



STEP INSIDE YOUR DATA

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Problem Statement

Electromagnetic Spectrum is the New Battlefield

Foreign adversaries are increasing attack vectors, capabilities, and investments.

Current EW & TSCM requires intensive training and dedicated concentration



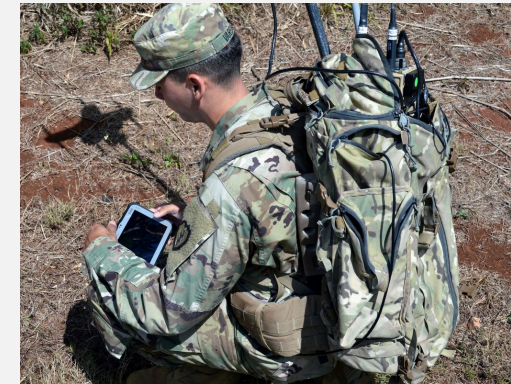
COMPLICATED



CUMBERSOME



SLOW



DISTRACTING

Defense Operational Importance

- U.S. faces risk of defeat in this critical operational environment
- Next-gen AR + AI enables order-of-magnitude improvements in C4ISR

Dual-Use Telecom

- Global competition in 5G network planning/rollout
- Same tech used for cellular diagnostics/deployment



SeeSignal

- Visualize RF/CBRNE indoors and outdoors
- Reduce cognitive load for diagnostics
- Direction-find transmitters and relays
- Maintain situational awareness

[>>> LINK TO VIDEO <<<](#)

