

# LOOPIC

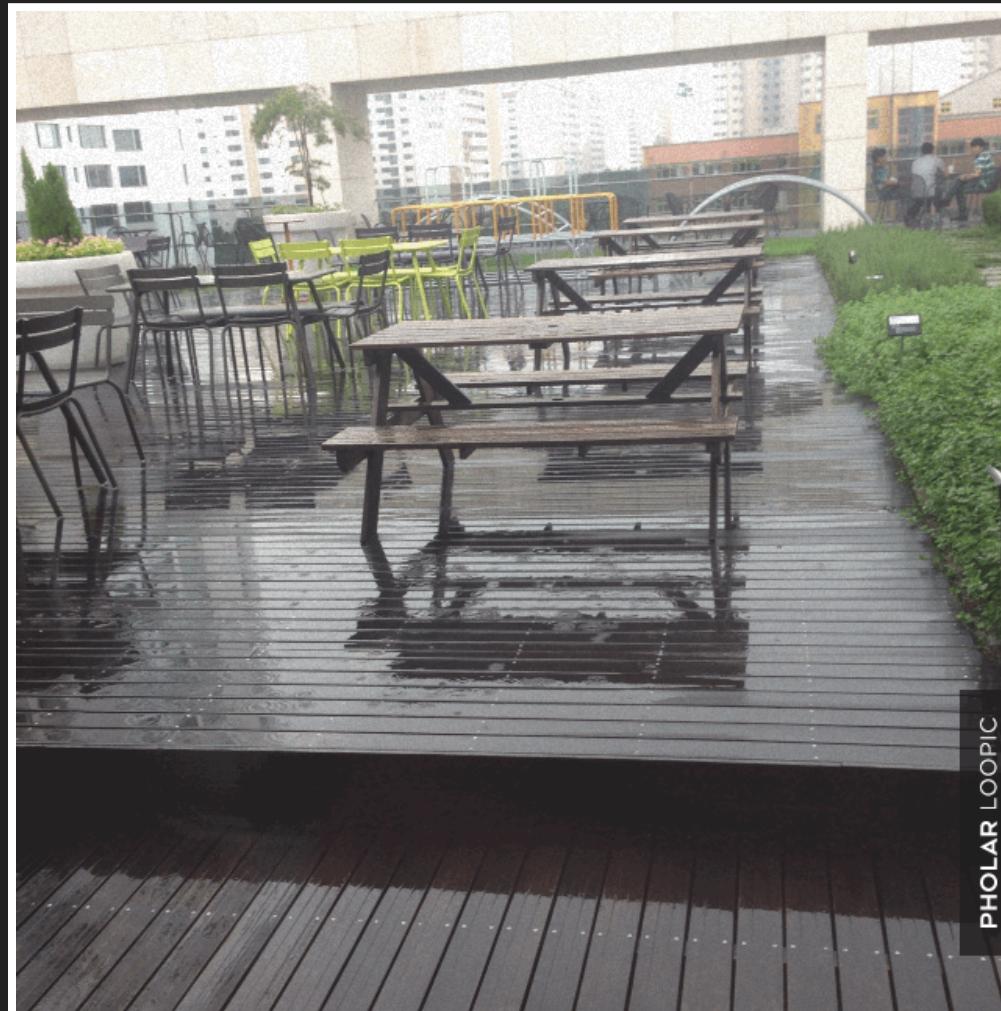
0.25 sec, 6장의 연속사진



PHOLAR LOOPIC

# LOOPIC

... 근데 떨림이 심하다.



# IMAGE STABILIZATION

Hardware, Software



# PROCESS

이미지가 떨린다??

각 이미지가 이동한 만큼 되돌려주면 되지 않는가?

