
2018 AUGMENTED REALITY WORKSHOP



October 3, 2018

The Waterford Reception Center

Springfield, VA

NDIA.org/ARWorkshop

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NDIA

WHO WE ARE

The National Defense Industrial Association is the trusted leader in defense and national security associations. As a 501(c)(3) corporate and individual membership association, NDIA engages thoughtful and innovative leaders to exchange ideas, information, and capabilities that lead to the development of the best policies, practices, products, and technologies to ensure the safety and security of our nation. NDIA's membership embodies the full spectrum of corporate, government, academic, and individual stakeholders who form a vigorous, responsive, and collaborative community in support of defense and national security. For more information, visit NDIA.org

EVENT INFORMATION

LOCATION

The Waterford Reception Center
6715 Commerce Street
Springfield, VA 22150

EVENT WEBSITE

NDIA.org/ARWorkshop

WIFI

Network: H2OGuest
Password: waterfordguest

ATTIRE

Civilian: Business
Military: Uniform of the day

SURVEY AND PARTICIPANT LIST

You'll receive via email a survey and list of attendees (name and organization) after the conference. Please complete the survey, which helps make our event even more successful in the future.

EVENT CONTACT

General Event
Reneé Despot
Meeting Manager
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rdespot@ndia.org

Agenda
Daniel Lung
Program Coordinator, Program Development
(703) 247-9476
dlung@ndia.org

PLANNING COMMITTEE

Lauren Hamburg-Marble
Augmented Reality
Business Development
Lead, Newport News
Shipbuilding (NNS)

Gregory Domer
Staff Engineer, Augmented
Reality Consortium Lead,
Honeywell FM&T

Jason Ingalls
Founder & CEO, Ingalls
Information Security

SPEAKER GIFTS

In lieu of speaker gifts, a donation is being made to the Fisher House Foundation.

HARASSMENT STATEMENT

NDIA is committed to providing a professional environment free from physical, psychological and verbal harassment. NDIA will not tolerate harassment of any kind, including but not limited to harassment based on ethnicity, religion, disability, physical appearance, gender, or sexual orientation. This policy applies to all participants and attendees at NDIA conferences, meetings and events. Harassment includes offensive gestures and verbal comments, deliberate intimidation, stalking, following, inappropriate photography and recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome attention. Participants requested to cease harassing behavior are expected to comply immediately, and failure will serve as grounds for revoking access to the NDIA event.

LEADERSHIP AND COMMITTEES

Lt Gen Robert Elder, USAF (Ret)
Division Chair

Maj Gen David Senty, USAF (Ret)
Vice Chair

Maj Gen Jim H. Keffer, USAF (Ret)
Advisor

Brig Gen Guy M. Walsh, USAF (Ret)
Advisor

Scott Goldstein, PhD
Advisor

Jeff Moulton
Advisor

CYBER-AUGMENTED OPERATIONS DIVISION

WHO WE ARE

The Cyber-Augmented Operations Division focuses on harnessing the power of cyber-related technologies (such as high-speed processing, agile spectrum electronics and information algorithms) to deliver speed and automation to create both tactical and operational advantages in military operations. CAO technologies will expand as innovators reveal the potential for cyberspace beyond support for intelligence and traditional military operations.