DoD Adaptation



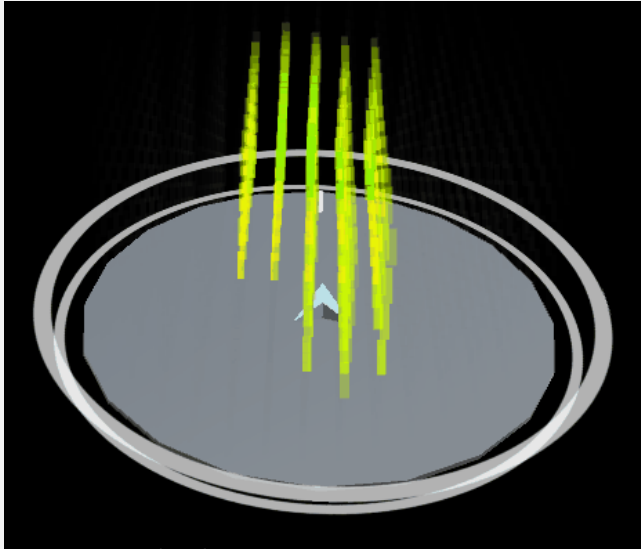
RSSI 66 dBm

FILL
0 %

RANGE
1 %

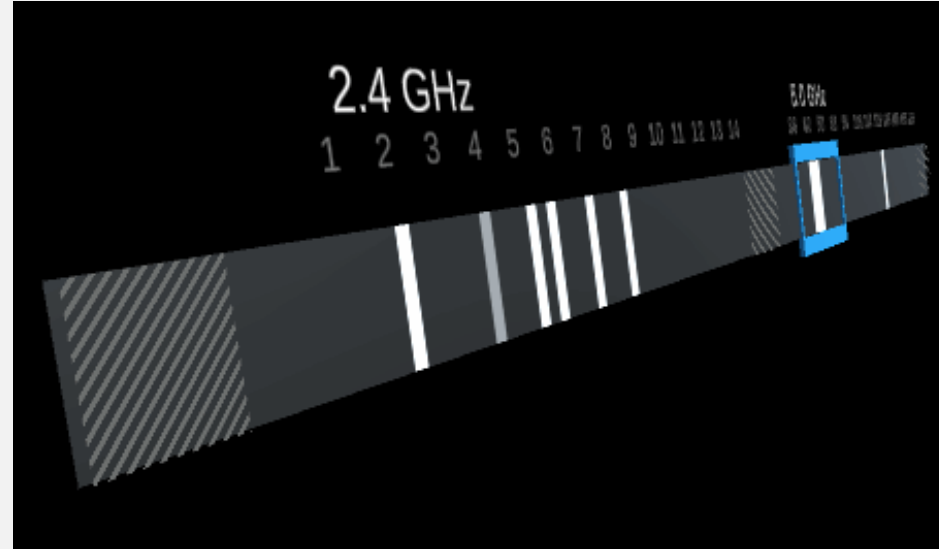
RSSI 66 dBm

Key Differentiators



Minimap

Live 3D display of wireless signals around user's location



Spectrum Slider

View saturation across multiple frequency bands, tap to filter results

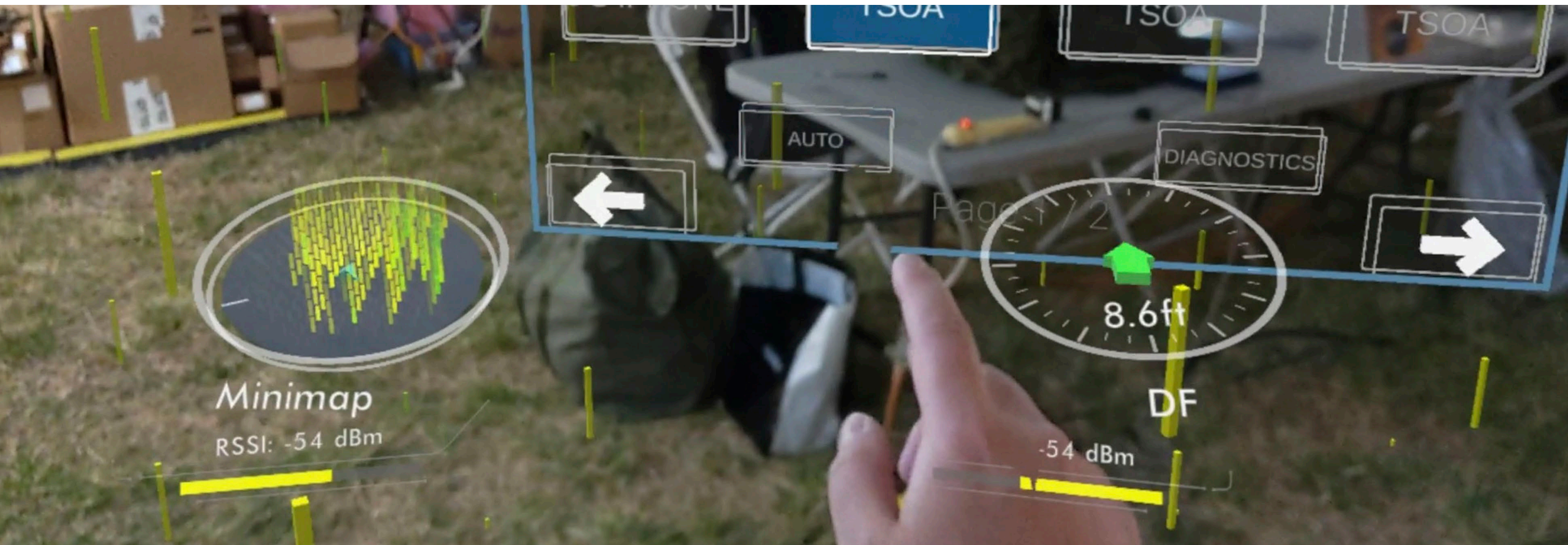


Direction Finder

Triangulate devices, transmitters for easier diagnostics

Enhanced Mobility

The system has no cloud or 3rd party dependencies, and can function fully hands-free. Minimal to zero RF footprint, designed to run on Microsoft HoloLens / Army IVAS DoD-approved devices.



