

# NEXCOPE »

ALGORITHMIC DATA COMPRESSION TECHNOLOGY

**NEXCOPE'S PROPRIETARY ALGORITHMIC DATA COMPRESSION SIGNIFICANTLY REDUCES DATA SIZE, CUTTING TRANSMISSION VOLUMES AND STORAGE REQUIREMENTS BY UP TO 98% WHILE PRESERVING CRITICAL IMAGE FIDELITY FOR EFFICIENT PROCESSING AND DELIVERY.**



**NEXCOPE IS BUILDING THE DEFAULT MIDDLE LAYER FOR MEDIA COMPRESSION, STARTING WITH SATELLITE AND SCALING ACROSS EDGE AND AUTONOMOUS SYSTEMS**

# EXECUTIVE SUMMARY

## COMPANY OVERVIEW

Nexcope is a deep-tech company developing proprietary ultra-high image compression technology and integrated plug-and-play hardware for space and bandwidth-constrained imaging environments. Our algorithm is built ground-up for onboard execution — not adapted from consumer codecs — delivering mission-critical fidelity at a fraction of the data cost.

## REQUIREMENT OF ULTRA COMPRESSION

Efficiency of Conventional codecs are limited for compressions beyond 16x. Nexcope changes the equation by enabling bandwidth constrained satellite, drone, and surveillance missions to transmit High-Resolution images. Nexcope’s proprietary compression results in over 30% reduction in overall mission costs through lower on-board memory requirement, lower launch cost, reduced downlink expenditure, and extended platform life.

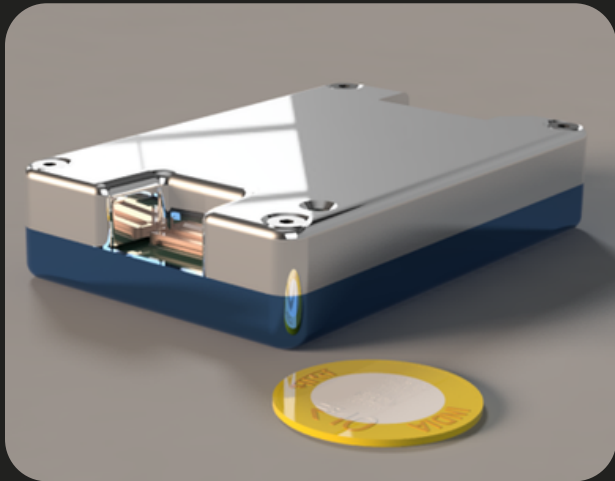
## READINESS LEVEL



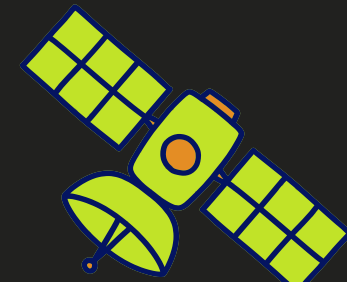
TRL 5



TRL 7



USE CASES



|                                       |                                             |                                                    |                                                             |
|---------------------------------------|---------------------------------------------|----------------------------------------------------|-------------------------------------------------------------|
| <div>80x</div> <div>COMPRESSION</div> | <div>98.75%</div> <div>DATA REDUCTION</div> | <div>over 30%</div> <div>MISSION COST SAVING</div> | <div>PLUG &amp; PLAY</div> <div>SATELLITE PAYLOAD BUS</div> |
|---------------------------------------|---------------------------------------------|----------------------------------------------------|-------------------------------------------------------------|

- ✓

REG. WITH INSPACE
- ✓

01 PATENT PUBLISHED
- ✓

LOI SECURED



ALIGARH



MENTORED BY EMINENT RESEARCHERS, INDUSTRY EXPERTS AND FORMER ISRO SCIENTISTS



# REQUIREMENT

## TECHNICAL GAP



IMAGING REQUIREMENTS GROWING EXPONENTIALLY



HEAVY DATA GENERATED ON-BOARD EARTH OBSERVATION SATELLITES, DRONES AND GROUND BASED SURVEILLANCE SYSTEMS



HEAVY DATA REQUIRES COMPLEX & COSTLY TRANSCIVER SYSTEMS



COMPLEX TRANSMITTER ARE POWER HUNGRY

HEAVIER POWER SYSTEM FOR MORE POWER.