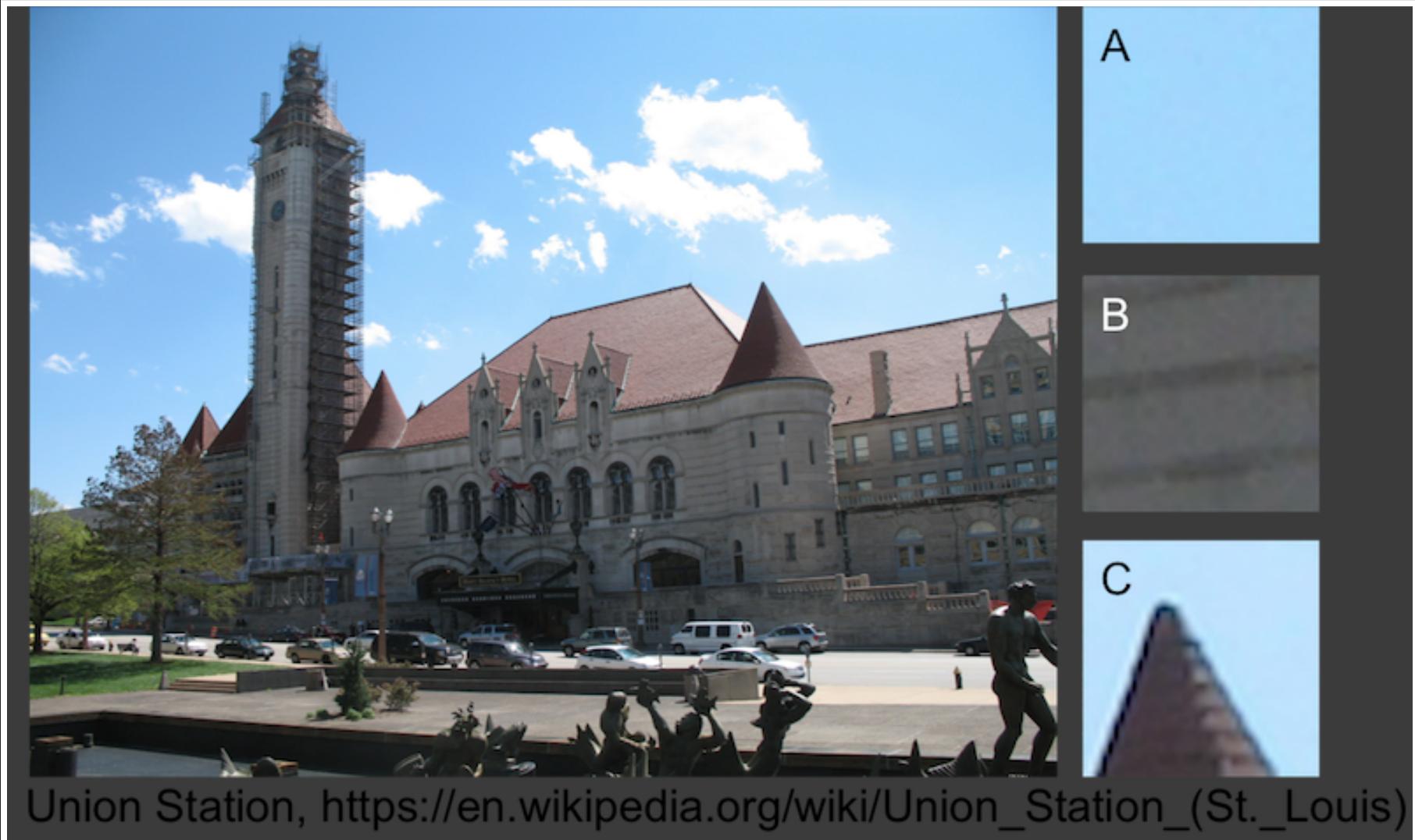
얼마나 이동했는지 어떻게 아는가?

전에 나왔던 것이 다음장에 어디에 나오는지 보면 되지 않나?

