TRACKING SATELLITES: INITIALIZING SYSTEM WITH NEURAL NETWORKS

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The project has been developed in the Guidance Navigation & Control division, in the Space Segment and Robotics business unit.

One of the technologies currently in development at the GNC division are Visual Navigation algorithms for autonomous spacecraft, which has been identified as one of the key technologies for future orbital robotic missions.

GMV had already implemented a visual navigation tracking algorithm which needed a way to provide this starting initial pose.

My project has been exactly to develop an algorithm capable of initializing the current GMV tracking algorithm using the power of neural networks. I achieved a robust and efficient initializing system, which gave a great contribute to the realization of the scheme. I created a dataset of satellites whose positions have been perturbated by little rotations and translations and then trained a neural network model which has given the 80% of correct classifications.