HIGHER LAUNCH COST

## COMMERCIAL OPPORTUNITY



TOTAL SATELLITES IN ORBIT

12,000

Mostly LEO and Nano to Small Satellites



SERVICE ADDRESSABLE M.

6,000

Image-heavy and data intensive missions (40% to 50% of total satellites)



SERVICEABLE OBTAINABLE MARKET

\$5.2 Bn

1% to 2% of SAM.  
~\$1.8Bn in Satellites &  
~\$2.2Bn in Drones

### DATA COMPRESSION SERVICES

As imaging data volumes scale exponentially across platforms, efficient compression is becoming foundational to storage optimization, bandwidth efficiency, and real-time processing. The market is valued at **USD 2.95Bn (2024)** and is expected to reach **USD 4.53Bn by 2030** (7.4% CAGR)

### IMAGING AND DATA INFRASTRUCTURE MARKET

Imaging data volumes are driving demand for storage and processing. The digital imaging market is projected to grow from **USD 28.9Bn to USD 40.7Bn by 2031** (7.1% CAGR), with edge computing exceeding USD 150Bn by 2030, driven by real time and AI workloads.

#### SATELLITES



#### DRONES



#### SURVEILLANCE



#### OTT



#### MED. IMAGING



#### SURVEYING

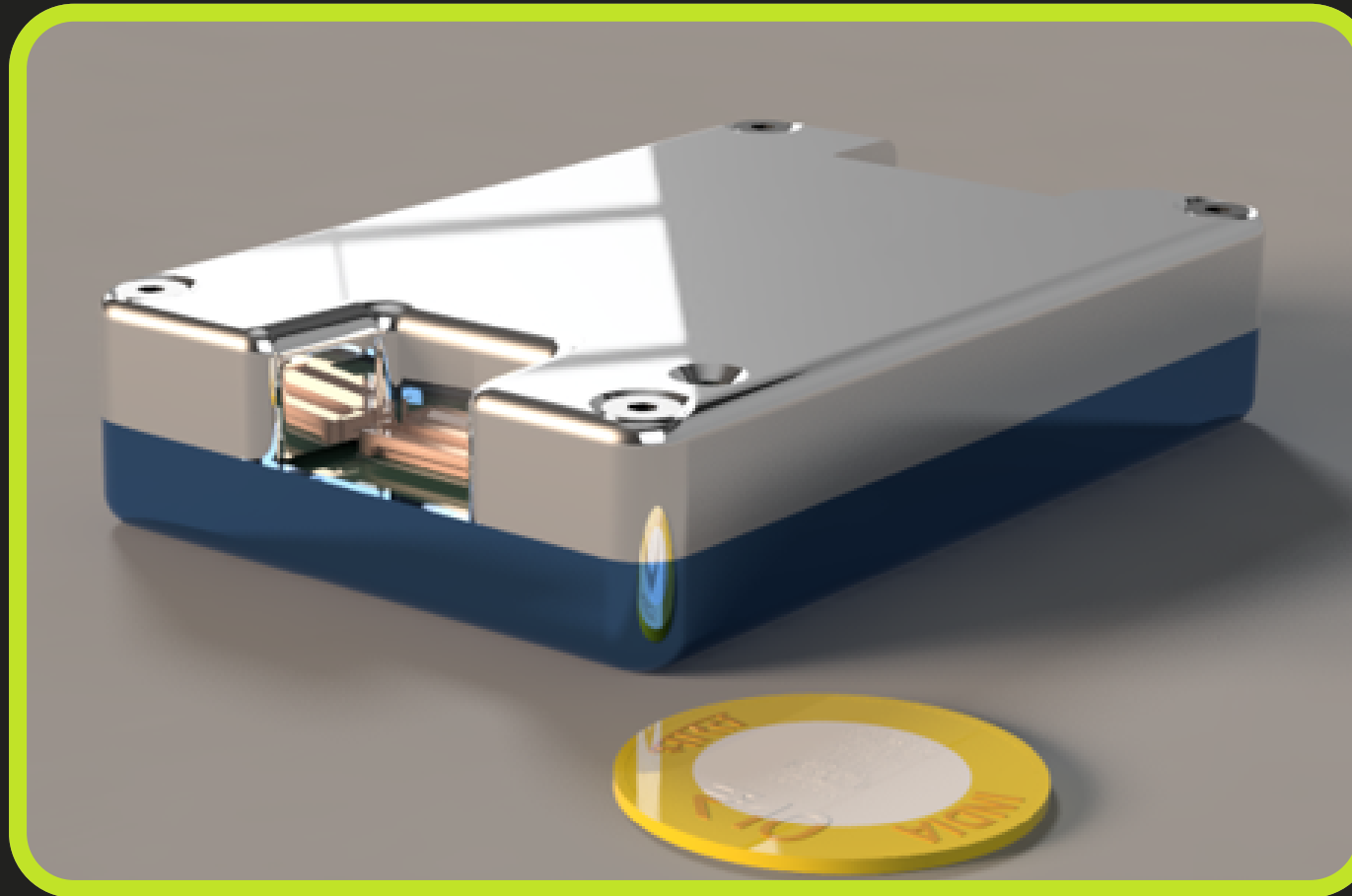


SERVICEABLE MARKET [~62MN TERABYTE GENERATED/ MONTH]

## POTENTIAL CUSTOMERS







- >> PROPRIETARY ULTRA COMPRESSION
- >> UP TO 80X COMPRESSION IN IMAGES
- >> PLUG AND PLAY
- >> ARM BASED COMPUTER
- >> LOW POWER CONSUMPTION
- >> LIGHT-WEIGHT (<100 GRAMS)
- >> COMPACT FORM FACTOR (<0.25U)

PLUG & PLAY PAYLOAD BOARD

80X  
COMPRESSION



TECHNOLOGY READINESS  
LEVEL

SATELLITE SEGMENT

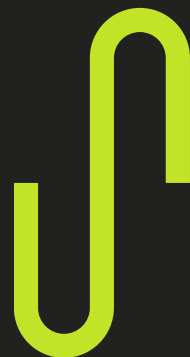


TIME TO TRL9: 8  
MONTHS  
[REQUIREMENT-  
\$50K]

DRONE SEGMENT



TIME TO TRL9: 3 MONTHS  
[REQUIREMENT- \$8K]

