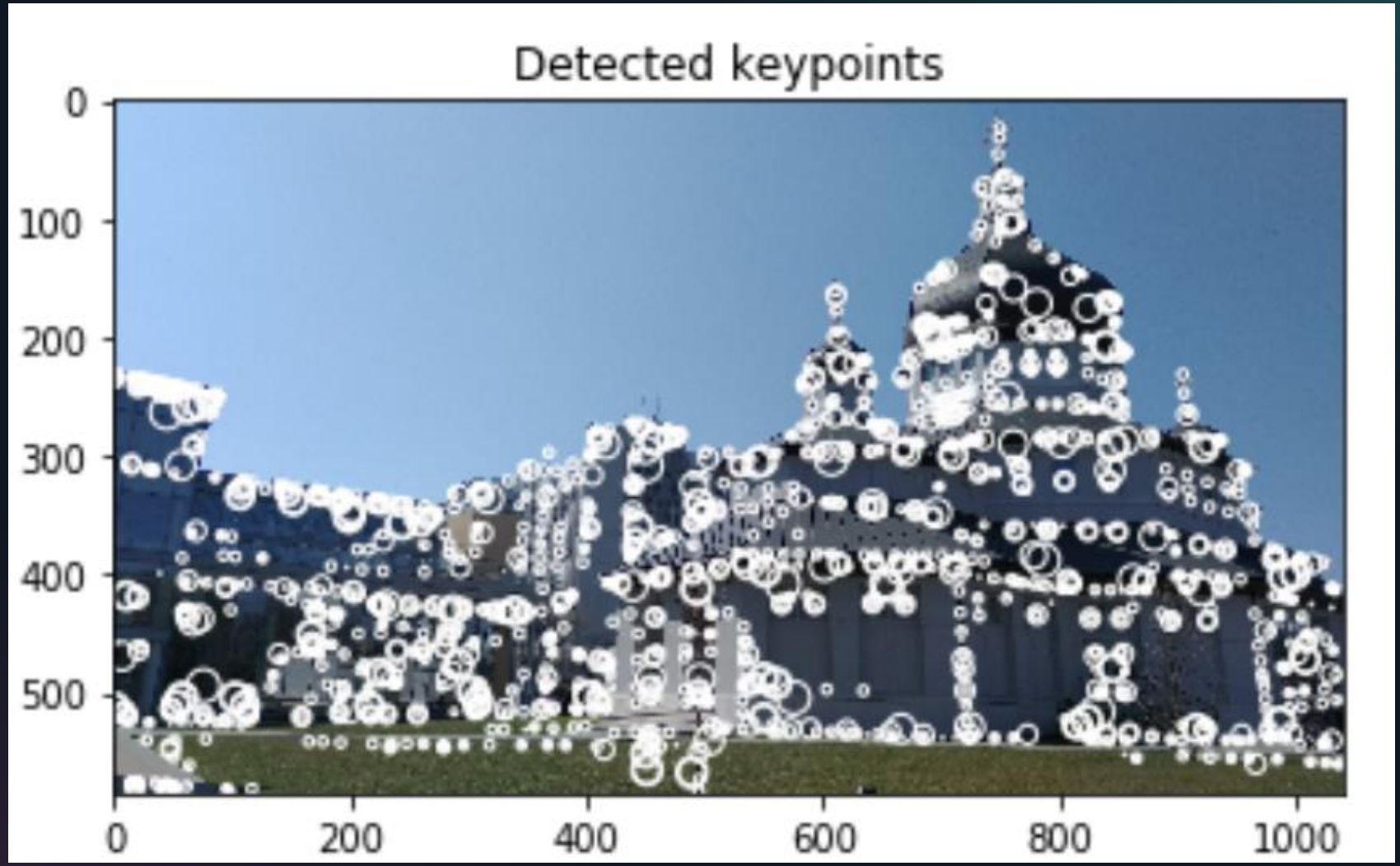
Differences of Gaussians (DoG)




