

**M.O.T.A.R.
(MAINTENANCE OPERATIONS TRAINING
AUGMENTED REALITY)**

BELLE LABS MEMPHIS

Maj Hans Jagow
Direct, ARCWERX

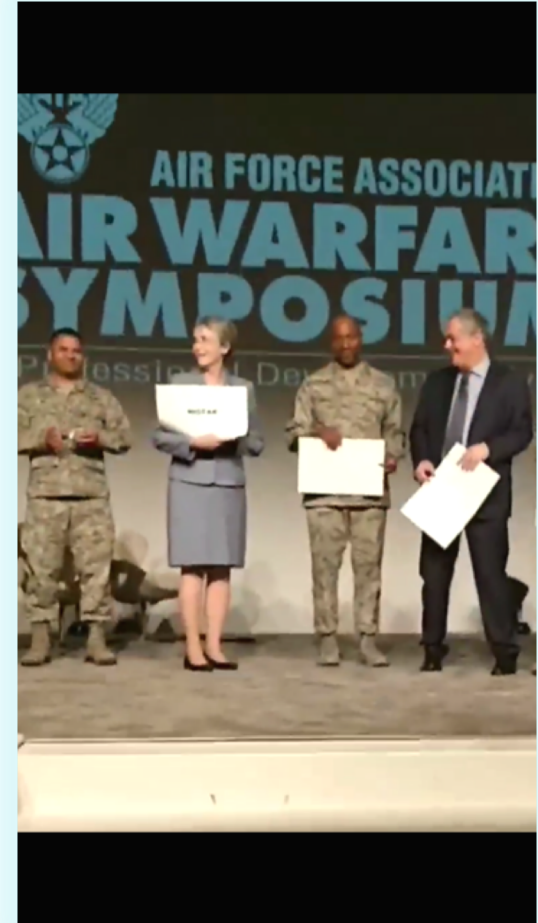
MOTAR (Maintenance. Operations. Training. Augmented. Reality)

- ❑ Created to tackle challenges in the USAF
 - Warfighters are used to cutting edge technology on their smart phone
 - There are great XR tools and apps available, but nothing talks together
 - The USAF pays to recreate the wheel over and over and over (i.e., authentication and learning management)
 - Commercial apps and platforms use COTS SDKs which share sensitive data to Google, Facebook, etc
- ❑ AFCREATE is a platform for sharing and tracking Augmented-Reality, Virtual-Reality, Videos, and traditional training throughout the USAF enterprise. Think of it as “Netflix for training”



UNIT: AETC A3/6 (MOTAR)

- ❑ MAJCOM Spark Tank Winner 2018
- ❑ Chosen by the SECAF for funding
- ❑ AFWERX Challenge Process
 - 120 Companies applied for the challenge
 - 3 Chosen



Current status:

- ☐ ALPHA test completed
- ☐ Projects being delivered through the platform
- ☐ Platform 1 migration in progress

Challenge Finalists

Dynepic

EONReality

Littlstar



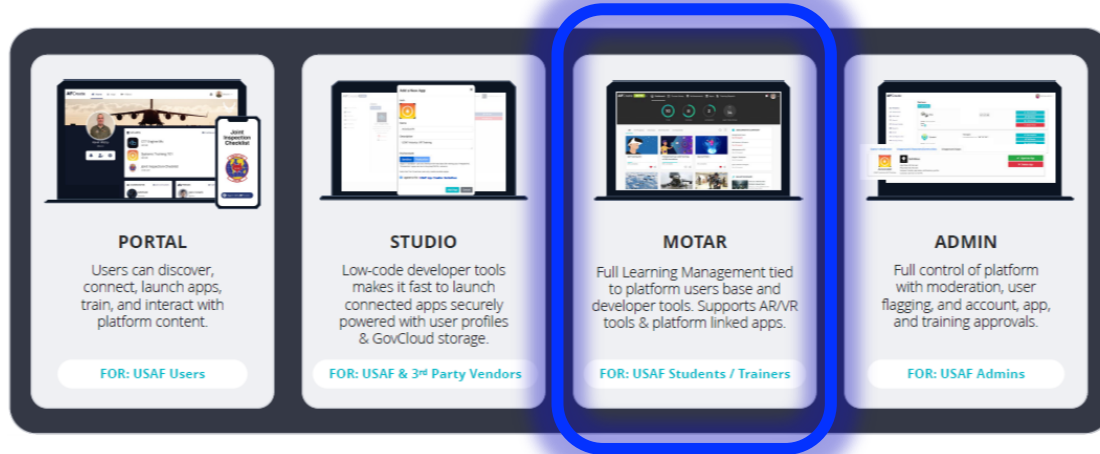
**Allotted 6 months
for protocol
development**

Challenge Winners

Dynepic

EONReality

- ❑ Complete immersive app that includes training creation & a distribution platform built with privacy-secure services for virtual, augmented and mixed reality applications operations
- ❑ Links to Learning Management System for student tracking
- ❑ Streaming virtual training
- ❑ Augmented reality assistant/remote help/AR MX
- ❑ Expandable/agile