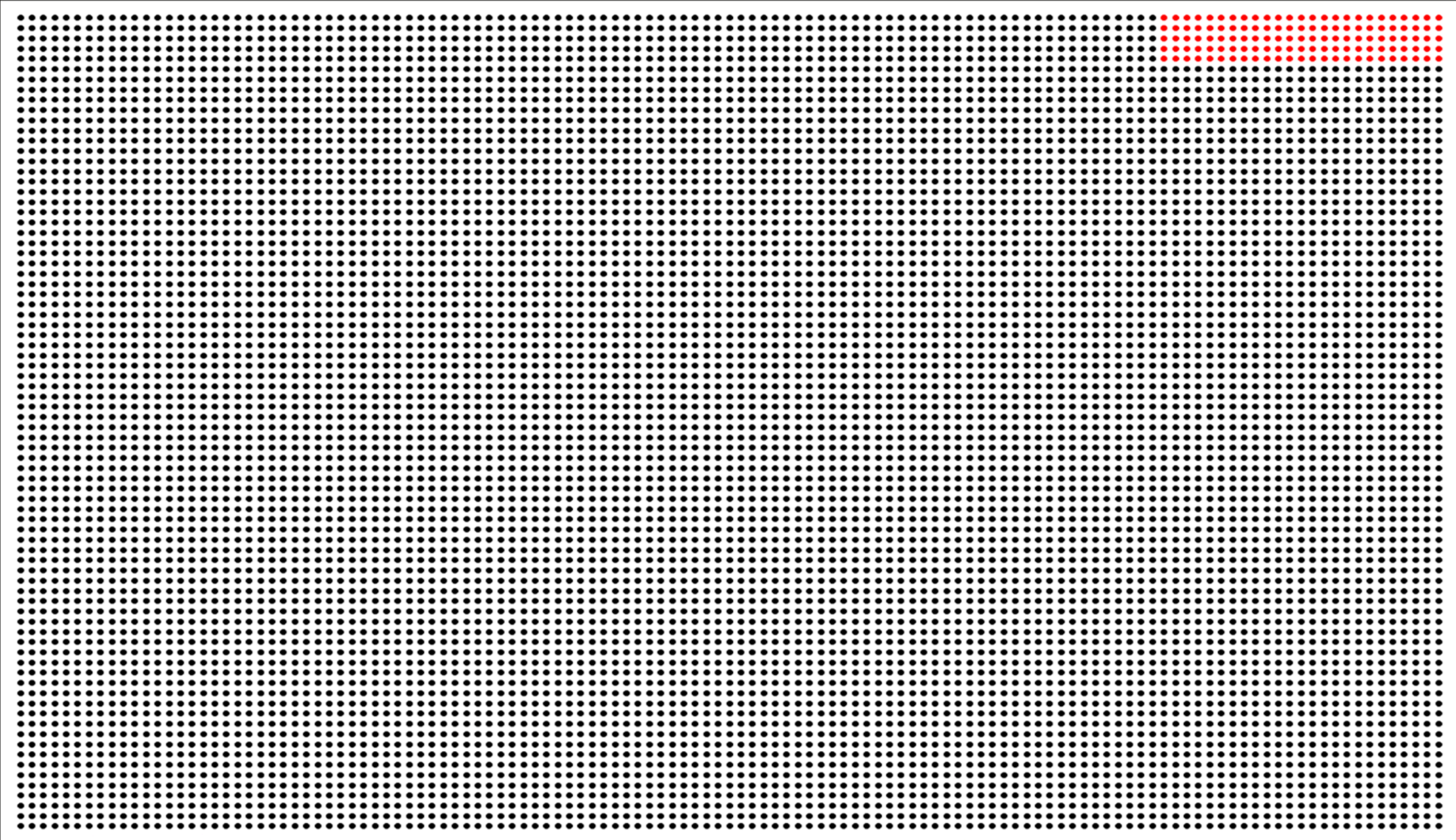




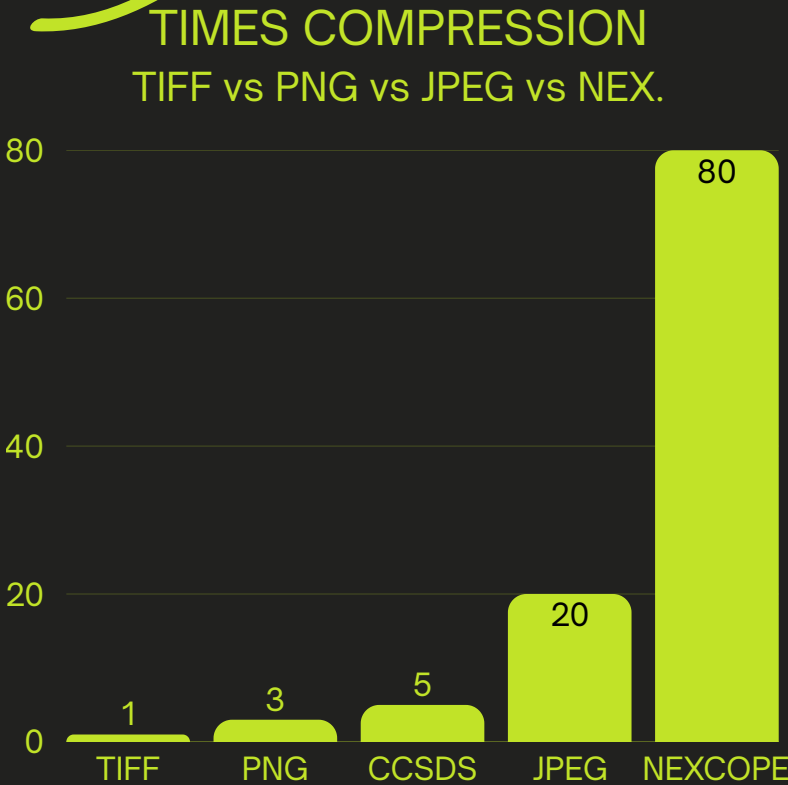
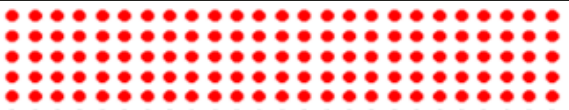
# VISUALIZING 80X COMPRESSION