Detected keypoints
0
100
200
300
400
500
0
200
400
600
800
1000

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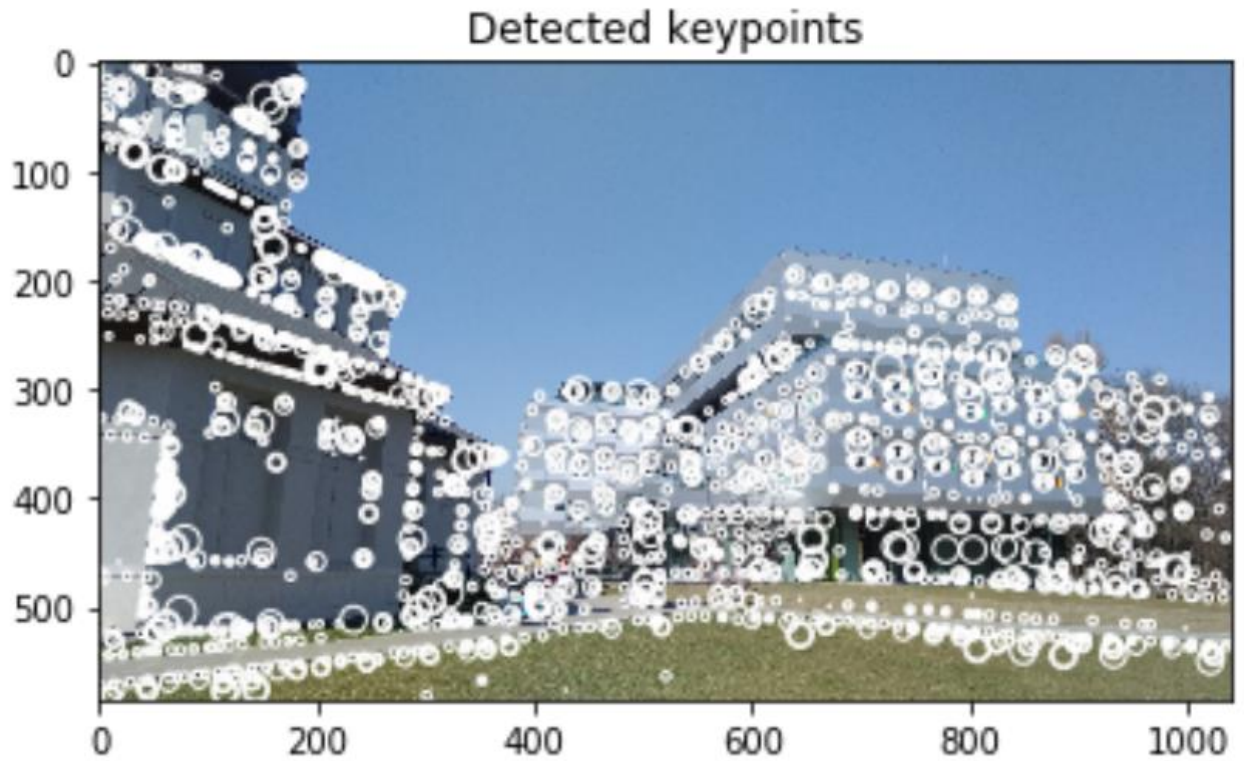

