Conjunction Analysis: Overview

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Our project focuses on real-time monitoring of Canadian satellites, providing continuous tracking and analysis of their positions in orbit. By leveraging live orbital data, the system predicts potential satellite collisions before they happen, enhancing both operational safety and national space situational awareness. It is built for speed, accuracy, and intuitive visualization, making it accessible to scientists, students, and mission operators alike. Beyond collision prediction, we observed that — Canada's observational blind spots are more than we can see. Many northern and remote regions remain under-observed by existing satellite constellations; our mission integrates this monitoring capability to identify where coverage gaps exist and provide actionable insights to improve satellite tasking and data accessibility for these underserved areas.

References: the following are all the data refences used throughout this project.

https://www.cadc-ccda.hia-iha.nrc-cnrc.gc.ca/en/neossat/

Satellite data : https://celestrak.org/SOCRATES/search.php

bonus blind spots : https://www.asc-csa.gc.ca/eng/satellites/radarsat/access-to-data/standard-coverage-maps.asp?utm_source=chatgpt.com

Canadian data : https://www.eodms-sgdot.nrcan-rncan.gc.ca/index-en.html