ORIGINAL IMAGE



COMPRESSED BINARY

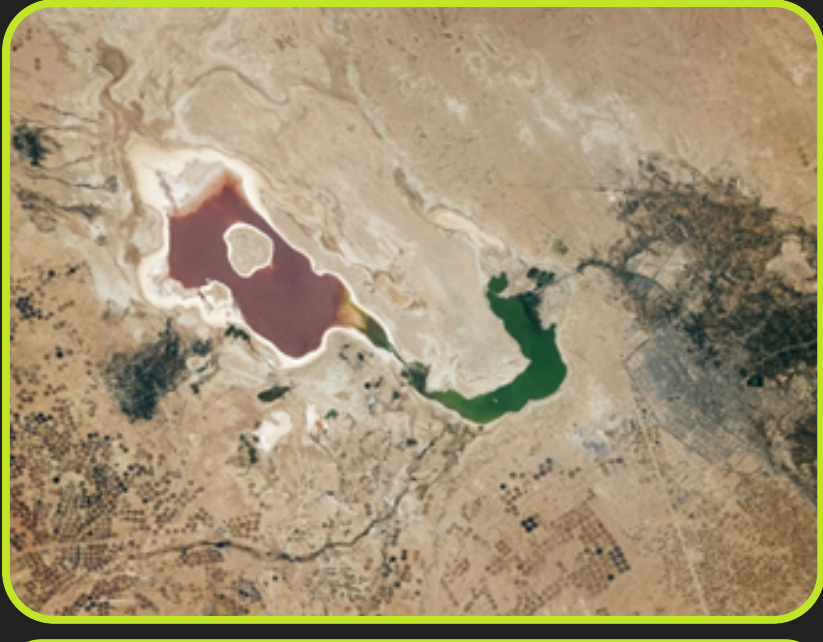




# TEST RESULTS



GRAYSCALE IMAGES



COLORED IMAGES



MULTISPECTRAL IMAGES



ULTRA HIGH-RESOLUTION IMAGES



HYPER  
SPECTRAL\*\*  
IMAGES



SAR\*\* IMAGES



\*ALL IMAGES ARE RECONSTRUCTED AFTER 80X COMPRESSION | \*\*TO BE TESTED

# PERFORMANCE AT A GLANCE

| TYPE OF DATA          | CHANNELS/<br>BAND | ORIGINAL IMAGE<br>RESOLUTION | ORIGINAL<br>IMAGE SIZE | COMPRESSED<br>IMAGE SIZE | RECONSTRUCTED<br>IMAGE SIZE |
|-----------------------|-------------------|------------------------------|------------------------|--------------------------|-----------------------------|
| GRayscale IMAGE       | 1                 | 3008 X 4032                  | 12 MB                  | 150KB                    | 12MB                        |
| COLOURED IMAGE        | 3                 | 4096 X 7168                  | 36 MB                  | 450KB                    | 36MB                        |
| HIGH-RESOLUTION IMAGE | 1                 | 6240 X 6240                  | 28.5MB                 | 364KB                    | 28.5MB                      |
| MULTI-SPECTRAL IMAGE  | 32                | 512 X 512 X 32B              | 32MB                   | 2MB                      | 32MB                        |
| HYPER-SPECTRAL IMAGE  | -                 | -                            | -                      | -                        | -                           |
| SAR IMAGE             | -                 | -                            | -                      | -                        | -                           |