Technical Specifications

SeeSignal uses embedded chipsets in COTS mobile devices to create interactive visualizations of RF sensor readings. Data is spatialized and processed in real-time through a mobile-optimized propagation algorithm. Out of the box, the system supports WiFi, Cellular, and Bluetooth bands:

Wi-Fi

802.11ax	2.4 / 5 GHz & 1-6 GHz
802.11ac	5 GHz
802.11n	2.4 / 5 GHz
802.11g	2.4 GHz
802.11a	5 GHz
802.11b	2.4 GHz

Cellular

5G NR
LTE / LTE Advanced
UMTS / HSDPA / HSPA+
CDMA IS-2000
CDMA IS-95
GSM / EDGE

Bluetooth

5.0 / 5.1 + AoA
4.2 + BLE
4.0 / 4.1
3.0 + HS
2.0 / 2.1 + EDR



HoloLens 2



Magic Leap One

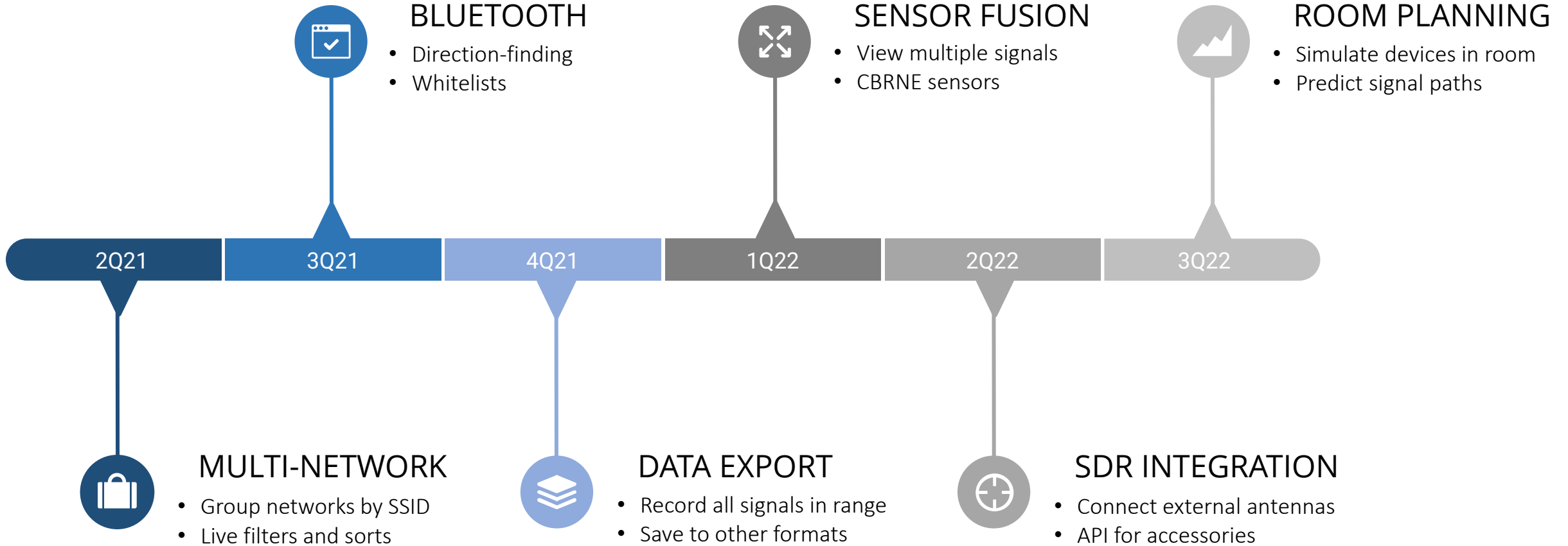


HoloLens 1



Android 10+ w/ ARCore

Roadmap



Defense Need

EW/TSCM Training

Problem

New trainees struggle with building mental models from 1D/2D theoretical views

Solution

- View **live signals** in situ, in 3D
- **Faster training**, lower cognitive load
- Immediate comprehension of theory