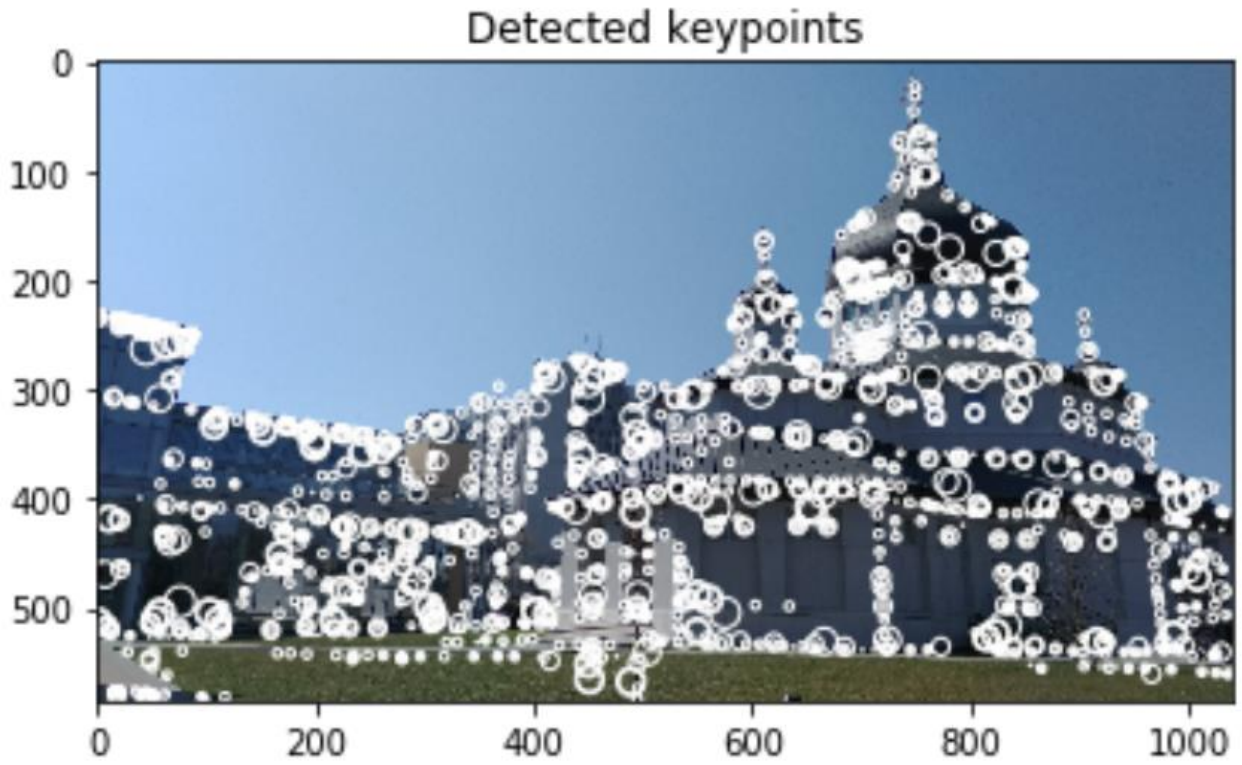

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