AGENDA

WEDNESDAY, OCTOBER 3

7:00 am – 4:30 pm	<p>REGISTRATION FOYER</p>
7:00 – 8:00 am	<p>NETWORKING CONTINENTAL BREAKFAST MILLER BALLROOM</p>
8:00 – 8:15 am	<p>WELCOME REMARKS SINGLETON BALLROOM</p> <p>Dr. Heather Havens Vice President, Program Development, NDIA</p>
8:15 – 8:30 am	<p>GUEST SPEAKERS SINGLETON BALLROOM</p> <p>Lauren Hamburg-Marble Augmented Reality Business Development Lead, Newport News Shipbuilding (NNS)</p> <p>Gregory Domer Staff Engineer, Augmented Reality Consortium Lead, Honeywell FM&T</p>
8:30 – 9:30 am	<p>PRODUCT DEMONSTRATION LIGHTNING ROUNDS SINGLETON BALLROOM</p>
9:30 – 10:30 am	<p>IDENTIFYING OPPORTUNITIES FOR AR SOLUTIONS PANEL SINGLETON BALLROOM</p> <p>Lauren Hamburg-Marble <i>Moderator</i></p> <p>Augmented Reality Tool for Air Force Air Mobility Command (AMC) Aircraft Maintainers Mike Smith Senior Technical Specialist, ICF</p> <p>Augmented Reality for Mission Planning and Rehearsal Heather Roy Research Psychologist, Human Research Engineering Directorate, ARL</p> <p>Remote Collaboration with Mixed Reality Raven Zachary Founding Partner, Object Theory</p> <p>Army RDECOM Chemical Biological Center, Practical Application of Augmented Reality Don Lail, Jr. Multimedia Specialist, Chemical-Biological Center, RDECOM</p>

10:30 – 11:30 am	<p>PRODUCT DEMONSTRATIONS AND NETWORKING BREAK GIBSON BALLROOM</p>
11:30 am – 12:30 pm	<p>DESIGN CONSIDERATIONS FOR AR PANEL SINGLETON BALLROOM</p> <p>Gregory Domer <i>Moderator</i></p> <p>Registration Considerations and Approaches for Augmented Reality William Wright Director, Integrated Systems, General Dynamics Applied Physical Sciences</p> <p>Design and Development Considerations for Architecting and Scoping Mixed Reality Experiences and Solutions Jason Renfro Creative Director, Microsoft</p> <p>How to Select the Correct AR Device for the Solution Jeffrey Fisher Virtual Reality Lab Manager, National Institute for Aviation Research, Wichita State University</p> <p>Reconciling the Science and Practice of Extended Reality Training Janet Spruill Vice President of Programs, Aptima, Inc.</p>
12:30 – 1:30 pm	<p>LUNCH MILLER BALLROOM</p>
1:30 – 2:30 pm	<p>PROJECT MANAGEMENT METHODS PANEL SINGLETON BALLROOM</p> <p>Lauren Hamburg-Marble <i>Moderator</i></p> <p>Improving Workforce Development Using Augmented Reality: An Agile Project Management Perspective Mia Joe Senior Project Manager, Educational Technology, Huntington Ingalls Industries, Newport News Shipbuilding</p> <p>Where Do We Start? Key Considerations for Augmented Reality Applications in a Sensitive Environment Shelley Peterson Principal Investigator – AR/MR, Lockheed Martin</p> <p>Standard Process for Augmented Reality Assisted Assembly Paul Runyan Electrical Engineer, Process Automation Group, Honeywell FM&T</p>

2:30 – 3:30 pm

USER TESTING, ACCEPTANCE AND FEEDBACK PANEL
SINGLETON BALLROOM

Gregory Domer
Moderator

Augmented Reality Assisted Assembly: A Usability Study

Eric Cornwell
Electrical Engineer, Kansas City National Security Council

Augmented Reality for Energy Resilience

Brigitte Taylor
Senior Consultant, Booz Allen Hamilton

Joint and Coalition Warfighter Experiences in Augmented Reality

Kevin Seavey
Military Analyst, Joint Staff J6's Bold Quest Event

Practical AR Design Considerations

Richard Congdon
Solutions Architect, SAIC

3:30 – 4:30 pm

INFORMATION ASSURANCE AND CYBERSECURITY CHALLENGES FOR AR PANEL
SINGLETON BALLROOM

Jason Ingalls
Moderator

DoD Authorization Process for Augmented Reality

Brandi Pickett
Risk Management Consultant, Ingalls Information Security, LLC

Augmented Reality Design Considerations for Secure Environments

Joshua Burns
Simulations Engineer and Deputy Augmented Reality Consortium Lead, Honeywell FM&T

Augmented Reality Tools for Nuclear Facilities

Dr. David Mascarenas
Research Engineer, Los Alamos National Laboratory (LANL)

4:30 – 6:00 pm

PRODUCT DEMONSTRATIONS AND NETWORKING RECEPTION
GIBSON BALLROOM

The NDIA has a policy of strict compliance with federal and state antitrust laws. The antitrust laws prohibit competitors from engaging in actions that could result in an unreasonable restraint of trade. Consequently, NDIA members must avoid discussing certain topics when they are together at formal association membership, board, committee, and other meetings and in informal contacts with other industry members: prices, fees, rates, profit margins, or other terms or conditions of sale (including allowances, credit terms, and warranties); allocation of markets or customers or division of territories; or refusals to deal with or boycotts of suppliers, customers or other third parties, or topics that may lead participants not to deal with a particular supplier, customer or third party.