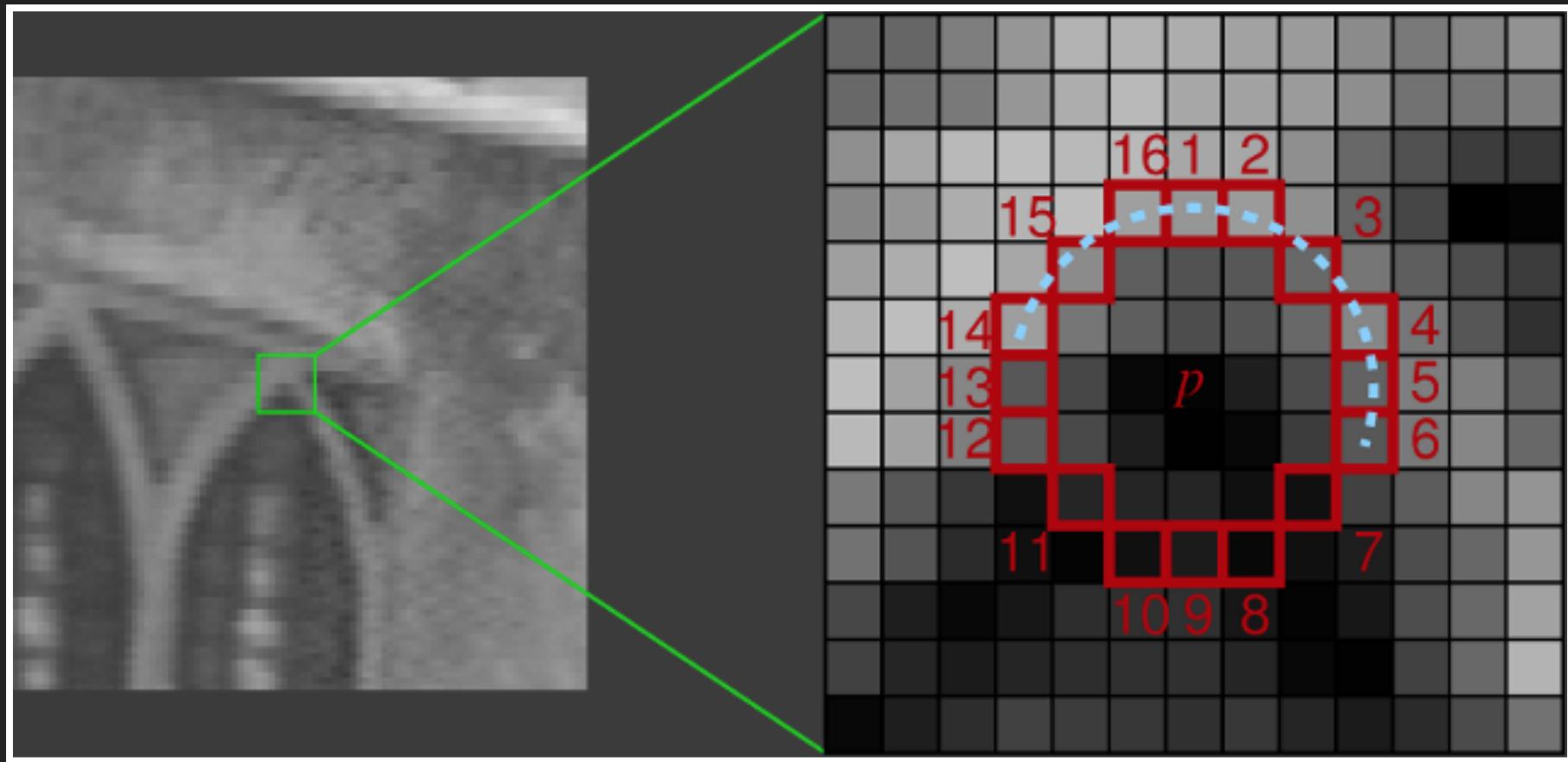
# PROCESS

- 각 이미지에서 특징점을 뽑는다.
- 특징점들 중 같은 특징점을 찾는다.
- 같은 특징점들이 얼마나 이동했나를 가지고 이동을 추정 (estimate) 한다