End User

NSA: TSCM Trainer

Office Special Investigations

Problem

Difficult to enforce RF rules in dynamic environments w/ BYOD & IoT devices

Solution

- Rapid deployment in COTS package
- **Discreet** scanning capabilities
- Quickly mitigate risks

End User

AF OSI: TSCM Manager

EW/TSCM Operators

Problem

RF analysis tools require full attention of user & high technical expertise

Solution

- Shifts RF into **visual spectrum**
- Allows natural interaction
- Enables faster, more accurate DF

End User

ITC: TSCM Operator

Existing SIGINT
Focused on screen
instead of scene



Spatial SIGINT
Preserve use of hands,
maintain situational awareness,
expand comprehension in 3D

DoD user testing informed roadmap to include multi-domain data and “black box” support

Technical Merit

Privately funded R&D since 2018

- Users can now “see” invisible RF spectrum in AR
- Received grant from headset OEM
- Compatible with DoD-approved platforms
- Uniquely qualified team w/ engineering, data analytics, and psychology
- Company has many commercial deployments, \$2M revenue in 2020

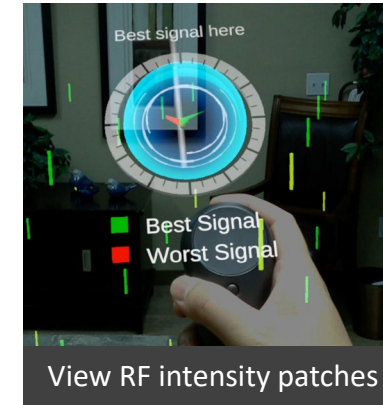
Patents pending: WO2020231888A1, US20200098343A1, US20200097239A1

Baseline tech is Augmented Reality (AR) and AI

- Existing proof-of-concept deployed to commercial telecoms
- 9 months of QA testing with major telecom’s 5G labs
- RDT&E: demoed to **AF, CIA, NSA, FBI, DARPA**
- Selected for Army Futures Command EW exercise, Fort AP Hill 2021

“BadVR’s ability to ‘see’ the invisible and interact with holographic representations of RF is a game-changer. TSCM is a highly theoretical and obscure blend of art and science, so I’m eager to see it accessible, intuitive, and available for testing.”

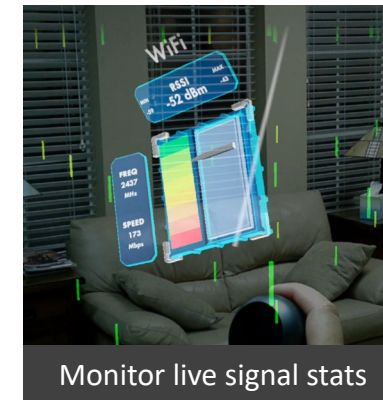
Karl Wagner, Former CIA Chief of Counterintelligence Operations



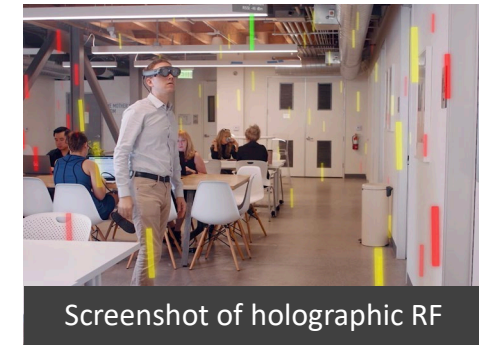
View RF intensity patches



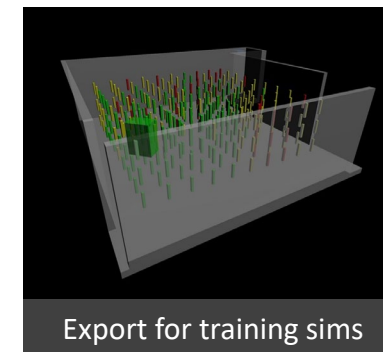
AF demonstration in Tampa



Monitor live signal stats



Screenshot of holographic RF



Export for training sims



FCC Commissioner O'Reilly