AFCreat MOTAR: for USAF students and trainers

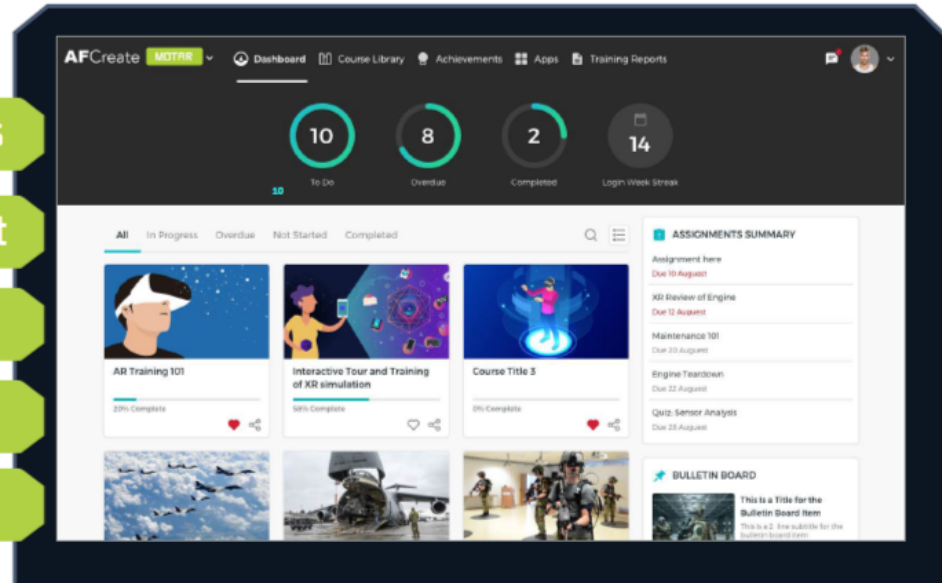
Training Dashboards

Learning Management

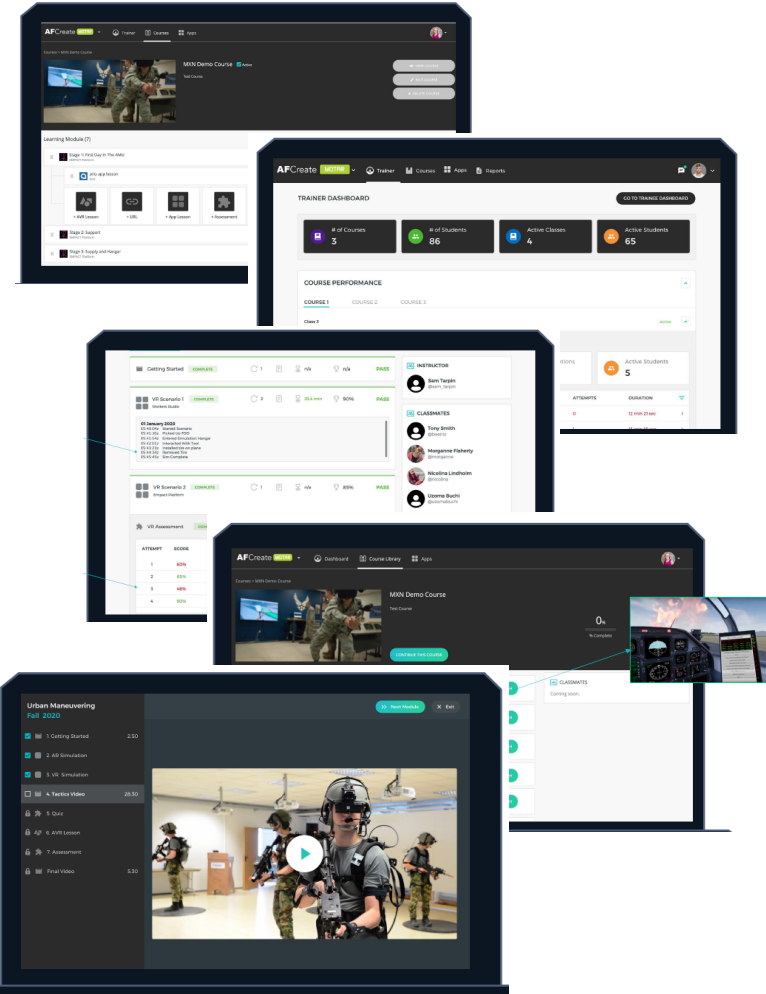
SDK / API Integration

XR Optimized

XR Device Agnostic



- ❑ Course creator: full learning management optimized for XR immersive training with multi-vendor apps and tools
- ❑ Instructor dashboards: instructors can view student metrics and scores for course modules
- ❑ Instructor view of student progress: instructors can view student progress, dive into XR app metrics and review scores
- ❑ Student dashboards: students can discover courses and launch class modules/apps in headset or viewer
- ❑ Student lesson viewer: in dashboard quiz, video and lesson support in viewer