# 특징점 뽑기(FEATURE EXTRACTION)

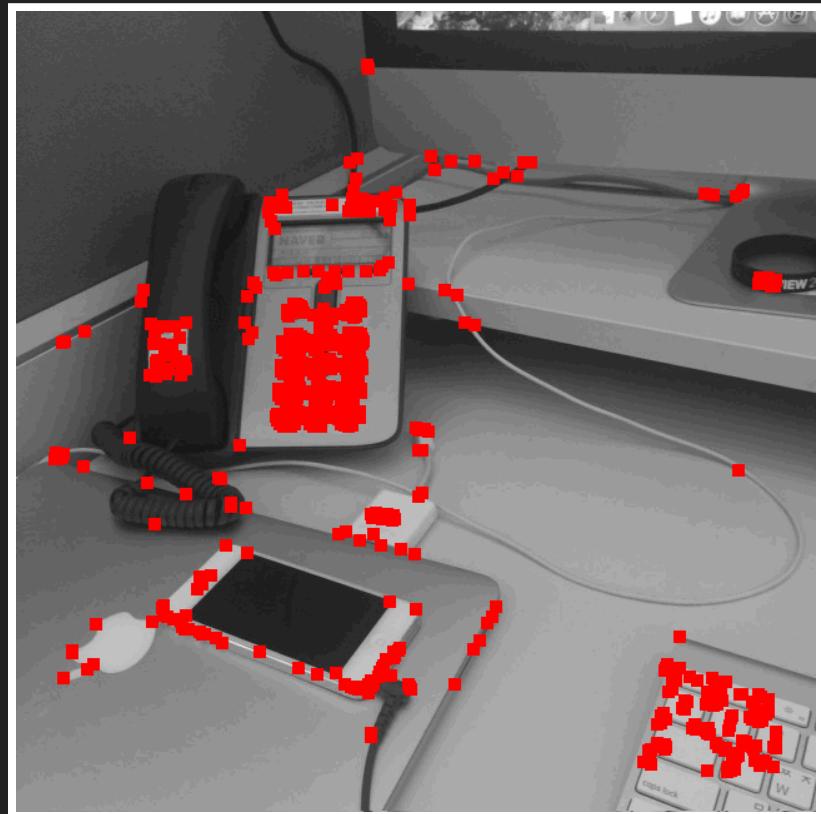


# FEATURES FROM ACCELERATED SEGMENT TEST(FAST)



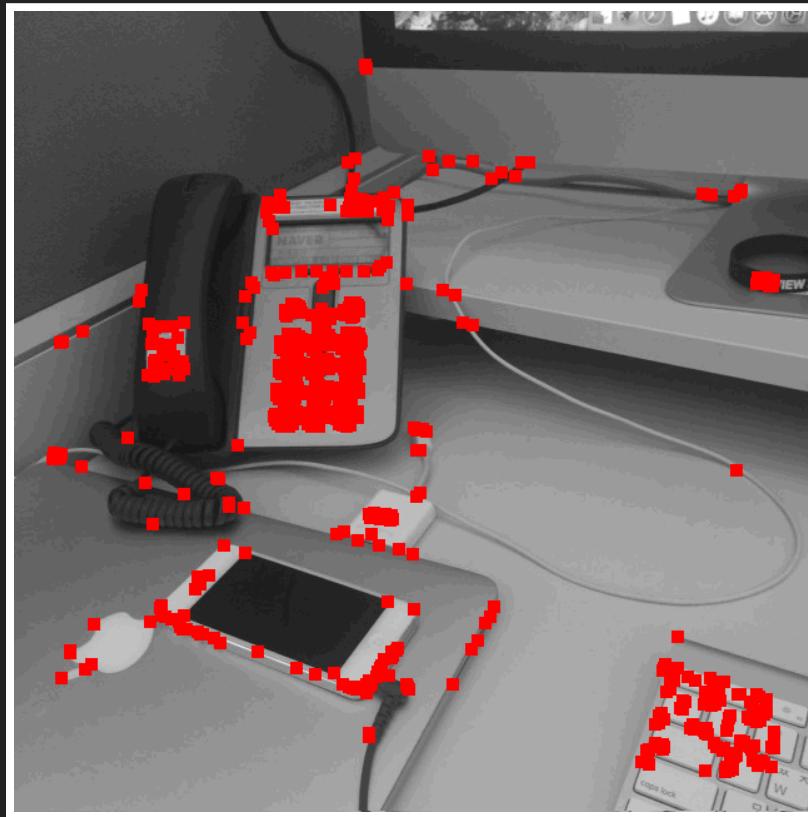