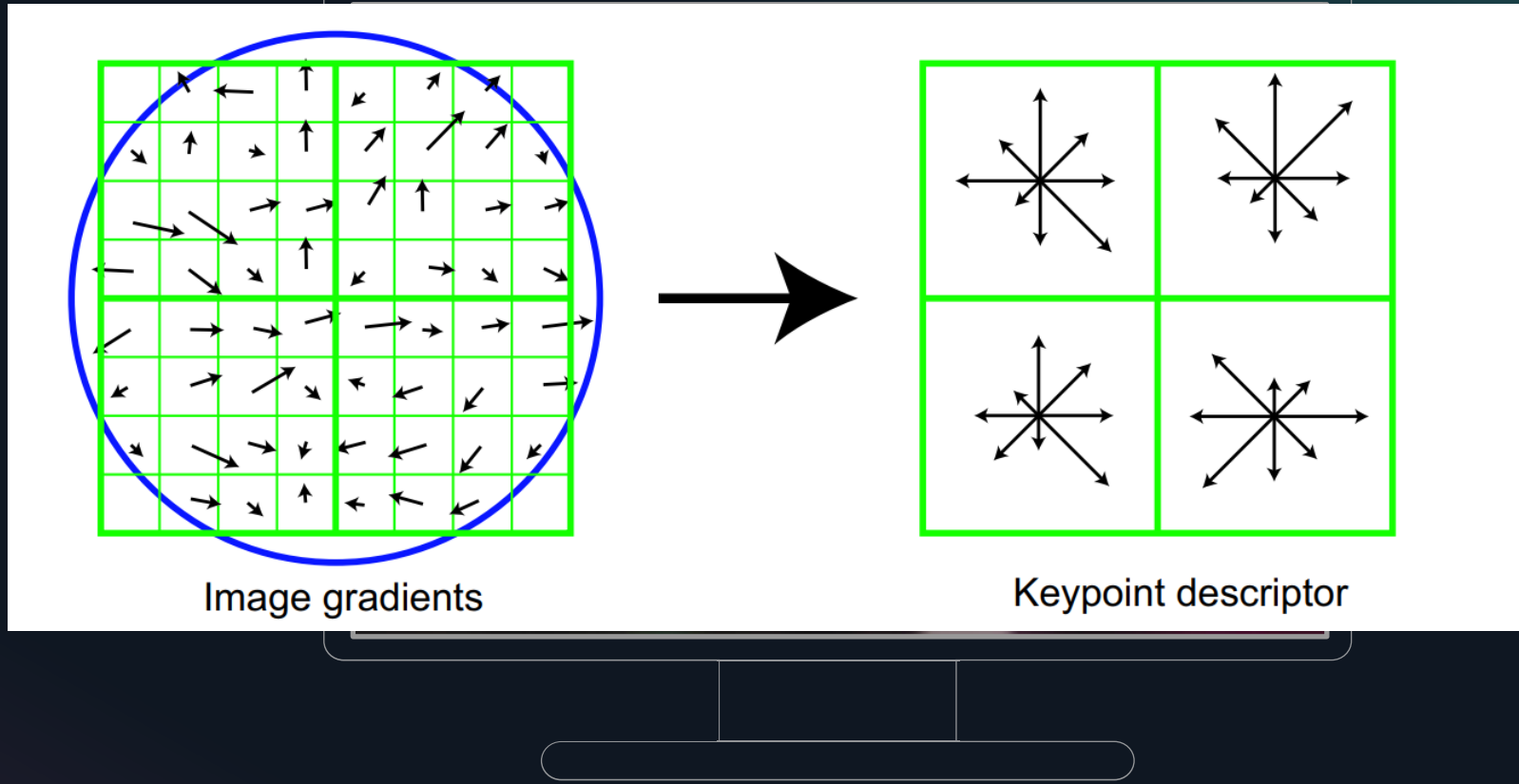
KEYPOINT DESCRIPTOR

