

Camera calibration

Second approach

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Outline

Pipeline

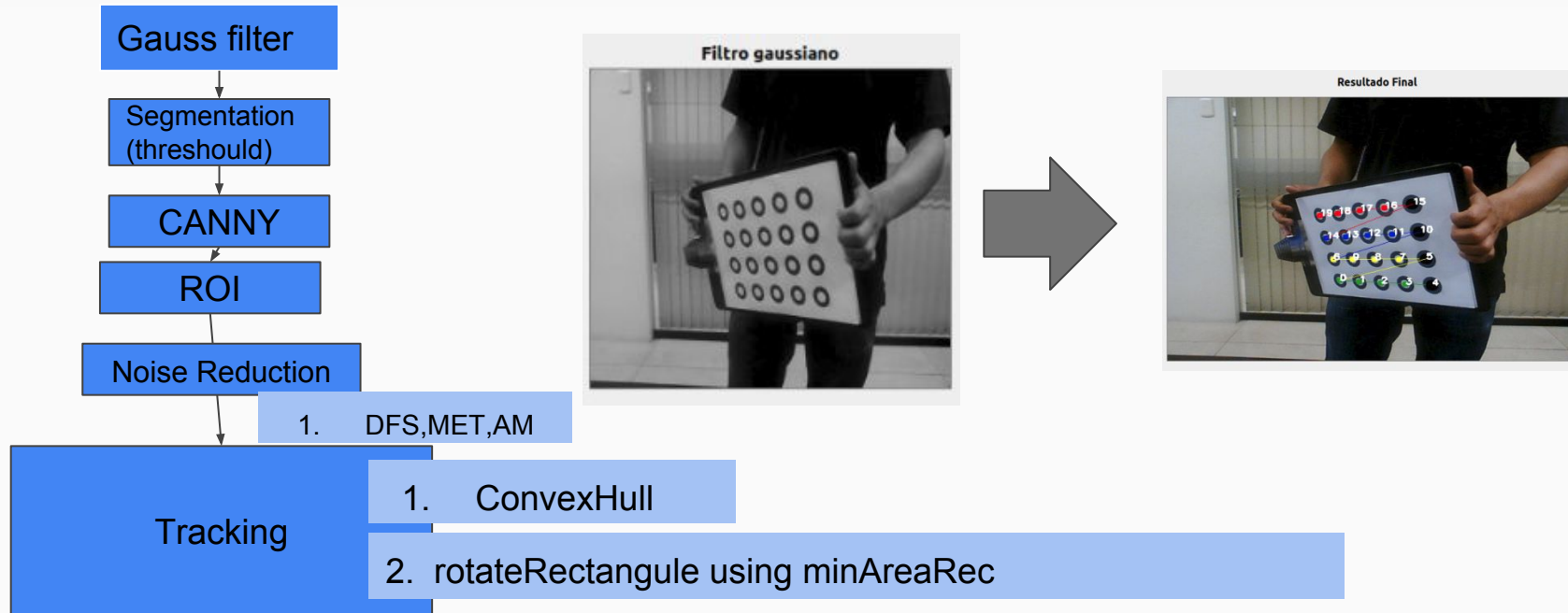
- Filters: gauss
- adaptative thresholding