FAST-9, FAST-12

# FEATURE EXTRACTION 결과

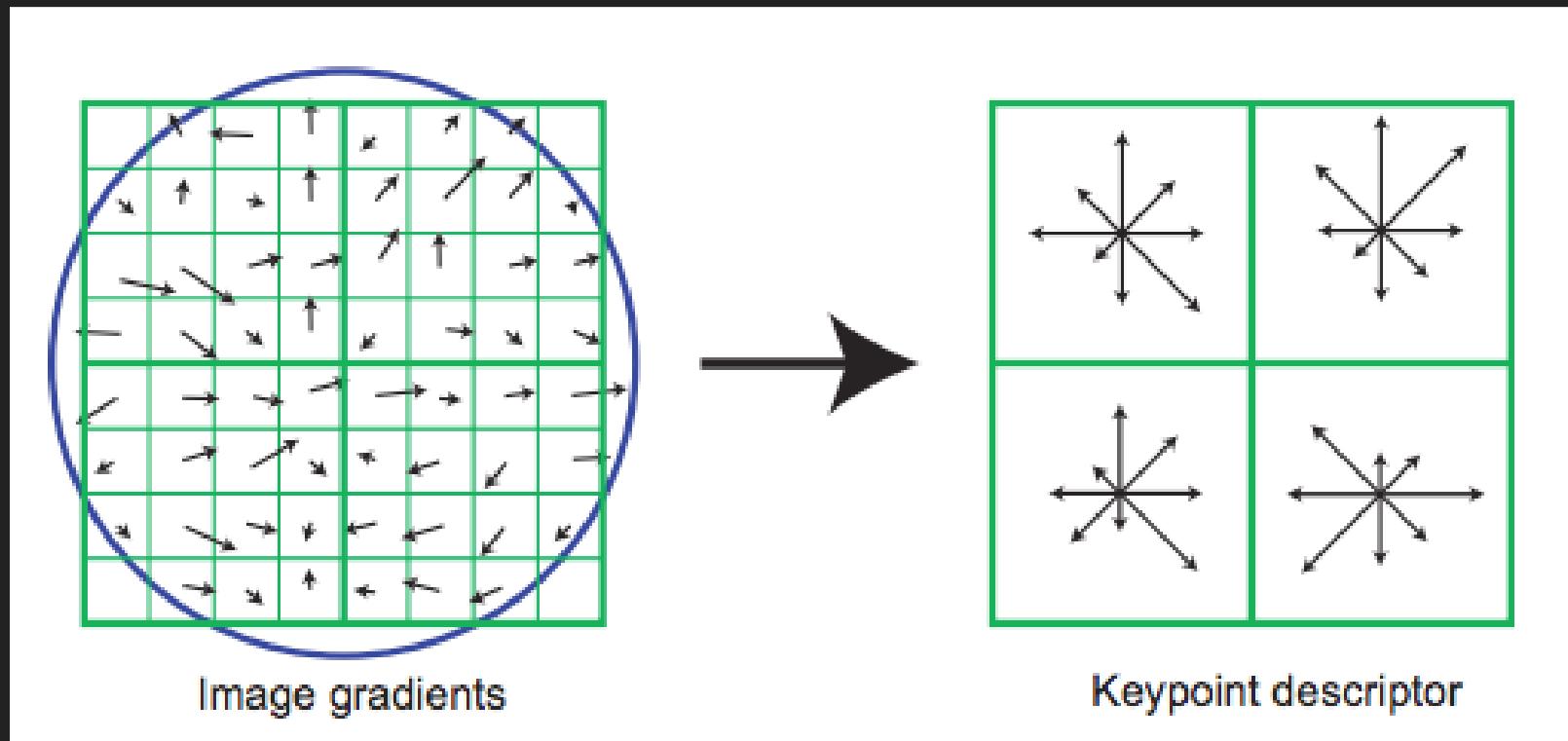


# FEATURE MATCHING

어떤 점이 다음 이미지 들에서 어디에 위치하는가.