Is made from image gradients' magnitudes and orientations



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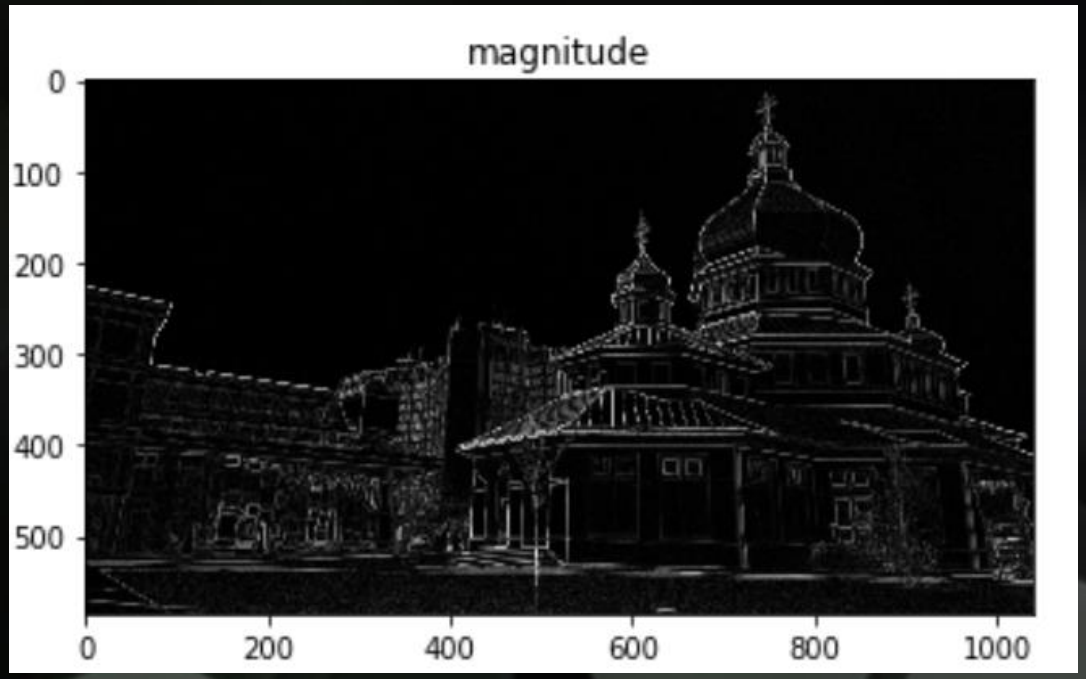
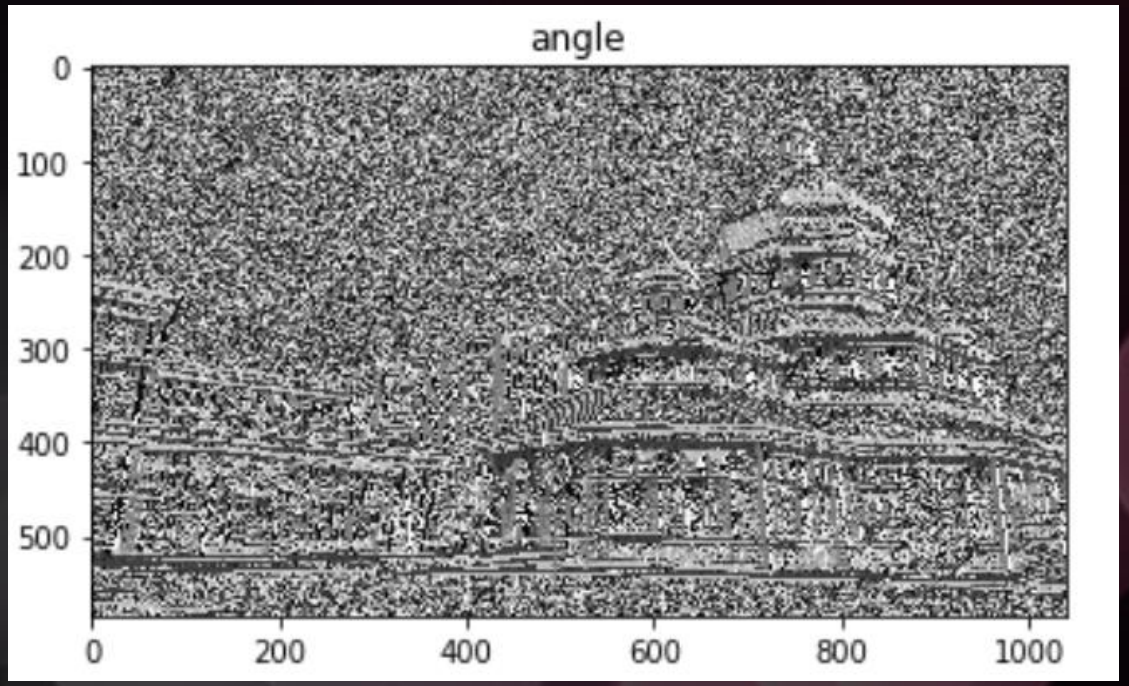
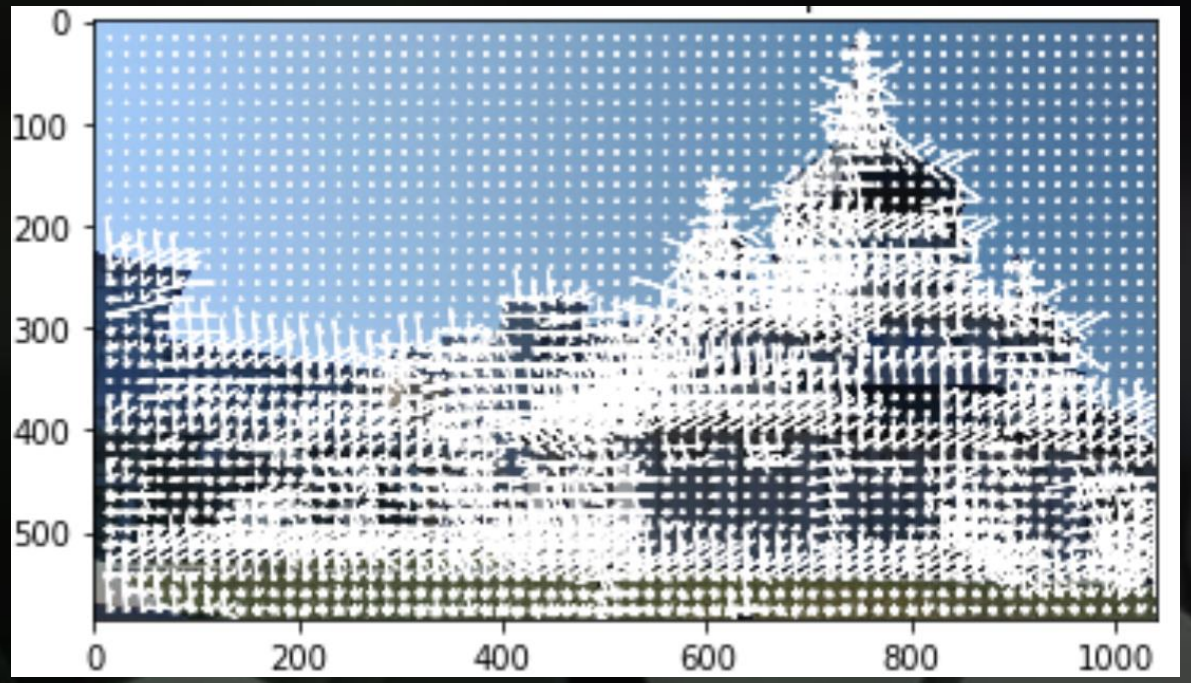
GRADIENTS





