# NEWSLETTER

December 2025

## Highlight: AraFest'26 – Join us in September 2026!

*Connecting the Unconnected with 6G and AgTech Innovation*

AraFest'26, co-located with the 2026 Farm Progress Show, the world's premier AgTech event, will showcase breakthroughs in wireless x-haul, heterogeneous wireless access, and LEO satellite connectivity through ARA wireless living lab, its first-of-its-kind platform. AraFest'26 is planned to celebrate progress across wireless and AgTech, strengthening collaborative communities and scaffolding, and igniting wireless and AgTech innovation initiatives. There are ample opportunities for you to co-shape AraFest'26!

- To propose a talk, panel, demo, or a session on a specific topic, please contact Hongwei Zhang, PI of ARA and WiCI director via email →
- Interested in using a booth at the Farm Progress Show to engage 150,000+ visitors from around the world? Please email e2@arawireless.org →
- To attend AraFest'26, visit our AraFest'26 program for details →



AraFest'26 program › | 2026 Farm progress show › | Past ARA community events ›

# New ARA Resources and Capabilities



- **Starlink terminal addition to ARA**: A Starlink terminal has been installed next to the OneWeb user terminal, which allows researchers to conduct comparative studies of LEO satellite constellations in rural deployment scenarios via ARA.
- **Outdoor OpenAirInterface experiments**: The Phase-2 Gilbert base station is now fully enabled for outdoor OpenAirInterface experiments, expanding user access to open-source RAN capabilities.
- **Outdoor srsRAN NextG experiments**: srsRAN NextG experiments are officially available on both Phase-1 and Phase-2 sites using COTS UEs, offering new opportunities for 5G/NextG prototyping at scale.
- **COTS 5G measurements**: ARA now provides a mobile COTS UE platform, a bus equipped with ARA user equipment, allowing measurements collection on mobile platforms.
- **AraHaul x-haul experiments**: AraHaul has also been expanded to incorporate new links between Phase-1 and Phase-2 stations.
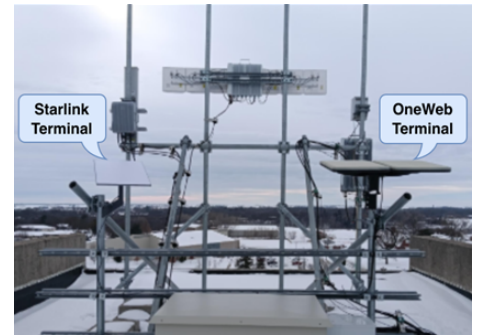
**Deployment details › | Research enabled ›**



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# A R A   U S E R   S T O R I E S

## User Story: Amiga - Accelerating Field Scouting with ARA's FutureG Connectivity

Researchers from the AIIRA national AI institute have leveraged ARA to investigate how networked agricultural ground vehicles, remote sensing and computing, and machine learning can automate labor-intensive field scouting, transforming hours of manual assessment into near-real-time analysis and decision-making.



The team developed a field-deployable "Amiga" platform, a ground vehicle equipped with high-resolution imaging sensors, an automated navigation system, a high-performance on-board compute unit, and a dedicated ARA communication endpoint. The ARA platform provided the essential coverage, throughput, low latency, and reliability needed in rural farm fields. Amiga, the unmanned agricultural vehicle, has been featured at AraFest'24.

**Read the full story ›**

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## User Story: Enhancing NextG Random Access Reliability with ARA

Prof. Hongwei Zhang and his team at Iowa State University have developed AraRACH, a slot-based scheduling framework that jointly addresses reliability and timing issues in open-source 5G/6G random access (RACH) procedures, which have showcased reliable 5G connectivity over 1 mile, the longest range reported so far in real-world settings.
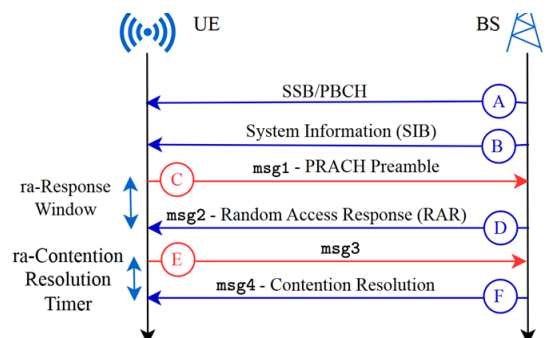


ARA's distributed outdoor deployment, including 7 SDR gNBs and 30+ user devices spread across line-of-sight (LoS) and extended non-LoS rural scenarios, offers a realistic environment to validate RACH timing and access success under true field conditions. This work resulted in the Best Paper Award at IEEE NetSoft 2025, along with open-source implementations for reliable next-generation random access prototyping at rural scale.

**Read the full story › | More user stories ›**

## ARA: Advancing Frontiers of Wireless & Applications in Agriculture, Public Safety, Defense, Smart Communities

### AraFest'25 Reflections

ARA successfully hosted AraFest'25, its third annual community gathering, accelerating wireless research, education, and community innovation via technical talks, hands-on tutorials, dynamic demos, and field tours across the ARA wireless living lab. The key takeaways are:

- Forward-looking **opening remarks** from NSF and PAWR leadership.
- **Technical talks** outlined advances in AI-driven networking, digital twins, and broadband mapping.
- The **education session** highlighted the integration of ARA infrastructure into courses, labs, and student projects to strengthen workforce development.

Program and talks › | Sign up to use ARA ›

### Share Your Story

Excited about your new findings and insights from ARA-enabled experiments? Share with us, and we will spread the joy with the broad ARA community!

Share stories › | Publication details ›

### Co-Shape ARA

Let us know what works well and what capabilities you would like to see next in ARA. ARA is designed for you!

Share feedback ›

### Join the Community

Have questions about ARA or interested in WiCI researcher/engineer/student openings? Connect with us!

Contact ARA › | Join ARA community › | WiCI positions ›

**Connect With Us on Social Media to Stay Up to Date on ARA's Latest News and Announcements!**