



## PAWR Project Office

April 2022

Welcome to the monthly PAWR update. Each month we deliver technical summaries on: [POWDER](#), [COSMOS](#), [AERPAW](#), [ARA](#), and [Colosseum](#).

### **POWDER-RENEW**

In big news, the POWDER-RENEW team has successfully redeployed its programmable massive MIMO array and announced availability for outdoor research use. The rooftop set-up includes not only a 64 TX/RX Skylark Faros array, but also one nearby client site with two Iris client radios acting as user endpoints. An additional four UEs will be deployed shortly. The base station consists of eight remote radio heads, each containing four 2x2 MIMO Iris software defined radios. The system targets a small area of roughly 17 meters by 60 meters and operates over a segment of the CBRS frequency band.

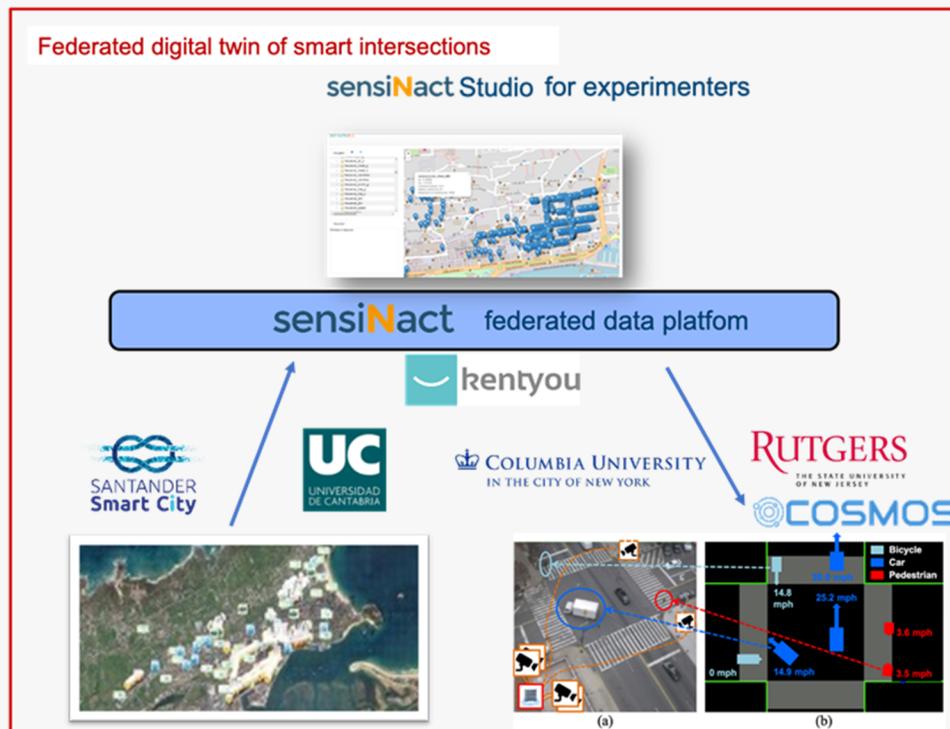


Researchers looking to use the mMIMO system can reserve resources on the POWDER portal (account required) by selecting a single compute node, the mMIMO base station, and the two Iris UEs currently available. Users also need to select up to 10 MHz of spectrum, and the number of days requested for resource reservation. Full documentation for the mMIMO system is available on the [RENEW wiki](#), including details on available software tools.



## COSMOS

The COSMOS team has announced a partnership with Kentyou in France and the University of Cantabria in Spain to develop the [FedIntersect project](#). The new project is an effort to create cross-Atlantic research around smart street intersections. Part of the NGI Atlantic program, the FedIntersect project aims to federate the COSMOS platform in New York City and the Smart Santander IoT testbed in Spain to enable researchers to experiment with street-level sensors and investigate traffic management solutions.



## AERPAW

Research is continuing across the AERPAW testbed, with experimenters hailing from multiple universities as platform operations kick into higher gear. Meanwhile, the NC State team has carried out several of its own experiments mapping air-to-ground propagation behavior with LTE signals transmitted at various drone altitudes.



The AERPAW team also presented at a number of events over the last month including an NSF webinar on national radio dynamic zones (NRDZs), the ACM WiNTECH Workshop at MobiCom, and a Spectrum Innovation Initiative workshop hosted by Northeastern University.

## ARA

The ARA team has now issued RFPs for construction across four sites: Wilson Hall, Research Park, the Iowa State University Agronomy and Ag Engineering farm, and the ISU Curtiss farm. Construction is scheduled to begin in late spring or early summer, with general availability of the testbed expected later in the year.

The ARA team has also begun collaborating with several local partners to explore the use of the ARA wireless living lab in a broader smart region development initiative. Working with US Ignite, the team has convened partners from the Ames Economic Development Commission, the city of Ames, and ISU Research Park.



## Colosseum



The Colosseum team held a live tutorial session as part of ACM MobiCom in late March.

Team members were also involved in an NSF Spectrum Innovation Initiative (SSI) workshop hosted at Northeastern in early April. The workshop – entitled Conquering, Programming, and Protecting the Wireless Spectrum – covered current spectrum research, future spectrum research goals, and spectrum policy considerations. Colosseum participated as an infrastructure resource for next-generation spectrum innovation.