Time and Complexity

- Frames por seconds
- Total frames for pattern recognition

Tracking

Pipeline



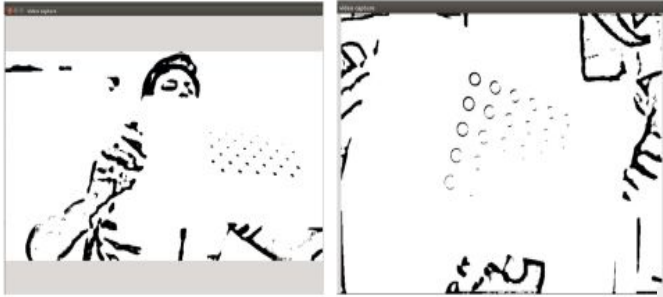
Gauss Filter

We do the gauss blur for the gray image



Adaptive thresholding

Basic global threshold



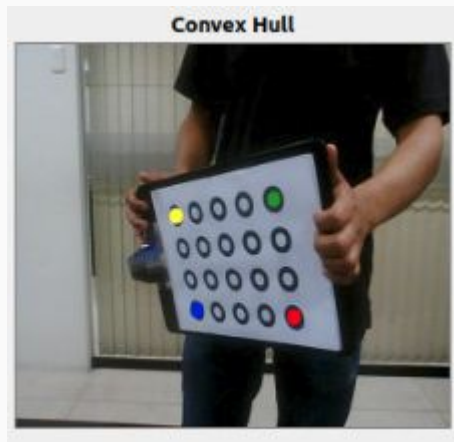
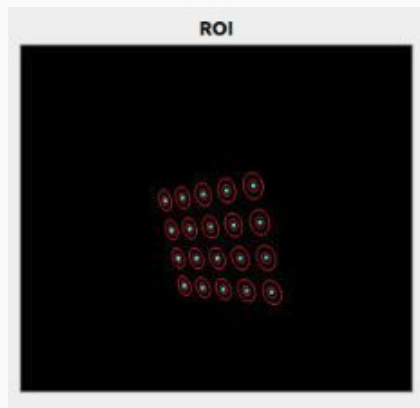
Adaptive threshold



Threshold adaptativo (paper)



ROI and Tracking(1)



RotateRectangle using minAreaRect

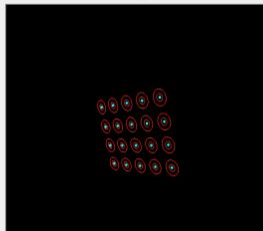
TY CATOLICA SAN PABLO
Filtro gaussiano



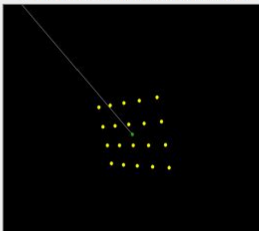
Threshold adaptativo (paper)



ROI



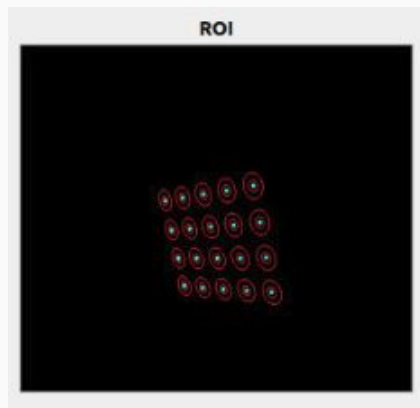
Reduccion de ruido con distancias y KF



RESULTADO FINAL



ROI and Tracking(2)



Time and accuracy

Time per frames are AVG: 13.05

~ 14.5988(visual included) milliseconds (Opencv)

