2018 AUGMENTED REALITY WORKSHOP

October 3, 2018
The Waterford Reception Center
Springfield, VA
NDIA.org/ARWorkshop
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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 vibrant, 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: H20Guest
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
(703) 247-2599
rdespot@ndia.org

Agenda
Daniel Lung
Program Coordinator, Program Development
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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**

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<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<td>7:00 am – 4:30 pm</td>
<td><strong>REGISTRATION</strong></td>
<td>FOYER</td>
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<tr>
<td>7:00 – 8:00 am</td>
<td><strong>NETWORKING CONTINENTAL BREAKFAST</strong></td>
<td>MILLER BALLROOM</td>
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<tr>
<td>8:00 – 8:15 am</td>
<td><strong>WELCOME REMARKS</strong></td>
<td>SINGLETON BALLROOM</td>
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<tr>
<td>8:15 – 8:30 am</td>
<td><strong>GUEST SPEAKERS</strong></td>
<td>SINGLETON BALLROOM</td>
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<td>8:30 – 9:30 am</td>
<td><strong>PRODUCT DEMONSTRATION LIGHTNING ROUNDS</strong></td>
<td>SINGLETON BALLROOM</td>
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<tr>
<td>9:30 – 10:30 am</td>
<td><strong>IDENTIFYING OPPORTUNITIES FOR AR SOLUTIONS PANEL</strong></td>
<td>SINGLETON BALLROOM</td>
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<tr>
<td>10:30 – 11:30 am</td>
<td><strong>PRODUCT DEMONSTRATIONS AND NETWORKING BREAK</strong></td>
<td>GIBSON BALLROOM</td>
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<tr>
<td>11:30 am – 12:30 pm</td>
<td><strong>DESIGN CONSIDERATIONS FOR AR PANEL</strong></td>
<td>SINGLETON BALLROOM</td>
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<tr>
<td>12:30 – 1:30 pm</td>
<td><strong>LUNCH</strong></td>
<td>MILLER BALLROOM</td>
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<tr>
<td>1:30 – 2:30 pm</td>
<td><strong>PROJECT MANAGEMENT METHODS PANEL</strong></td>
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### Registration
- 7:00 am – 4:30 pm: Registration
  - **Location:** FOYER

### Networking Continental Breakfast
- 7:00 – 8:00 am: Networking Continental Breakfast
  - **Location:** MILLER BALLROOM

### Welcome Remarks
- 8:00 – 8:15 am: Welcome Remarks
  - **Speaker:** Dr. Heather Havens
  - **Title:** Vice President, Program Development, NDIA
  - **Location:** SINGLETON BALLROOM

### Guest Speakers
- 8:15 – 8:30 am: Guest Speakers
  - **Speaker:** Lauren Hamburg-Marble
    - **Title:** Augmented Reality Business Development Lead, Newport News Shipbuilding (NNS)
  - **Speaker:** Gregory Domer
    - **Title:** Staff Engineer, Augmented Reality Consortium Lead, Honeywell FM&T
  - **Location:** SINGLETON BALLROOM

### Product Demonstration Lightning Rounds
- 8:30 – 9:30 am: Product Demonstration Lightning Rounds
  - **Location:** SINGLETON BALLROOM

### Identifying Opportunities for AR Solutions Panel
- 9:30 – 10:30 am: Identifying Opportunities for AR Solutions Panel
  - **Speaker:** Lauren Hamburg-Marble
    - **Title:** Augmented Reality Tool for Air Force Air Mobility Command (AMC) Aircraft Maintainers
  - **Speaker:** Mike Smith
    - **Title:** Senior Technical Specialist, ICF
  - **Speaker:** Heather Roy
    - **Title:** Research Psychologist, Human Research Engineering Directorate, ARL
  - **Speaker:** Raven Zachary
    - **Title:** Founding Partner, Object Theory
  - **Speaker:** Don Lal, Jr.
    - **Title:** Multimedia Specialist, Chemical-Biological Center, RDECOM
  - **Location:** SINGLETON BALLROOM

### Product Demonstrations and Networking Break
- 10:30 – 11:30 am: Product Demonstrations and Networking Break
  - **Location:** GIBSON BALLROOM

### Design Considerations for AR Panel
- 11:30 am – 12:30 pm: Design Considerations for AR Panel
  - **Moderator:** Gregory Domer
  - **Speaker:** William Wright
    - **Title:** Director, Integrated Systems, General Dynamics Applied Physical Sciences
  - **Speaker:** Jason Rentree
    - **Title:** Creative Director, Microsoft
  - **Speaker:** Jeffrey Fisher
    - **Title:** Virtual Reality Lab Manager, National Institute for Aviation Research, Wichita State University
  - **Speaker:** Janet Spruill
    - **Title:** Vice President of Programs, Aptima, Inc.
  - **Location:** SINGLETON BALLROOM

### Lunch
- 12:30 – 1:30 pm: Lunch
  - **Location:** MILLER BALLROOM

### Project Management Methods Panel
- 1:30 – 2:30 pm: Project Management Methods Panel
  - **Moderator:** Lauren Hamburg-Marble
  - **Speaker:** Mia Joe
    - **Title:** Senior Project Manager, Educational Technology, Huntington Ingalls Industries, Newport News Shipbuilding
  - **Speaker:** Shelley Peterson
    - **Title:** Principal Investigator – AR/MR, Lockheed Martin
  - **Speaker:** Paul Runyan
    - **Title:** Electrical Engineer, Process Automation Group, Honeywell FM&T
  - **Location:** SINGLETON BALLROOM
or topics that may lead participants not to deal with a particular supplier, customer or third party. Allocation of markets or customers or division of territories; or refusals to deal with or boycotts of suppliers, customers or other third parties, they are together at formal association membership, board, committee, and other meetings and in informal contacts with other industry actions that could result in an unreasonable restraint of trade. Consequently, NDIA members must avoid discussing certain topics when

### DEMONSTRATIONS

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<td>Piazza, R.</td>
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<td>Booz Allen Hamilton</td>
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<td>Toppel, S.</td>
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<td>AHFAR Partners, Inc.</td>
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<td>Parson, J. + Segal, D.</td>
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<td>PTC</td>
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<td>Reconciling the Science and Practice of Extended Reality Training</td>
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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.
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