# DESCRIPTOR 생성

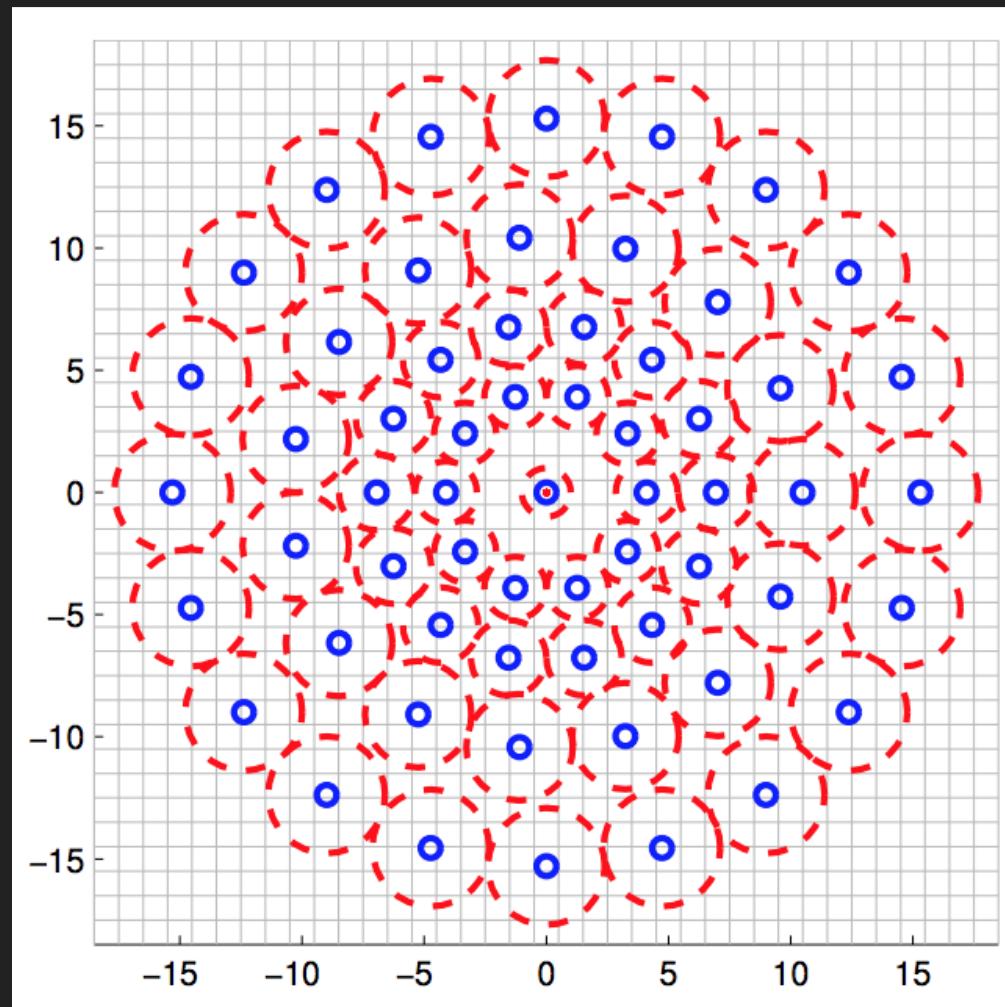


(SIFT Descriptor, Lowe 2004)

SIFT라는걸 구해서 쓰자.....?

특허가 있음. 일단 더 가벼운 BRISK라는걸 써보자.

# BRISK



BRISK sampling pattern N = 60 points

# FEATURE MATCHING

Descriptor, Euclidean Distance, Mahalanobis Distance, Kd-Tree, Hashing, etc....