DEMONSTRATIONS

Blythe, J. Table 1
Spacemark Labs, Inc.

Burwell, J. Table 2
Bohemia Interactive Simulations

Joe, M. • Picardo, A. V. Table 3
Newport News Shipbuilding

Hale, K. • Lombana, A. Table 4
Design Interactive, Inc.

Caraway, E. Table 5
Logistics Management Institute

Piazza, R. Table 6
Booz Allen Hamilton

Toppel, S. Table 7
AVATAR Partners, Inc.

Parsons, J. • Segal, D. Table 8
PTC

Wright, W. Table 9
General Dynamics Applied Physical Sciences

Zachary, R. Table 10
Object Theory

FULL ABSTRACT CITATIONS

Blythe, J.
Spacemark, Augmented Reality Mobile App, Relevant to Two Areas of Focus: Emergency Management/Disaster Relief and Covert Communications

Burns, J.
Augmented Reality Design Considerations for Secure Environments

Burwell, J.
Development of an Augmented Reality Visual System for Air Crew Training

Caraway, E. • Marina, J.
LMI's Augmented Reality Solutions for Spatial Planning and Training

Congdon, R.
Practical AR Design Considerations

Cornwell, E.
Augmented Reality Assisted Assembly: A Usability Study

Fisher, J.
How to Select the Correct AR Device for the Solution

Hale, K. • Johnston, M.
AUGMENTOR, Using AR to Replicate Experts and Share Knowledge Across the Enterprise

Joe, M.
Improving Workforce Development Using Augmented Reality; An Agile Project Management Perspective

Lail, D.W.
Practical Application of Augmented Reality

Mascarenas, D.
Augmented Reality Tools for Nuclear Facilities

Peterson, S.
Where Do We Start? Key Considerations for Augmented Reality Applications in a Sensitive Environment

Piazza, R. • Dendiu, R. • Schou, D. • Malone, K.
Manifest - Bringing Mixed Reality to the Warfighter

Pickett, B.
DoD Authorization Process for Augmented Reality

Renfro, J. • Cooper, P. • O'Brien, J. • Silverman, D.
Design and Development Considerations for Architecting and Scoping Mixed Reality Experiences and Solutions

Roy, H. • Gamble, K. • Kase, S. • Su, S.
Augmented Reality for Mission Planning and Rehearsal

Runyan, P.
Standard Process for Augmented Reality Assisted Assembly

Seavey, K • Reitz, E.
Joint and Coalition Warfighter Experiences in Augmented Reality

Smith, M. • Barnieu, J.
Augmented Reality Tool for Air Force Air Mobility Command (AMC) Aircraft Maintainers

Spruill, J. • Beaubien, J. • Oster, E. • Lynch, S.
Reconciling the Science and Practice of Extended Reality Training

Taylor, B. • Angle, B. • Gonzalez, T.
Augmented Reality for Energy Resilience

Toppel, S. • Martin, J. • Brooke, M.
Improving Unit Readiness with High Fidelity Augmented Reality for Reduced Maintenance Errors and Time on Task

Wade, S. • Baker, B.
Augmented Reality Experiences and Smart-Connected Learning Environment

Wright, W.
Registration Considerations and Approaches for Augmented Reality

Wright, W. • Heath, D.
Markerless Augmented Reality for Inspection and Repair Operations

Zachary, R.
Remote Collaboration with Mixed Reality

PRODUCT DEMONSTRATION HOURS

NETWORKING BREAK

10:30 – 11:30 am

NETWORKING RECEPTION

4:30 – 6:00 pm

PRODUCT DEMONSTRATION DESCRIPTIONS

AVATAR PARTNERS, INC. TABLE 7

Improving Unit Readiness with High Fidelity Augmented Reality for Reduced Maintenance Errors and Time on Task

Presented by: CDR Scott Toppel

Product Description: The Augmented Reality Maintenance Aid (ARMA) demonstration uses a HoloLens with Vuforia-enabled object tracking technology to walk a user through a wire trace, troubleshooting, and repair maintenance task.