## ADDITIONAL TESTINGS

- VIDEO COMPRESSION TESTED SUCCESSFULLY WITH ULTRA COMPRESSION.
- IMAGE COMPRESSION PIPELINE SUCCESSFULLY COMPLETED TO ACQUIRE, COMPRESS, TRANSMIT IMAGE AND RECONSTRUCT (OVER RS485).
- WIRELESS TRANSMISSION AND SUCCESSFULLY RECONSTRUCTING THE COMPRESSED IMAGES.



# CORE VALUE PROPOSITION

## 80X DATA COMPRESSION ENABLING TRANSMISSION EFFICIENCY

Proprietary compression technology reduces downlink data volumes by ~80x, significantly lowering transmission costs while increasing effective payload throughput within existing bandwidth constraints.

## EASY THERMAL MANAGEMENT

Low heat generation combined with a thermally radiative enclosure enhances system reliability and performance across wide operating temperature ranges, particularly in power- and space-constrained environments.

## EASY INTEGRATION THROUGH STANDARDIZED INTERFACES

Broad compatibility with standard satellite communication protocols (CAN, I2C, RS485, UART) enables seamless integration across diverse satellite buses and onboard subsystems.

## EXTENDED BATTERY EFFICIENCY THROUGH ULTRA-LOW POWER CONSUMPTION

Operating at <5W during normal use, the system minimizes onboard power requirements, enabling smaller power architectures and supporting longer operational life.

## HIGH EFFICIENCY WITH LOW MEMORY CONSUMPTION

Optimized memory utilization reduces onboard resource requirements, freeing capacity for enhanced processing across other critical mission systems.

## FEATHERLIGHT, COST-EFFICIENT DESIGN

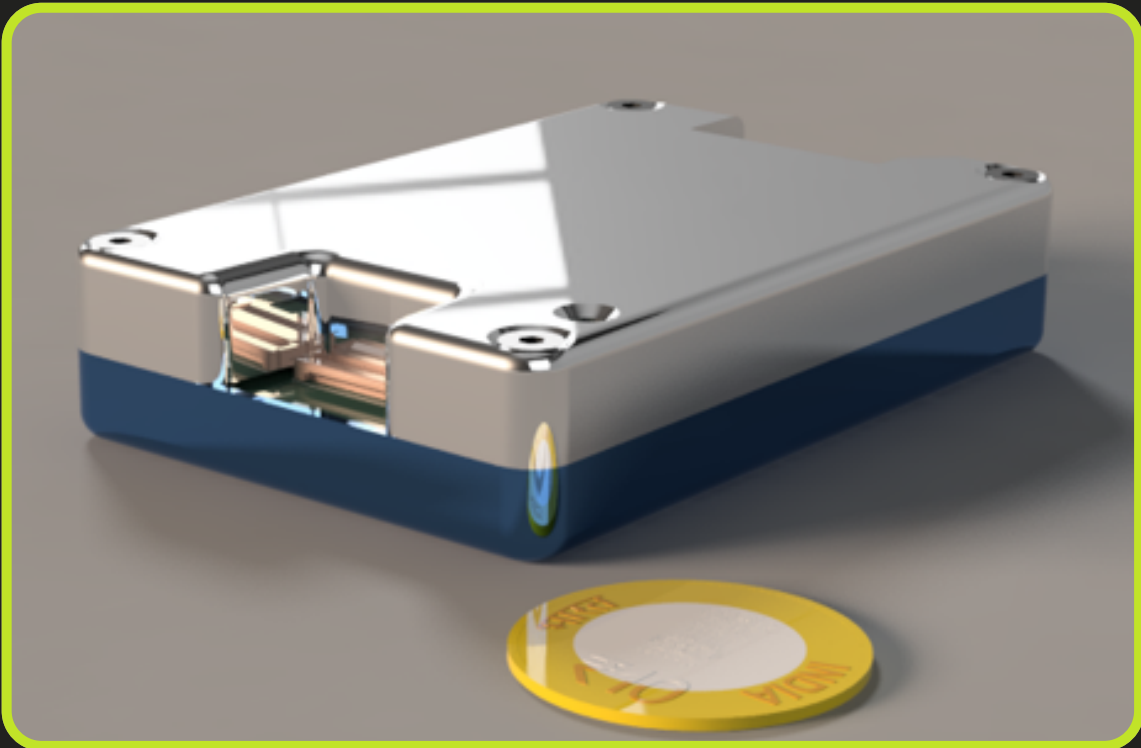
Compact and lightweight architecture minimizes launch mass, directly lowering launch costs and improving overall mission economics by upto 30%.