# FEATURE MATCHING 결과



# 이제 이미지가 얼마나 이동했는지 찾자.

- 에러 값을 최소로 하는 Geometric transformation matrix.
- Ransac

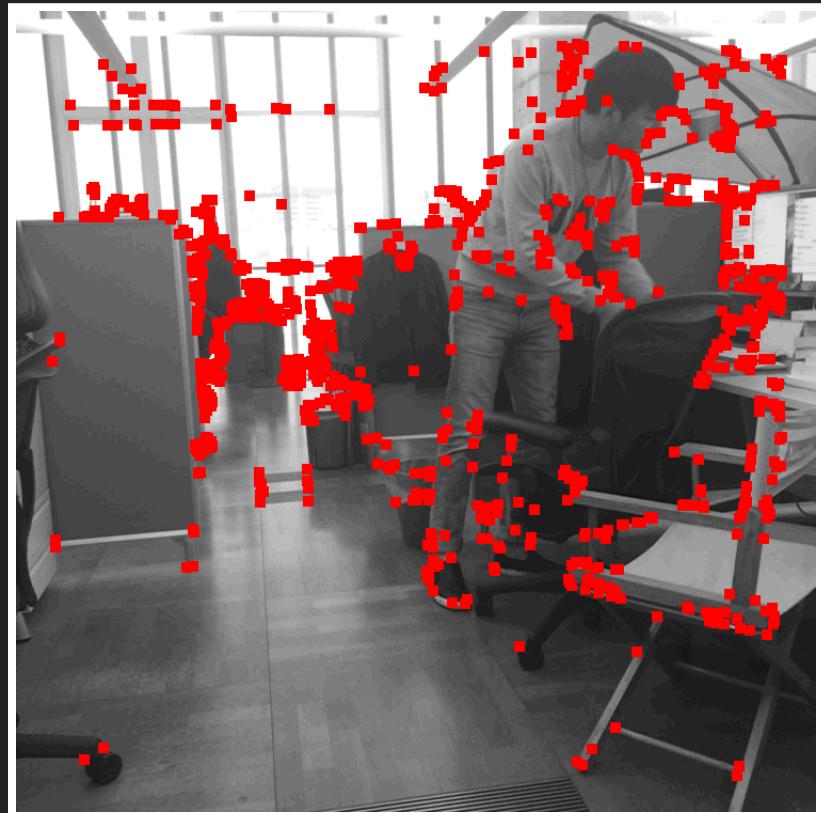
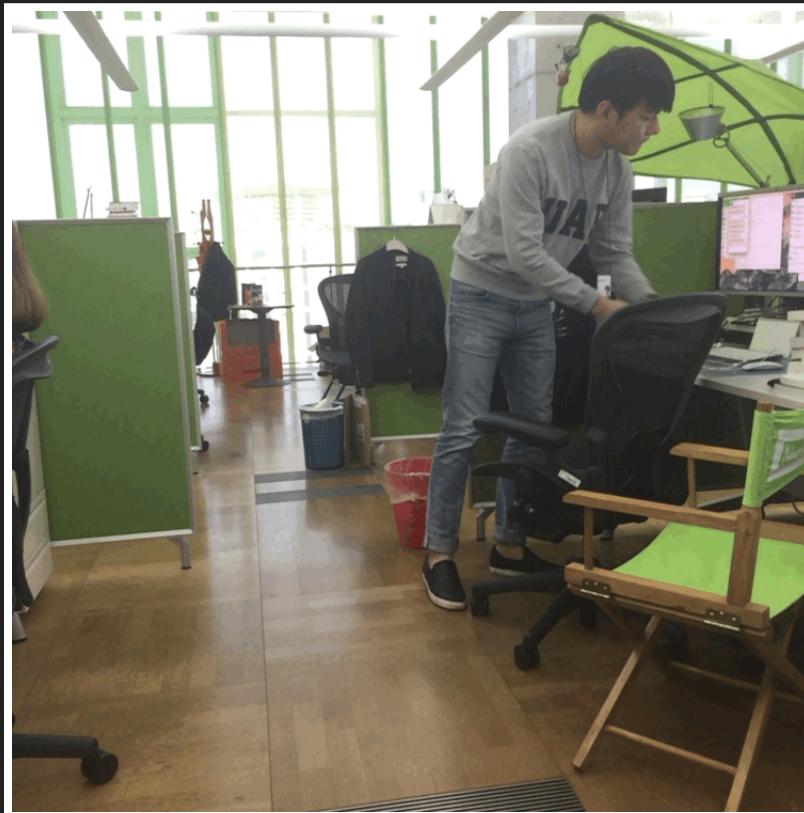
# 여기까지의 결과