BOHEMIA INTERACTIVE SIMULATIONS TABLE 2

Development of an Augmented Reality Visual System for Air Crew Training

Presented by: John Burwell

Product Description: The demo will feature videos of the Augmented Reality Visual System that will support pilot training.

BOOZ ALLEN HAMILTON TABLE 6

Manifest – Bringing Mixed Reality to the Warfighter

Presented by: Robert Piazza

Product Description: Users will build circuitry wearing HoloLens using the Manifest application. Users will interact with video tutorials, step by step instructions, and augmented reality overlays, showing relevant circuit locations to complete this 3-5-minute task.

DESIGN INTERACTIVE, INC. TABLE 4

AUGMENTOR, Using AR to Replicate Experts and Share Knowledge Across the Enterprise

Presented by: Kelly Hale and Andres Lombana

Product Description: AUGMENTOR: Tool which affords creation of AR maintenance troubleshooting procedures for knowledge sharing. Attendees will see how easy it is to create videos, take pictures, and insert holograms for use in operational procedures and training modules.

GENERAL DYNAMICS APPLIED PHYSICAL SCIENCES TABLE 9

Markerless Augmented Reality for Inspection and Repair Operations

Presented by: David Heath

Product Description: This demonstration will describe how a simple tablet-based augmented reality application is helping Bath Iron Works decrease the costs associated with inspection and repair of shipboard equipment.

LOGISTICS MANAGEMENT INSTITUTE TABLE 5

LMI's Augmented Reality Solutions for Spatial Planning and Training

Presented by: Ethan Caraway

Product Description: LMI will demo the ARCP and ARCT applications on HoloLens to show how AR can provide cost effective ways to plan and train. Attendees will be able to experience demos through the headset and LMI will stream the experience to a display for a wider audience.

NEWPORT NEWS SHIPBUILDING TABLE 3

Improving Workforce Development Using Augmented Reality; An Agile Project Management Perspective

Presented by: Mia Joe and Aris Vincent Picardo

Product Description: The demonstration will provide a hands-on opportunity to experience three AR applications developed for the shipbuilding industry:

- Electrical Trainer AR application
- Absence of Voltage AR application
- JLG Boom Operator AR application

OBJECT THEORY TABLE 10

Remote Collaboration with Mixed Reality

Presented by: Raven Zachary

Product Description: Prism by Object Theory is a mixed reality application that allows collaboration in real time from remote locations. It includes support for customized avatars, display of 3D models at table top and true scale sizes, spatial audio chat, and annotations.

PTC TABLE 8

Augmented Reality Experiences and Smart-Connected Learning Environment

Presented by: John Parsons and David Segal

Product Description: The demonstration will showcase PTC Industrial Augmented Reality and Internet of Things solutions and best practices adopted in Aerospace and Defense industry.

