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SpaceHound predicts satellite risks using machine learning, helping operators, investors, and insurers ensure safer, sustainable missions.

SpaceHound

Problem

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* Average mission losses reach $1.2 million.
* Over 150 million debris fragments are orbiting Earth, totaling 9,500 tonnes.
* The risk of orbital conjunctions continues to increase each year.

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Case

* NEE-01 Pegaso (2013):* Ecuador's first CubeSat lost after colliding with debris from an old Tsyklon-3 rocket.
* The impact caused uncontrollable tumbling and total loss of communication within one month of launch.
* Estimated damage: *~$800,000*; the debris fragment (≈1–2 cm) was too small to be tracked.
* Shows how a tiny untracked particle can destroy a CubeSat — and why

Causes

* Limited propulsion & maneuvering:* Most CubeSats lack thrusters, making collision avoidance impossible.
* Poor tracking accuracy:* Small size and low radar cross-section make CubeSats hard to track precisely.
* Crowded orbits:* Rapid growth of small satellite constellations increases close-approach frequency.
* Data fragmentation:* Tracking data from NASA, ESA, and private operators isn't fully integrated or updated in real time.

Our solution

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* ML-driven risk prediction based on mission data, orbital dynamics, and environmental factors.

* Independent launch certification trusted by insurers, investors, and operators.

* Real-time orbital dashboard for tracking, insights, and debris avoidance.

Business model

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* Freemium platform with paid certification and analytics features
* Revenue from certification fees, subscriptions, and API access
* Scales with each new satellite launch and supports debris reduction

