SPACE RACE 2.0: THE RUSH FOR SATELLITE SUPREMACY

Furkan Ercan, Ph.D.

Staff Research Scientist, Intel Corporation

THE NEW SPACE RACE: AI AT THE FOREFRONT

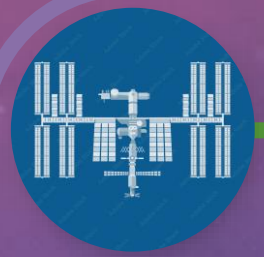
The Dawn of Satellite Technology
Launch of Sputnik 1 and Telstar 1
First Transmissions

1950s-1960s

1970s-1980s

Expansion of Satellite Applications
Weather forecasting, GPS, Surveillance

The commercial space industry takes off
Reduced costs, increased access, ISS



1990s

2010s

Deployment of Low Earth Orbit (LEO)
SpaceX (Starlink), Amazon (Project Kuiper), and OneWeb

Integration of AI in Satellite Technologies
Decision-making, operational efficiency, collision avoidance, data management, optimal communications

2020s

GOLD RUSH ON LOW EARTH ORBIT

Metric	Low Earth Orbit (LEO)	Geostationary Orbit (GEO)
Distance	160-2000 km	> 35,000 km
Latency	20-40 ms roundtrip	~800 ms roundtrip
Coverage	100s-1000s of satellites	2-3 satellites
Communication Strength	Powerful	Weaker
Orbital Stability	Moving	Stationary
Launch & Maintenance Costs	Gets cheaper every year	More costly

Communication

Weather

Defense

Earth Observation

Experimentation

Navigation

Debris Tracking

THE NEW FACE OF GLOBAL COMMUNICATIONS

The Legacy of 19th Century
(Submarine Cabling)

The Dawn of LEO-Comms
(Illustration: Project Kuiper)