GRADIENTS


0
100
200
300
400
500
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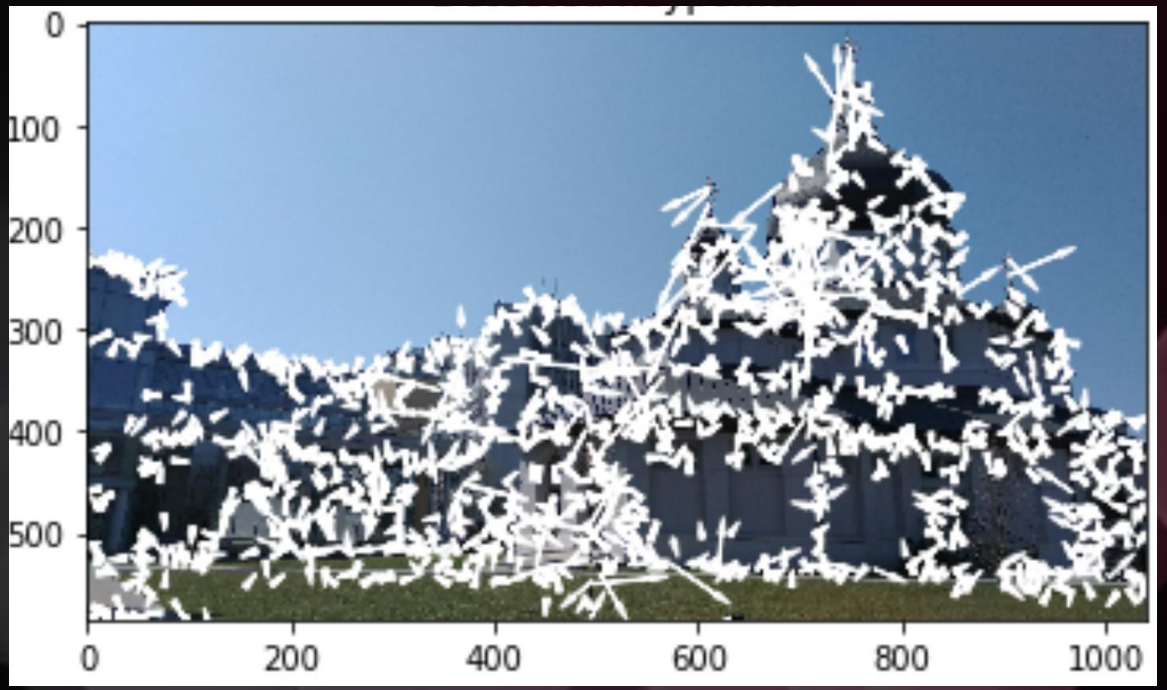
600
800
1000