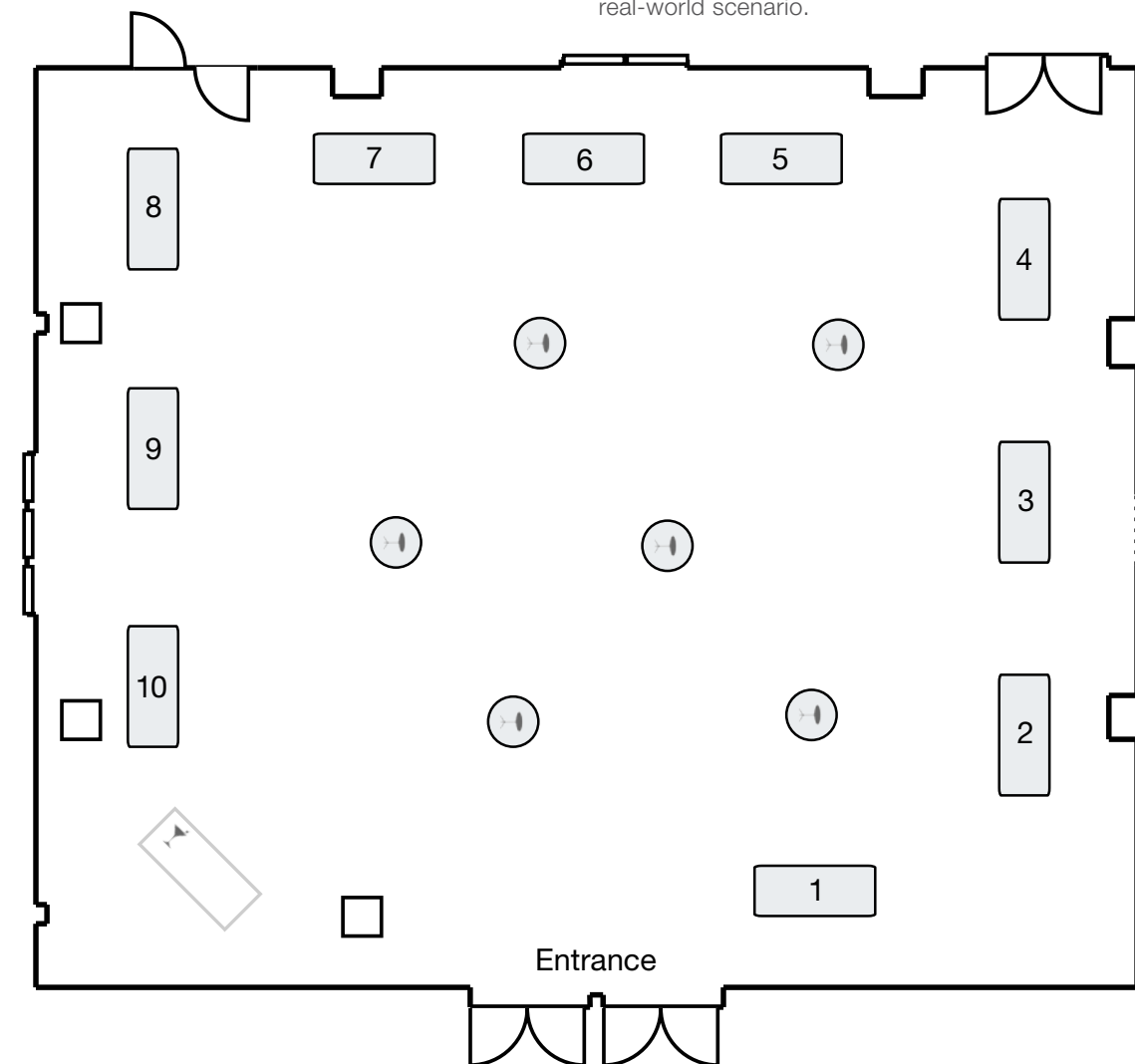
- Cirrus Jet AR preflight check and maintenance analysis
- F-16 AR Experience

SPACEMARK LABS, INC. TABLE 1

Spacemark, Augmented Reality Mobile App Relevant to Two Areas of Focus: Emergency Management/Disaster Relief and Covert Communications

Presented by: Juliette Blythe

Product Description: Utilizing 2 smart devices and 1 laptop, the audience will participate in the process of creating and viewing 'Marks' at both an individual and command level, as well as communication between the devices, simulating a real-world scenario.



REGISTER TODAY



2018 CYBER-AUGMENTED OPERATIONS DIVISION FALL CONFERENCE

Learn about the most significant technological trends that affect military operations at the NDIA Cyber-Augmented Operations Division Fall Conference, November 1, at the MITRE Corporation. Session topics will cover key issues such as Contested Space Comm and PNT Alternatives, Agile Spectrum Ops/Electronic Warfare, Training for Operations in Contested Cyber Environments, and more.

This event will be held at the **SECRET//NOFORN** level.

November 1, 2018

The MITRE Corporation

McLean, VA

NDIA.org/CAO18

