Hilmi Nuruzzaman

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Summary

Aerospace Engineering graduate passionate about astronautics and orbital mechanics. Known for strong analytical thinking, adaptability, and excellent collaboration skills. Experienced in sharing knowledge with diverse audiences through teaching and presentations.

Technical Skills

Programming Languages: MATLAB, Python, C++

Computation Program: SIMULINK, GMAT, Abaqus

3D Modelling: Solidworks

Projects

Star Sensor System Sep 2023 – Jul 2024
Programming Project *Python, C++, OpenCV, Raspberry Pi OS*

- Designed and integrated a star sensor system module using C++ and Python
- Utilized binary search to optimize search algorithm
- Deployed the program into Raspberry Pi to mimic small-satellite environment
- Achieved 87.3% accuracy with average runtime of 8.8 s in Raspberry Pi
- Presented findings at the 1st International Conference on Space Science, Technology, and Innovation (ICSSTI) 2024.

Satellite Design Aug 2023 – Dec 2023
Team Design Project *MATLAB, GMAT, SIMULINK*

- Collaborated with a multidisciplinary team to design small satellite constellation
- Demostrated adaptability by iterating new design requirements mid-project
- Designed an optical instrument capable of meeting design requirements and objectives
- Collaborated with others to analyzed power generation in satellite during solstice and co-authored a presented paper at ICSSTI 2024

Satellite Orbit Dynamics Simulation Aug 2023 – Dec 2023
Simulation Project *MATLAB, SIMULINK*

- Developed a dynamic simulation program capable of adapting to changing input parameters
- Successfully simulated three satellite pointing modes with precise real-time adjustments
- Allows user to do parameter updates without interrupting the simulation flow

Orbit Propagator & Eclipse Analysis May 2023 – Jul 2023
Simulation Project *MATLAB*

- Programmed satellite orbit propagator with Earth, Moon, and Sun gravity
- Developed a program to predict eclipse times and durations
- Eclipse prediction program achieved less than 2 minutes error on average compared to real data

Experience

Mission & Spacecraft Intern May 2023 – Aug 2023
Pasifik Satelit Nusantara *Jakarta, Indonesia*

- Conducted research on eclipse analysis and completed it in 2 weeks of time
- Iterated the research over time by integrating other celetial bodies to the equation
- Presented findings at weekly research meetings clearly

Astronomy Tutor for National Olympiad Aug 2018 – now
Freelancer *Bekasi, Indonesia*

- Conducted lectures both online and offline for students on relevant materials
- Guided students to success in the National Olympiad, with several achieving gold medals
- Collaborated with numerous clients, namely MAN Insan Cendekia Serpong, ALC Indonesia, Compress Club, and Others

Teaching Assistant in Astronautics Jan 2024 – Jun 2024
Institut Teknologi Bandung *Bandung, Indonesia*

- Helped students with their problems regarding the course
- Assessed student performance and provided constructive feedback to support their academic growth

Lab Assistant in Instrumentation, Measurements, and Experimentation Jan 2023 – Jun 2023
Institut Teknologi Bandung *Bandung, Indonesia*

- Led and supervised student groups during experiments
- Guided students in troubleshooting experimental setups and resolving technical issues

Education

Institut Teknologi Bandung Bandung, Indonesia
B.Sc. in Aerospace Engineering *Aug 2020 – July 2024*
3.68 GPA

MAN Insan Cendekia Serpong South Tangerang, Indonesia
High School Diploma in Natural Science *July 2017 – Jun 2020*

Honors & Achievements

- Presenter at 1st ICSSTI, 2024
- Beasiswa Unggulan awardee, 2020
- Silver medal at International Olympiad in Astronomy and Astrophysics, 2019
- Absolute winner at National Science Olympiad in Astronomy, 2018