Short Resume of Bintang A.S.W.A.M

1). Spot-GEO Challenge 2020, proposed solution explanation (four pages)

{official link https://kelvins.esa.int/spot-the-geo-satellites/final-ranking/}

Spot-GEO Challenge
by ACT-ESA via Kelvins Competition Portal
(held on June,7th 2020 - August,31th 2020)

Team name: dwiuzila

Team member: Albers U.D and Bintang A.S.W.A.M

In this article, we refer to GEO or near-GEO orbiting objects simply expressed as GEO objects[1].
ACT-ESA stands for Advanced Concepts Team-European Space Agency

Problem Statement:

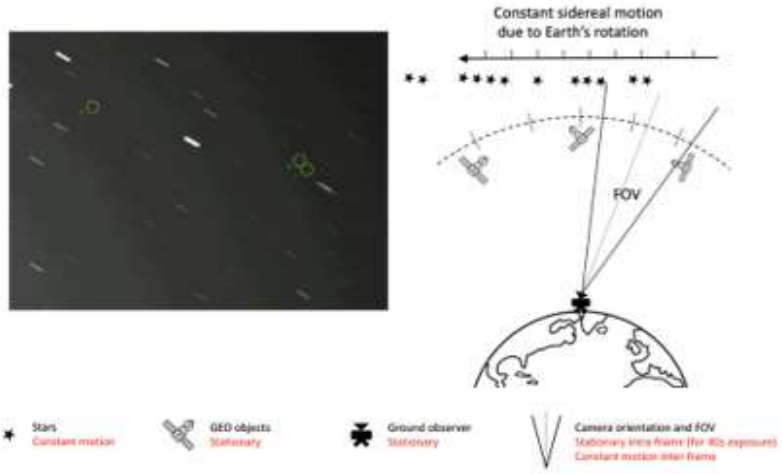

Figure 1. Share an illustration (out of scale) such a process resulted in sequences of five frames such as those shown above, where, as an example, three GEO objects are also clearly marked.[2]

The specific data acquisition approach used for this challenge is illustrated in the diagram above: each capture instance yielded a sequence of 5 images or frames. For each frame, a 40-second exposure was used while the camera was kept static on the ground (equivalently, the camera was rotating at sidereal rate during exposure). After each frame in one instance had been recorded, the camera was slightly rotated to observe a different Field of View (FOV) still overlapping with the previous FOV. Note that under the adopted capture regime, stars appear as streaks, while GEO objects mostly appear as blobs or shorter streaks since they are (mostly) static relative to the observer.

2). Conceptual Design of MS-SAT already presented in International 4th-Space Mission Idea Contest

{official link: http://www.spacemic.net/index4.html}

Development of microsatellite to detect illegal fishing "MS-SAT"

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Abstract: This paper contains the preliminary design of a microsatellite system designed to detect illegal fishing activities, and other maritime application in Indonesia. The system consists of ground stations, satellite, operation center, and receivers on the law enforcement side. Ground station is located in numerous locations to maximize the communication window. The satellite will be in near-equatorial orbit with altitude of around 500 km above sea level. A constellation of three satellites will be used to increase the effectiveness of the ground scanning. Each satellite uses a high resolution camera and AIS receiver to detect any possible illegal fishing ship. Operation center is used as the ground control station of the satellite. It will receive the mission and send commands to the satellite, receive the all the data while the satellite is in observation, and process the data to extract information regarding illegal fishing activity or other uses. Information gathered by the operation center containing coordinates will be sent to patrol ship or aircraft, and to other government agency. The satellite will also have a VHF transmitter/receiver to be used as a repeater from operation center to the patrol ship or aircraft.

1. INTRODUCTION

As a large country in which most of its territory is sea, and an economy which heavily depends on maritime activity, Indonesia needs an Earth observation system to protect its maritime resources from activities such as illegal fishing or disasters like oil spill. The requirement to address this problem is to detect it as early as possible to minimize the negative effect. Currently there is no effective solution to fulfill this requirement because Indonesia's sea is very large in size and there is no system that can detect the problem timely enough to get a fast response from the authority, therefore the development of this system is necessary.

Most of the illegal fishing vessels are relatively large in size, because they need to sail from their origin to Indonesian waters, and they have enough storage to capture substantial amount of fish to make the journey economically viable. Usually they stay for days or weeks while deploying seines. This system is designed to detect illegal fishing vessel with size of more than 4 m x 12 m.

Contributors in International 4th Mission Idea Contest

for Achieving Sustainable Development Goals

with Human SpaceFlight

http://www.spacemic.net/index4.html

II The 4th Mission Idea Contest (MIC4)

3). Previous Resume (a few years ago) (https://baswam95.github.io)

BINTANG A.S.W.A.M

Aerospace Engineer

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Numerical Computing in Solving PDE — ITB

(undergraduate thesis)

August,19th 2017 - February,19th 2018

Role description:

person in charge of investigating the utility and superiority of geometric multigrid method compared to Jacobi,Gauss-Seidel,and Point-Successive Over-Relaxation methods in accelerating elliptic-PDE(Poisson's Equation) numerical scheme computation to resolving 2-D steady heat-conduction problem.

Technologies used:

Fortran90 Python3.x

Computational Aerodynamics and Simulation — ITB

(final year project)

December,10th -December,14th 2016

Role description:

person in charge of solving numerical parabolic-PDE using explicit scheme and using 1st-oder Neumann-boundary conditions to resolving 2-D transient heat-conduction problem. Then, do comparison between numerical scheme result with 2-D transient heat-conduction simulation result.

Technologies used:

MATLAB ANSYS-16

Orbital Mechanics Analysis — PT Pasifik Satelit Nusantara

(internship project)

June,13th - August,9th 2016

Role description:

person in charge of developing a program that simulate PSN-VI's(now its name changed to "Nusantara Satu") orbit trajectory. The result of the program verified and validated with the referral numerical result obtained from SSL (Space System Loral).

Technologies used:

MATLAB Python