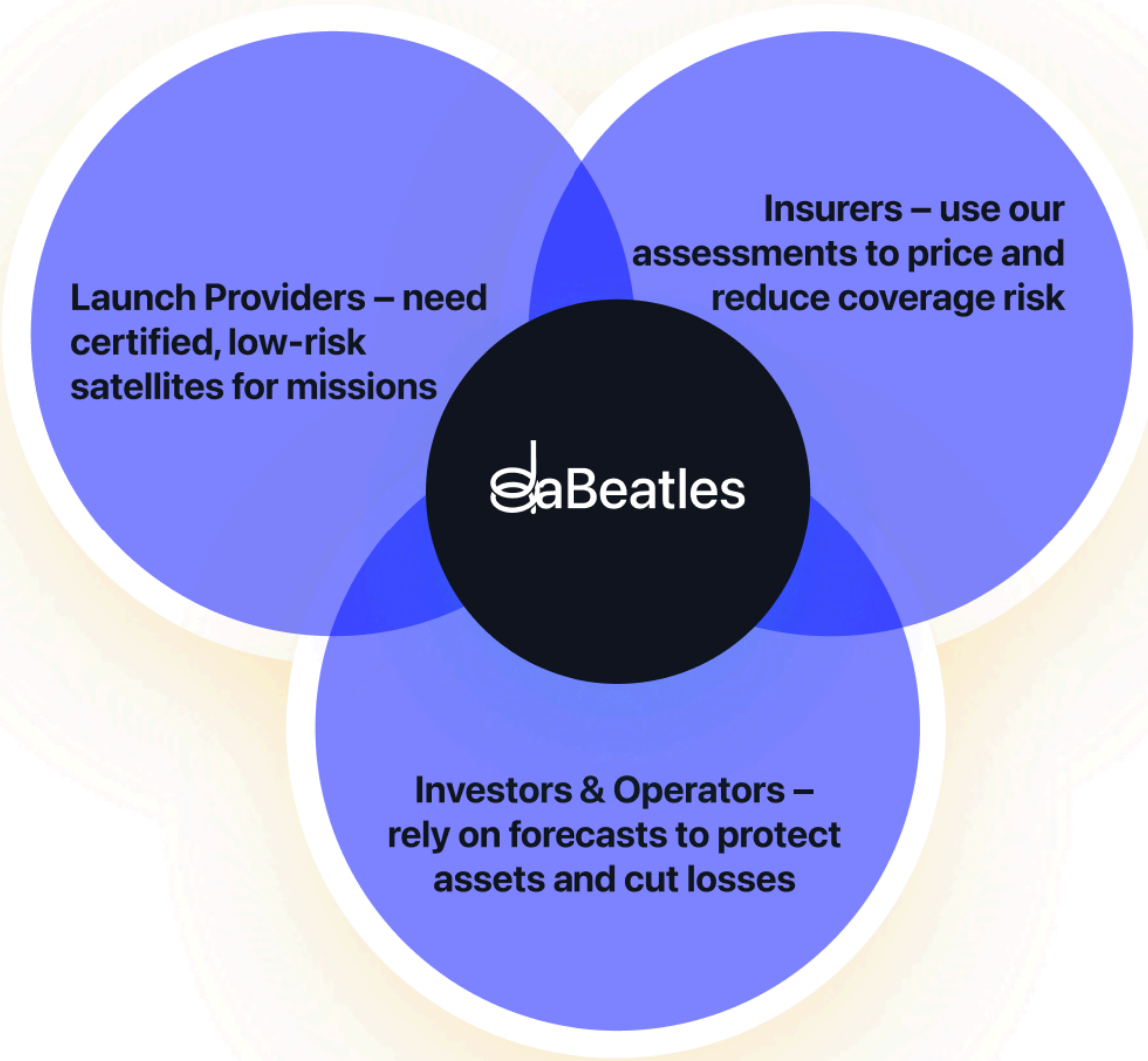
Market Opportunities

Global LEO market expanding from $12B in 2023 to $25B by 2030

Over 3,000+ new satellites expected to launch each year by 2030

Rising insurance and risk management demand — projected $10B+ market by 2030

Triangle of clients



Our team

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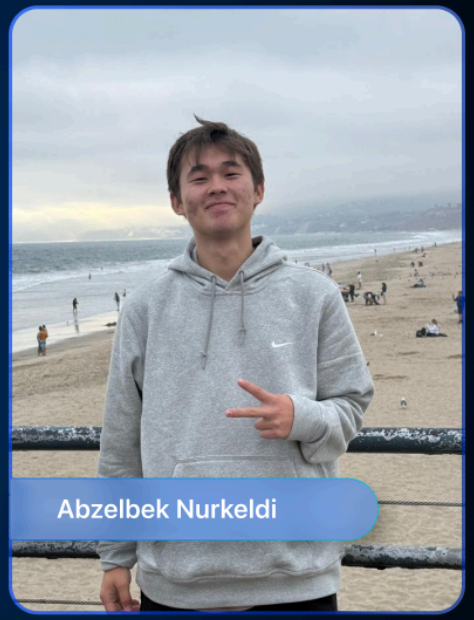
Amanbek Alzhan



Abzelbek Nurkeldi

Otan Alissultan

Smail Askhat

AI Technology

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Our system is an AI-powered pre-launch decision-support service for assessing orbital safety risks.

The backend is built with FastAPI as a JSON API with CORS support.
A RandomForestRegressor ML model predicts orbital risk based on altitude, inclination, congestion level, and relative-velocity indicators.

The raw model output is normalized into a risk score (0–1) and classified as LOW, MEDIUM, or HIGH risk.
The platform also performs deterministic orbit optimization, evaluating nearby orbital configurations and recommending the top-3 safer alternatives.

Competitors

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Most existing solutions focus on post-launch monitoring, complex physical simulations, or closed, enterprise-only systems.

Our advantage lies in:

- Pre-launch AI-based risk assessment
- Fast, model-driven predictions without heavy simulations
- Actionable explanations and concrete orbital adjustment recommendations, not just alerts

This makes our solution faster, more accessible, and easier to integrate into early mission planning.

Roadmap

(Q1) **2025**
MVP launch

(Q2) **2026**
Agreement with launch providers

(Q3) **2027**
Global certification use

(Q4) **2028**
Full orbital risk platform