PointPro: The Future of Forecasting

Overview

PointPro, Inc. offers a computational platform to reduce expense associated with sustainment operations for space assets. Our solutions pave the way for prescriptive analytics: predicting *what* is the risk, *when* and *how* will the risk manifest, and *what* can be done about it? We deliver decision-quality analytics by integrating our groundbreaking predictive simulations with physics-based models or data driven digital twins to deliver forecasts within user defined accuracy.

Primary DAF Customers

- USSF Space Systems Command
- CSpOC
- DAF Strategic Systems
- DAF Digital Engineering

Timeline

- Phase I Start: 4/14/21
- Phase I End: 7/14/21
- Est. Phase II Start: 8/1/21

Problem/Opportunity

Space is now a multinational, commercial territory with weak governance. Current prognostics solutions cannot generate timely and trustworthy forecasts of critical conjunction events. As a result, decisive corrective actions cannot be implemented to keep our space assets secure from collision threats. This inaction carries tremendous risk and the increasing danger of catastrophic loss that will cost millions of dollars and render critical orbital regimes inoperable for decades.

The future of reliable space domain awareness is in prescriptive analytics. Implementing it requires confidently knowing the answers to these questions: *what* is the risk, *when* is the threat expected, and *what* can be done about it? This demands timely and controllably accurate forecasts of the path to failure events.

Proposed Solution

The PointPro computational platform performs **adaptive, closed-loop predictive simulations** to support space domain awareness. The platform requires three inputs: 1) physics-based or data-driven dynamic models of system behavior, 2) sensor data that indicates current system conditions; and 3) quantities of interest, whose forecast accuracy must be strictly maintained within specified accuracy bounds. PointPro builds on the user's digital twin or physics-based models to deliver forecasts within **user defined accuracy.**

When physics-based digital twins (dynamic models) are available, PointPro integrates with them seamlessly. When data-driven digital twins must be used, PointPro offers the means to continuously improve them for the particular purpose of forecasting system failure.

Impact

Adopting the PointPro platform means **reduced risk and increased confidence in decision making related to collision avoidance** for high-value space assets.

PointPro gives you the **decision-quality forecasts** you need to understand collision likelihood for each individual asset. Reliable forecasts translate into expense reduction through **optimized station keeping schedules**.

PointPro enables:

- A shift from one-size-fits-all analytics to predictive domain awareness specific to each asset
- Increased confidence in decision making
- Reduced surprise/unforeseen events
- Optimal collision avoidance decision-making for each asset

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