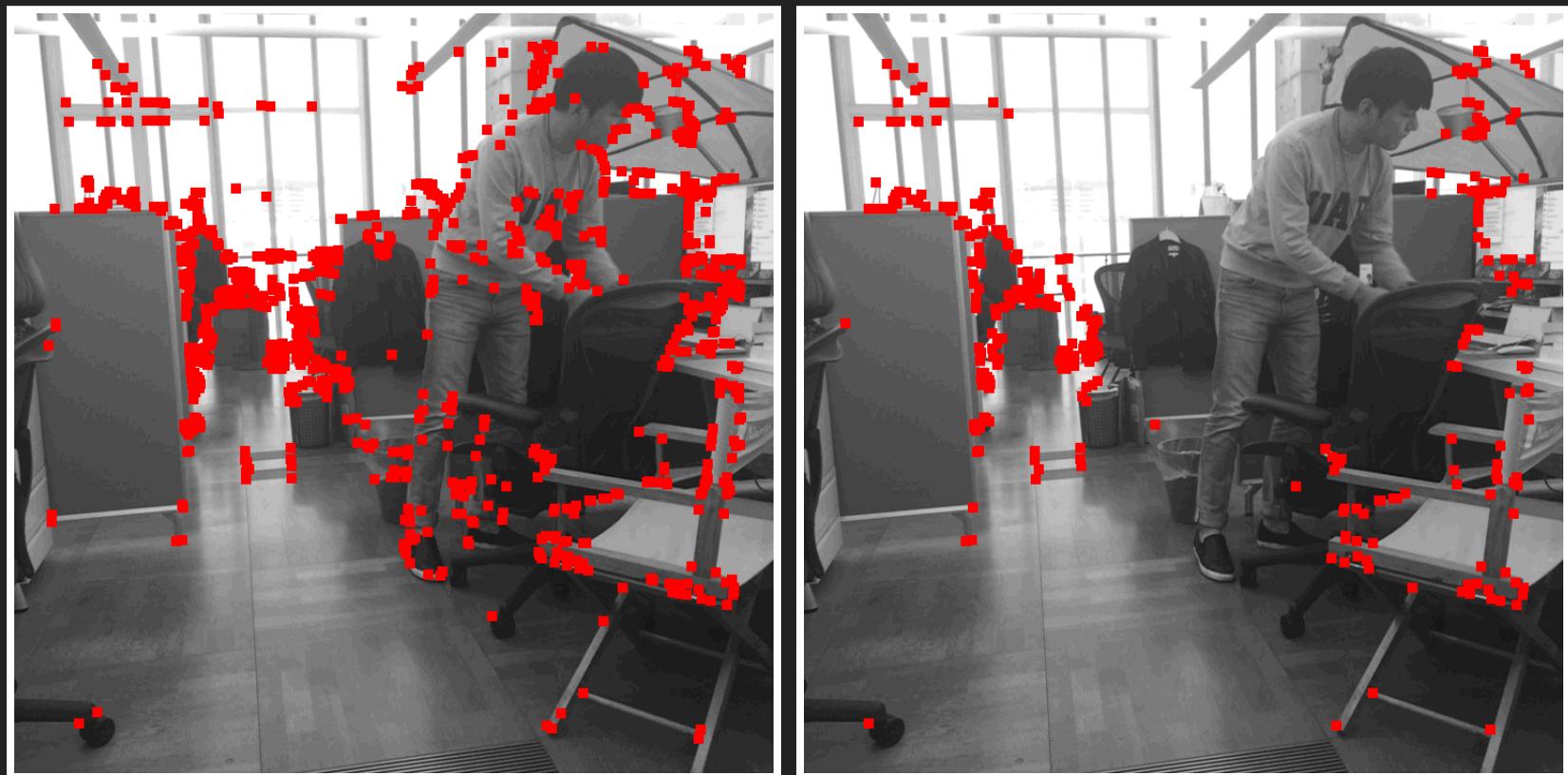
화면에 움직이는 물체가 있으면 어떨까?

전체 프레임에서 공통적으로 잡히는 점들  
만 남겨보면 어떨까?

# 움직이는 물체에서 점 추출



# 공통으로 나오는 애들만 매칭



# 결과



# OPEN SOURCE

[naver / imagestabilizer](https://github.com/naver/imagestabilizer)

Code Issues Pull requests Wiki Pulse Graphs Settings

No description or website provided. — Edit

90 commits 4 branches 4 releases 2 contributors

Branch: master New pull request New file Upload files Find file HTTPS https://github.com/naver/ Download ZIP

jsharp83 Update README.md Latest commit 90085f5 24 days ago

File	Message	Time
ImageStabilization	no message	4 months ago
android	no message	4 months ago
docs	no message	4 months ago
.gitignore	Initial commit	6 months ago
COPYING	add files for copyright & license	6 months ago
LICENSE	add files for copyright & license	6 months ago
NOTICE	add files for copyright & license	6 months ago
README.md	Update README.md	24 days ago

README.md

## ImageStabilizer

Image stabilization using features detector in iOS and Android

### Overview

Image stabilization is a essential technique when you take images using continuous shooting. There are many approaches to solve this problem but this project use the feature extraction.

- At first, Extract features from image using Feature extractor like SIFT, SURF. In this project, I use FAST+ORB, because it

<https://github.com/naver/imagestabilizer>