# OFFERINGS, BUSINESS MODEL & GTM



| Product                                   | Description                                                                                                                                 | Key Specifications                                                                                                                                                                                                | Licensing                                                                                  |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Payload Bus (Hardware Only)               | Compact, low-power payload bus for space-constrained missions, supporting imaging and multiple communication interfaces.                    | ARM Cortex-A72 (1.5 GHz); up to 8 GB RAM, 32 GB storage; power 1.5–4 W; dimensions 75 × 86 × 30 mm; weight <50 g; interfaces: CAN, I2C, SPI, UART, USB, Wi-Fi, Ethernet, DSI/CSI; operating temp –20 °C to +85 °C | N/A                                                                                        |
| Payload Bus + Compression Software        | Payload bus integrated with proprietary compression software to optimize data throughput and storage efficiency.                            | Same hardware specifications as Payload Bus (Hardware Only)                                                                                                                                                       | Software licensed for 5 years, extendable up to 10 years with <b>usage based pricing</b> . |
| Satellite Diagnostic System (new product) | Integrated diagnostic and debugging system for satellite subsystems and inter-subsystem communication, with touch-based HMI and dashboards. | 7-inch capacitive touch HMI; interfaces: CAN, UART, USB, Wi-Fi, Ethernet; dimensions 200 × 115 × 25 mm; weight <1,000 g                                                                                           | Licensed for up to 5 years                                                                 |

## NEXCOPE HELPS ITS CUSTOMERS SAVE 30% ON OVERALL SATELLITE COSTS



### BUSINESS MODEL

#### VALUE BASED PRICING

**%-age share of bandwidth cost savings delivered**  
(Thereby providing price reasonability to small satellite owners)

#### FLEXIBLE PAYMENT SCHEDULE

- One-Time
- Quarterly
- Yearly

#### TARGET MARKET

- Satellite Imaging Companies
- UAV imaging and Surveillance.
- IoT and Hyperspectral Imaging

#### PLUG-AND-PLAY INTEGRATION MODEL

- Compatible with existing satellite buses
- Minimal compute + power overhead

### GO-TO-MARKET STRATEGY

**Design with OEMs:** Partner with satellite OEMs at payload design stage to embed compression pre-launch. Positions NexCope as a default layer within the imaging stack.

**Strategic Partnerships:** Collaborates with payload, ground station, and system integrators. Enables distribution across the space data value chain.

**Defense and ISR Programs:** Expand via prime contractors into defense and ISR deployments. Target high-value, mission-critical imaging use cases.

**Edge & Autonomous Expansion :** Extends to UAVs, drones, and edge imaging platforms. Enables real-time analytics under bandwidth and compute constraints.

# COMPETITIVE LANDSCAPE

## PAYLOAD BOARD / ON-BOARD COMPUTER



## COMPRESSION SOFTWARE



Cloud-based image optimization No real-time / edge capability Consumer & web-focused (non-mission critical).



Ultra-low latency (<1ms). Moderate compression (6-12x typical). Optimized for broadcast, not bandwidth-constrained systems.



AI-native compression (ICD inference) Edge-focused, not satellite-optimized Software-first, limited hardware integration, requires training, Accuracy can never be 100%. Heavy power requirement.



