

A03 VOICE TECH IN THE MULTIVERSE CREATIVE CHALLENGE

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ASTROLINK COMM CLEAR VOICES BEYOND EARTH

Mission: Ensure crystal-clear and dependable voice communication throughout all sections of an international space station, even in extreme noise and emergency situations.

- **Key Challenges:**
- Microgravity reverberation in metallic cabins
- Continuous hum from life-support pumps and fans
- Helmet-mic bandwidth limits and accent variability





OUR VALUE TO THE SPACE STATION

- **Crystal-Clear Speech**
 - Reduces fan and pump noise and valve hiss for 99% clarity.
- **Universal Accent Normalization**
 - Real-time translation and phoneme tuning for over 7 crew languages
- **Fail-Safe Emergency Mode**
 - Keyword-spotting fallback ensures detection of critical commands.



UNIVERSE-APPROPRIATE INNOVATIONS

Key Technical Features:

- **Adaptive Noise Cancellation (ANC)**
 - Continuously updates filters with life-support noise profiles.
- **Enhanced MFCC + Δ Pipeline**
 - Pre-emphasis and helmet transfer compensation for full-band clarity.
- **Hybrid DNN Keyword-Spotting**
 - Instantly switch to emergency protocol detection when SNR is below 5 dB.



OUTPERFORMING EARTH-BASED SYSTEMS

Competitive Advantages:

- **30% Lower WER** at low-SNR compared to leading terrestrial ASR
- **Urgency-Aware TTS** Prosody for Life-Critical Broadcasts
- **Patented Helmet-Transfer EQ** - no off-the-shelf solution rivals our resonance correction

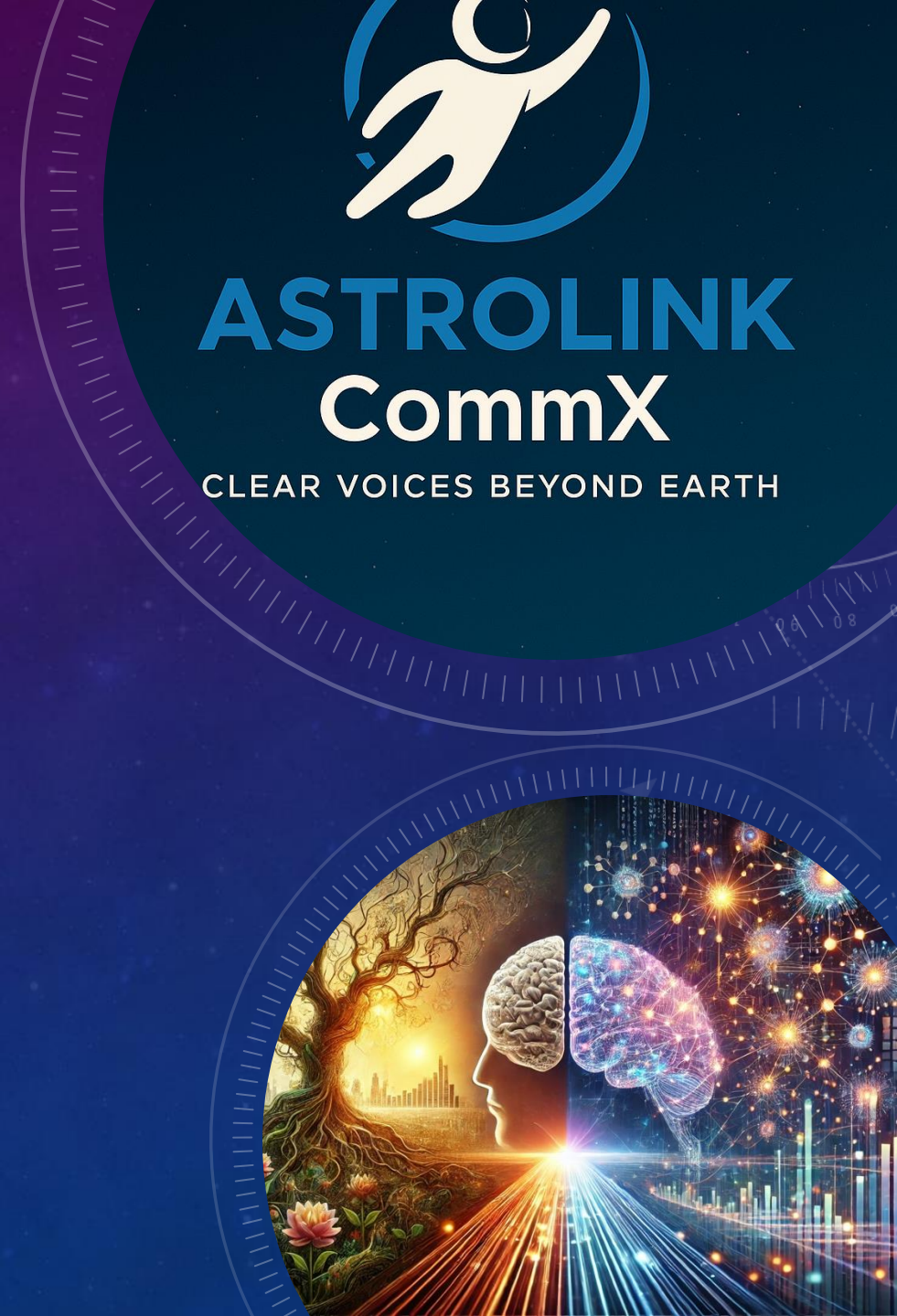
“HEAR THE FUTURE, EVEN IN SPACE”

Impact

- 99 % speech intelligibility in routine operations
- 30 % reduction in ASR word-error rate under low SNR
- Fail-safe emergency alerts to safeguard crew response times

Next Steps:

Pilot installation on ISS Node 3 this Q4
Crew training & performance validation
Deployment across all modules by Q2 2026





AstroLink
CommX

CLEAR VOICES BEYOND EARTH