Accuracy 86.02 %

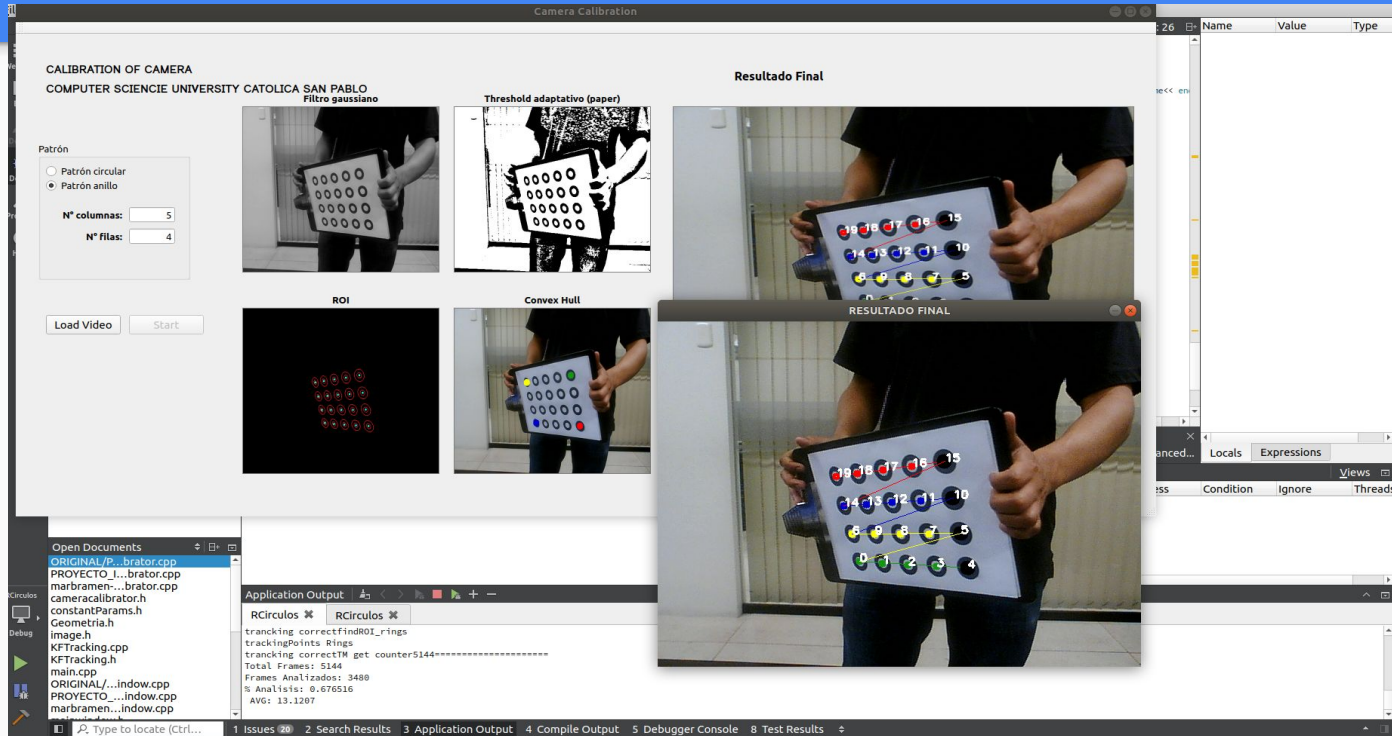
Total frames: 5144

Frames reconocidos : 4425

```
TickMeter tm;
switch (pattDetector->getCurrentPattern()) {
    case PATT_CIRCLE:
        tm.start();
        status = pattDetector->processingCirclesPattern(keypoints);
        tm.stop();
        break;
    case PATT_RING:
        tm.start();
        status = pattDetector->processingRingsPattern(keypoints);
        tm.stop();
        break;
}
cout<<"TM get counter"<<tm.getCounter();
double average_time = tm.getTimeMilli() / tm.getCounter();

cout << "=====\n";
cout << "Total Frames: " << framesTotal << "\nFrames Analizados: " <<
framesAnalyzed << "\n% Analisis: " << (framesAnalyzed * 1.0 / framesTotal) << "\n
AVG: "<<average_time<< endl;
cout << "=====\n";
```

Test with Convex Hull



Test 1 with cv:rotateRectangle

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Filtro gaussiano

Patrón

☐ Patrón circular
☒ Patrón anillo

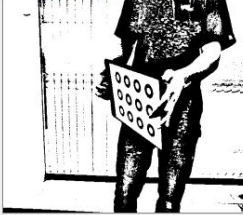

N° columnas:
N° filas:

Time Accuracy

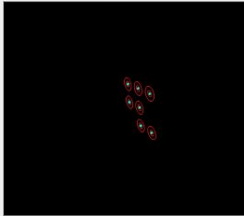
Total frames:
Analizados:
time/frame:

Accuracy %:
Time AVG:

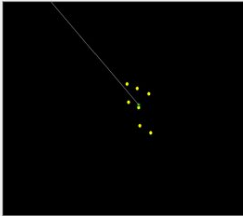
Threshold adaptativo (paper)




ROI



Reduccion de ruido con distancias y KF



RESULTADO FINAL



Test 2 with cv:rotateRectangle

Camera Calibration

CALIBRATION OF CAMERA
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Patrón

☐ Patrón circular
☒ Patrón anillo

N° columnas:
N° filas:

Load Video Start

Time Accuracy

Total frames:
Analizados:
time/frame:
Accuracy %:
Time AVG:

Threshold adaptativo (paper)

Filtro gaussiano

ROI

Reduccion de ruido con distancias y KF

RESULTADO FINAL

RESULTADO FINAL

Videos	Total Frames	Frames Analizados	Analisis %	AVG (ms)
Video1	5972	5281	88.42	8.13
Video2	5144	4425	86.02	8.95

Thanks!