High-fidelity RAW compression (~6x) Optimized for scientific accuracy Limited bitrate efficiency for transmission.



Ultra-high compression (80x), Low memory footprint, Low Power consumption, Reliable performance, Algorithmic Compression, Optimized for real-time deployment.

NEXCOPE LEADS THE ALGORITHMIC IMAGE COMPRESSION TECHNOLOGY BY BEING RELIABLE, FAST AND EDGE COMPUTED





# TEAM

## MANAGEMENT ROLES



MUSHARRAF  
ABDULLAH

CO-FOUNDER, CEO  
& CTO

- B.TECH. (AI) AMU 2026.
- SDE AT ACCENTURE
- RECEIPT OF PRESTIGIOUS INDIA-AI FELLOWSHIP



ILMA SHAH

CO-FOUNDER,  
CMO

- M.TECH & B.TECH. (CSE) AMU.
- PHD UNI. OF GEORGIA



SIRAJ AHMAD

CO-FOUNDER,  
CCO

- M.TECH & B.SC. (ENGG) AMU.
- FORMER SUPERINTENDING ENGINEER IN U.P. DEVELOPMENT AUTHORITY
- 32+ YEARS OF EXPERIENCE IN PROJECT IMPLEMENTATION, PUBLIC PROCUREMENT AND PUBLIC POLICY



PROF. EKRAM  
KHAN

TECHNICAL EXPERT &  
ADVISOR

- PHD IN ELECTRONICS ENGINEERING (IMAGE AND VIDEO CODING AND TRANSMISSION), UNIVERSITY OF ESSEX, UK (2003); COMMONWEALTH SCHOLARSHIP RECIPIENT (1999-2002)
- 150+ PUBLICATIONS IN REPUTED REFEREED JOURNALS AND INTERNATIONAL CONFERENCES (IEEE TRANSACTIONS ON CSVT, MULTIMEDIA, BROADCASTING; IET JOURNALS)
- RESEARCH EXPERTISE IN LOW-COMPLEXITY IMAGE/VIDEO CODING, WIRELESS VIDEO TRANSMISSION, VIDEO STREAMING, AND BIOMEDICAL IMAGE PROCESSING
- RECIPIENT OF IBM J. T. WATSON RESEARCH LAB AWARD FOR BEST DISRUPTIVE IDEA AT ICME 2002



FARAZ  
AHMAD

TECHNICAL ADVISOR &  
SATELLITE SYSTEMS  
DESIGNER

- 12 YEARS OF EXPERIENCE IN PUBLIC PROCUREMENT, CONTRACTS, AND POLICY WITHIN A CENTRAL PSU
- INNOVATOR WITH FOUR PATENTS (TWO GRANTED)
- EXPERIENCE ACROSS INDUSTRIAL ROBOTICS, GREEN ENERGY, AND SPACE TECHNOLOGY
- 5 YEARS EXPERIENCE IN SATELLITE DEVELOPMENT
- WORKED ON A GOVERNMENT PROJECT FOCUSED ON INDUSTRIAL ROBOTICS
- AUTHOR OF MULTIPLE RESEARCH PAPERS IN THE ENERGY DOMAIN
- EXPERIENCE IN MEDIUM TO LARGE SCALE PROJECT EXECUTIONS



SHAKAIB  
AZHAR

BUSINESS  
DEVELOPMENT  
ADVISOR

- ASSOCIATE DIRECTOR AT IDP
- EXPERT IN STRATEGY PLANNING, MANAGEMENT CONSULTING & BUSINESS DEVELOPMENT
- 18+ YEARS OF EXPERIENCE IN BUSINESS DEVELOPMENT.



DR. AZEEM  
KHAN

ECONOMIC ADVISOR

- VISITING ASSISTANT PROFESSOR AT IIM INDORE
- PHD IN ECONOMICS, IIT KANPUR.
- EXPERT IN BANKING, MONETARY ECONOMICS AND APPLIED ECONOMETRICS.
- 9+ YEARS OF EXPERIENCE IN ACADEMIA AND RESEARCH.

## SUPPORTED BY





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