

Advanced Design Project

Planning and Realisation of a Software Test Campaign for a Satellite Mission Analysis Software

Background:

As part of the ongoing research in the Space Safety domain of FSR, a simulation environment for Space Traffic Management has been developed in Python. This simulation will be further enhanced in the context of the CASCADE project to provide actors in the space domain the means for pre-mission analysis of collision risks and the elaboration of appropriate rules for collision avoidance. For the existing web-based mission analysis software (MAS) an ESA (European Space Agency) test campaign shall be prepared in the context of this ADP.

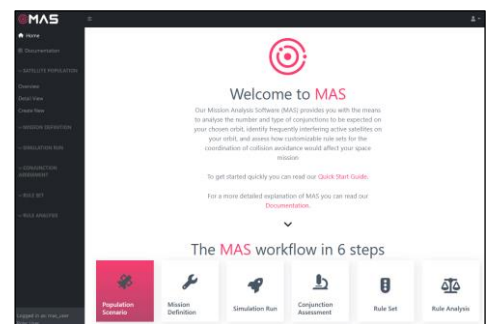
Content:

In this ADP you will:

- Familiarize yourself with the CASCADE project, its Mission Analysis Software (MAS), and the fundamentals of software testing and software quality assurance
- Define requirements for the test campaign project
- Derive integration and end-to-end test cases for the MAS from the CASCADE project requirements and prepare documentation describing the test procedures
- Adapt existing data records and integrate them into the database for the execution of the tests
- Develop scripts for automatic execution of the integration tests
- Enhance the existing MAS code to support test cases
- Create user documentation in the existing web-based integrated MAS documentation system giving instructions on how to use the MAS

Requirements / Skills:

- Currently enrolled in Master's degree program in Mechanical Engineering, Aero Space, CE, Computer Science, Electrical Engineering, Mechatronics or similar
- Prior knowledge in object-oriented programming, Python, Flask, databases and in the use of Git is favourable
- Strong interest and enthusiasm for space topics
- Having heard the lectures "Fundamentals of Space Systems" and "Space Debris – Risks, Surveillance and Mitigation" is advantageous



The Mission Analysis Software (MAS) developed within the CASCADE project.

Start:
April 2024

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