Further MOTAR integration

- ☐ Natural voice recognition MDC
- ☐ Smart parking spots
- ☐ Training verification
- ☐ Augmented reality instructions
- ☐ PDF-to-AR/VR real-time conversion and verification
- ☐ Working with AFSOC to build out operational side of platform

BELLE LABS MEMPHIS

- ❑ Dedicated to providing full service design and development services to the Air National Guard and the US Air Force
- ❑ By Bluesuiters, For Bluesuiters
- ❑ An immersive content design studio, specializing in AR/VR applications
- ❑ Provides design services for immersive and non-immersive training and operational software products
- ❑ Problem Statement: Unrealized capabilities in training efficiency, training modes, and operational proficiency degrade aircraft and personnel readiness
- ❑ Mission Statement: Provide world class solutions to USAF/ARC problems leveraging blue-suit skills and commercial products to create unique capabilities for the warfighter



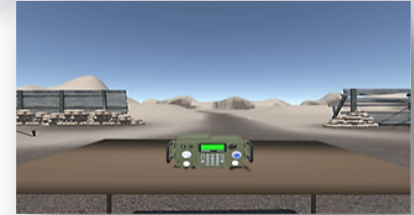
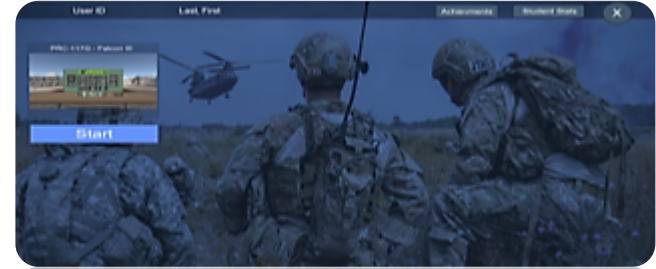


Past, current and future projects:

- ☐ MOTAR/AFCREATE platform
- ☐ TACP Radio training software
- ☐ C130H Secure Voice/ Havequick Radio training program
- ☐ Multi-Aircraft Engine Run Simulator project
- ☐ Development of VR Tools for Aircraft Maintenance
- ☐ UAV supply training simulation
- ☐ Maintenance AI Assistant

TACP Radio Training Software

- ❑ Delivered to 342nd Training Squadron, Lackland AFB and in use by TACP Pipeline Students
- ❑ Concept-to-field: 3 months @ \$10K
- ❑ Eliminated the need for physical radios and batteries in the classroom
- ❑ Works on the standard-issued Samsung S9 Tactical Device
- ❑ Allows for training to happen at any time/at any location to increase familiarity of radio operation



C130H Secure Voice/ Havequick Radio training program

- ❑ Delivered to the 189th OG, Little Rock AFB, ANG (created in partnership with the 229th COS, Vermont ANG)
- ❑ Concept-to-completion: 6 months @ \$20K (including \$16K of equipment)
- ❑ 189th OG decided not to continue development
- ❑ BELLE Labs reworking simulation as iOS deliverable





Multi-Aircraft Engine Run Simulator

- ☐ In work with AFMX-LC and a partnership with Moth+Flame VR Design Studio (Brooklyn, NY)
- ☐ Commissioned by Warner Robins Depot MX
- ☐ To be delivered by end of FY20
- ☐ C-17A, C-5M, C-130J, F-15, AND JSTARS
- ☐ Virtual reality system
- ☐ Massive time and cost savings
 - Iron (available aircraft)
 - Fuel (cost per hour)
 - TDY Cost
 - Development cost

Development of VR Tools for Aircraft Maintenance

- ☐ In work with conjunction of BELLE Labs, Warner Robins Depot and Moth+Flame VR Design Studio (Brooklyn, NY)
- ☐ SIBR Phase II with matching funds - awarded and waiting for contracting
- ☐ Leveraging previous work with the Multi-Aircraft Engine Run Simulator to create additional training on common framework
- ☐ Allows for:
 - ☐ NDI (Non-destructive Inspection) training
 - ☐ On-aircraft procedural training
 - ☐ Aircraft maintenance training

UAV Supply Training Simulation

- ☐ In work for 118th AW, Nashville, TN
- ☐ Working with 118th to create supply training program to save on TDY cost for Supply Craftsmen
- ☐ Will allow proficient training without access to physical supply functions
- ☐ Project is still in the early scoping phase but will begin in August 2020

Maintenance AI Assistant

- ☐ In work with Warner Robins Depot and the 461st ACW (Georgia ANG) and nFLUX.AI (Sherman Oaks, CA)
- ☐ SIBR Phase II with matching funds - awarded and waiting for contracting
- ☐ Will be built using current technology used on the ISS (International Space Station)
- ☐ To create an AI assistant to capture corporate knowledge for aircraft maintenance
- ☐ Test application will concentrate on JSTAR's flight control rigging

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ARCWERX

Λ F W E R X

QUESTIONS?