Global Coverage

Mobility/Flexibility

Resilience

Scalability

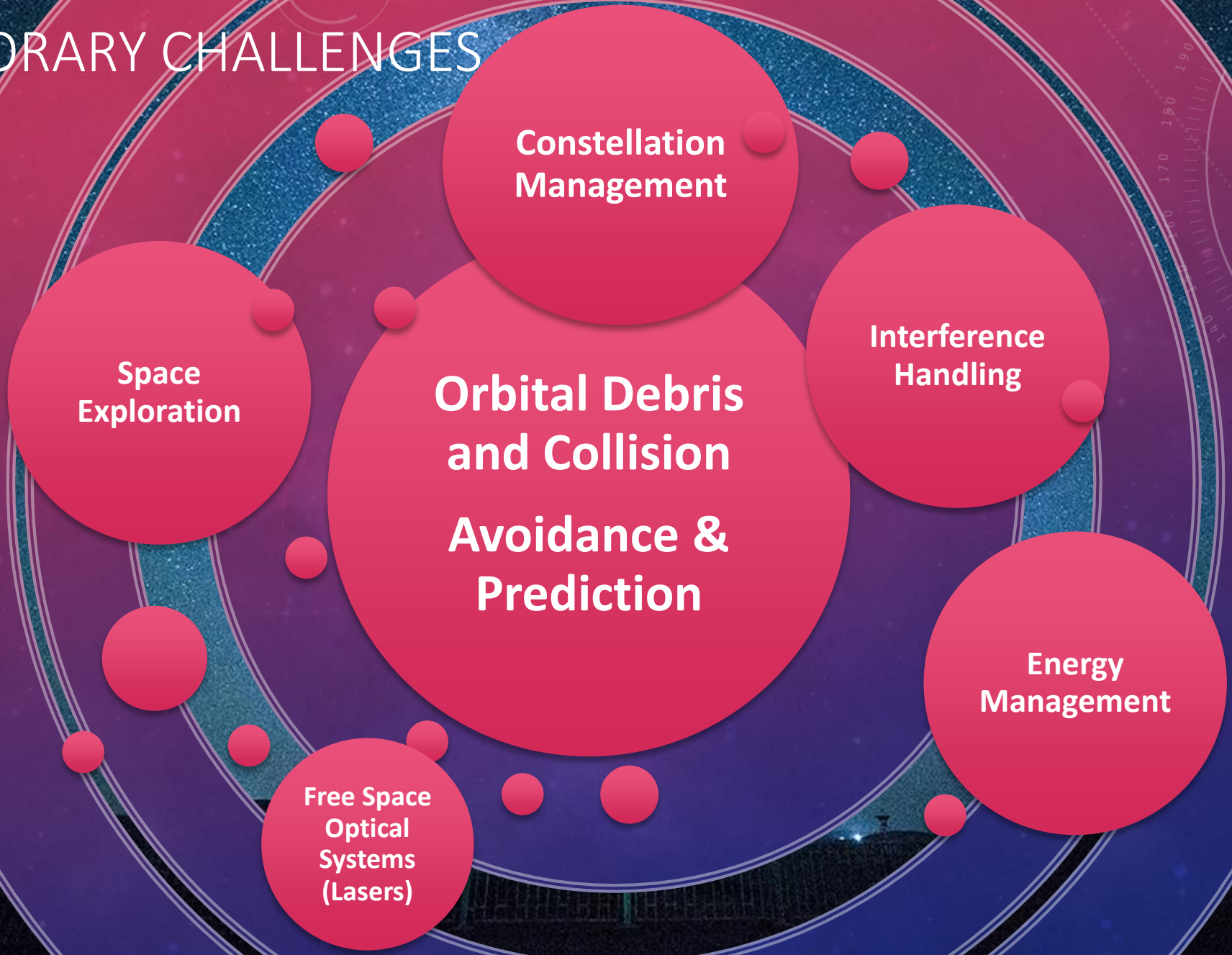
Deployment Speed

Initial Capital Expenditure

Disaster Recovery

Difficult Terrains

CONTEMPORARY CHALLENGES



AI TO THE RESCUE: OVERCOMING LEO SATELLITE CHALLENGES

Debris Tracking

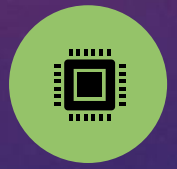
Collision Prediction

Communication Optimization

Failure Prevention through Telemetrics

Ground Station Optimization

Energy Management



High Performance Computing

Interference Management

AI TO THE RESCUE: ON THE NEWS

Posted in | News | Artificial Intelligence

Aitech's Venus AI Supercomputer Becomes the First Use of GPGPU Technology in Space

Download PDF Copy | Request Quote

Reviewed by Laura Thomson Jun 1 2023

With the successful launch and re-entry of NASA's Low-Earth Orbit Flight Test of an Inflatable Decelerator (LOFTID) on November 10, 2022, Aitech space-characterized S-A1760 Venus AI supercomputer becam GPGPU technology in space. Aitech is a leading provider of ru system-level solutions for military, aerospace and space appl

6G | Space: AI for networking

July 26, 2023

Share this page

Harnessing the power of **artificial intelligence (AI) to revolutionize networking**, creating intelligent systems that optimize performance, adapt to dynamic environments, and enhance user experiences.

IEEE Spectrum / AI Battles the Bane of Space Junk

AI Battles the Bane of Space Junk › Neural nets navigate nuances of rogue orbital objects—and near-misses

BY SARAH WELLS | 01 JUL 2023 | 3 MIN READ |

LeoLabs Raises $29 Million to Deliver Enhanced AI-powered Insights for Space Operations

LEOLABS

NEWS PROVIDED BY
LeoLabs, Inc. →
Feb 12, 2024, 09:00 ET

SHARE THIS ARTICLE

The company will scale up delivery of insights to commercial and government operators by increasing investment in advanced end-user applications and partner integrations

MENLO PARK, Calif., Feb. 12, 2024 /PRNewswire/ -- LeoLabs, the company with the largest and most comprehensive commercial catalog of objects in low Earth orbit, today announced it raised an additional $29M in financing. This latest funding enables LeoLabs to scale up its insight delivery by further investing in advanced end-user applications and partner integrations.

AI comes to space with Comsat Architects and Ubotica Technologies

MARCH 18, 2024

Share | Tweet | Share

THANK YOU

FURKAN.ERCAN@INTEL.COM

Visualization of Current LEO Satellite Fleets