0
100
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800
1000

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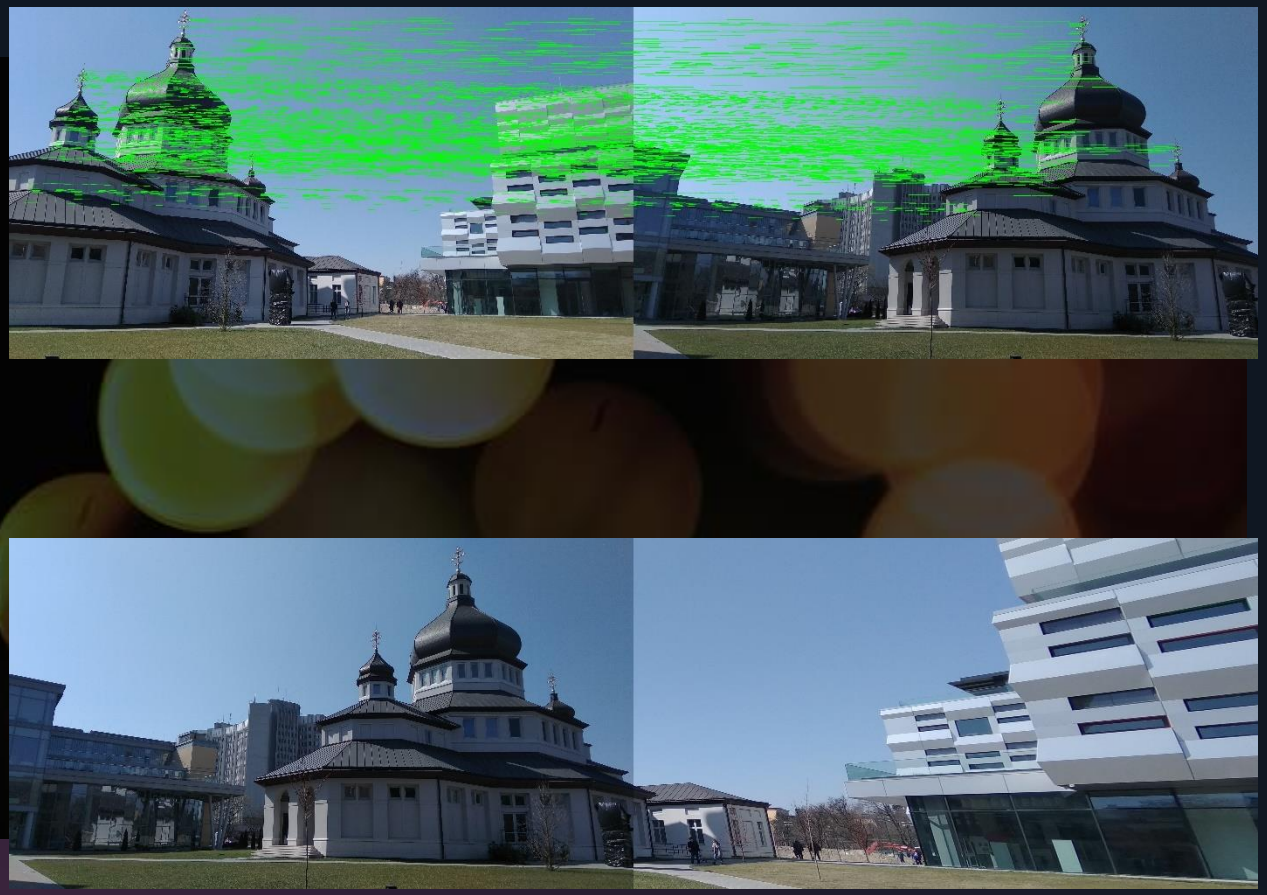
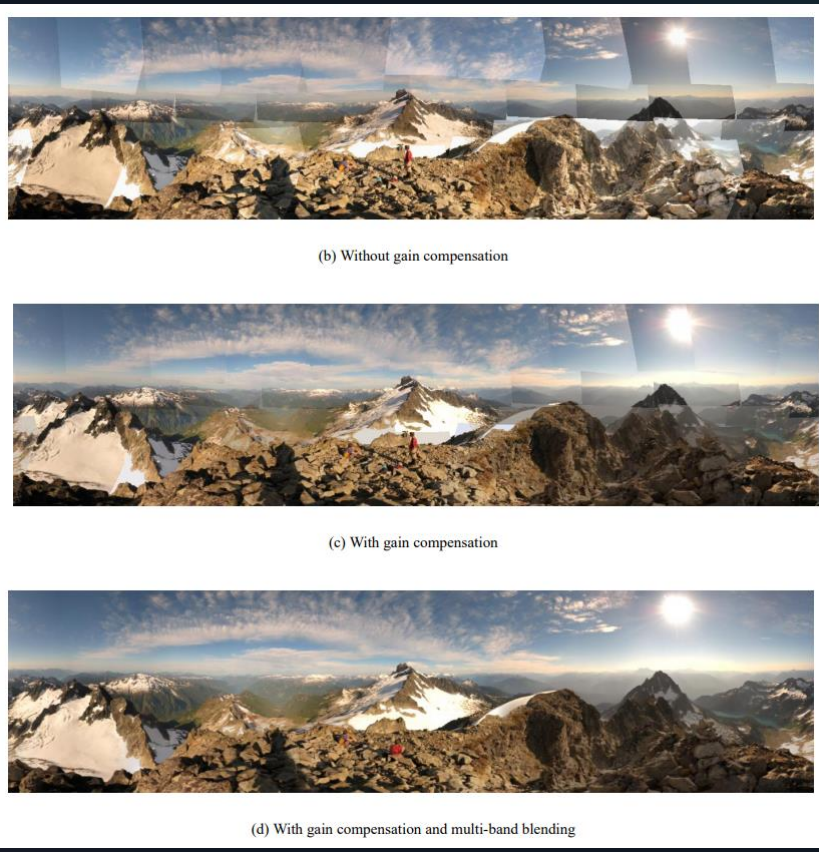
SUMMARY

The next things to do





(b) Without gain compensation

(c) With gain compensation

(d) With gain compensation and multi-band blending

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THORNY WAY

THINGS THAT ARE MADE

March — Gaussian Blur

April — Difference of Gaussians

May — Image gradients

May — Feature Descriptors

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OUR TEAM

Nazariy Bachynsky

Team Core

Does all stuff

Thanks for attention!

Any questions?