

# SMFoLD Workshop Introduction

Chris Chinnock
Insight Media



### Insight Media

- Focused on advanced display-related technologies in broadcast, cinema, ProAV, consumer and the display industries
- Services
  - Technology/market events and workshops
  - White papers and articles
  - Strategic consulting
  - Custom market research
  - Advertising and promotion (23K database)



### Logistics

- Please wear your badges as you need them to re-enter the room.
- Please turn cell phones off (or to vibrate).
- Speakers have 5 minutes after his/her presentation for immediate questions (schedule permitting)
- Panel discussion scheduled for end of day



### Logistics

- Audience participation is encouraged but please use the microphone
- Lunch will be served next door
- We are on a tight time schedule please keep that in mind especially during the coffee/tea breaks



#### Presentations

- Presentations available for download at:
  - http://www.smfold.org/2017-smfold-workshop/smfold-2017presentations/
- Agenda:
  - http://www.smfold.org/2017-smfold-workshop/agenda/
- There is Wi-Fi in the room
  - Use the RC-Guest connection and request a password
  - Use sparingly so as not to overload the bandwidth



### Power and Wi-Fi

- There is Wi-Fi in the room
  - Use the RC-Guest connection and request a password
  - Use sparingly so as not to overload the bandwidth
- There are a few outlets and power strips
  - Use sparingly not meant for a room full of laptops to be running simultaneously



## Morning Agenda

| Insight Media  | Chris Chinnock      | 9:00 AM  | 0:15  | Introduction to SMFoLD Workshop 2017   |
|--|---------------------|----------|-------|--|
| Avalon Holographics  | Matthew<br>Hamilton | 9:15 AM  | 0:45  | Light Field Displays: From Current Developments to the Next<br>Generation  |
| Mission Rock Digital   | Pete Lude           | 10:00 AM | 0:30  | An Overview of Light Field Acquisition   |
| coffee break   |                     | 10:30 AM | 0:20  |  |
| VIZrt movie  |                     | 10:50 AM | 0:05  | Video of advanced 3D modeling and augment reality visualization in a broadcast environment   |
| Holochip Corporation   | Sam Robertson       | 10:55 AM | 10.72 | Trade-offs in Light Field Streaming, Processing and Display Requirements for High and Low Fidelity Applications                                    |
| Naval Sea Systems<br>Command   | Nilo Maniquis       | 11:20 AM |       | Improving Battlespace Awareness, Reducing Warfighter Workload, and Enabling Rapid Response Through the Use of Collaborative 3D Holographic Display |
| Oak Ridge Leadership<br>Computing Facility<br>(OLCF) at the Oak<br>Ridge National<br>Laboratory (ORNL) |                     | 11:45 AM | 10.72 | Visualization Technologies and the Challenge of High Performance<br>Computing at the Oak Ridge Leadership Computing Facility                       |



## Afternoon Agenda

| Lunch            |                   | 12:10 PM | 1:00  |  |
|------------------|-------------------|----------|-------|--|
| JPEG-PLENO       | Walt Husak        | 1:10 PM  | 0:25  | JPEG-PLENO's Interest in Light Field Images                                |
| TDT              | Tommy<br>Thomas   | 1:35 PM  | 0:25  | SMFoLD Streaming 3D Media  |
| FoVI3D           | Thomas<br>Burnett | 2:00 PM  | 11.72 | FoVI3D's Display Agnostic Application Interface/Scene Description Proposal |
| MPEG-i/ OTOY     | Arianne Hinds     | 2:25 PM  | 0:25  | MPEG's Efforts to Standardize the ORBX format                              |
| Light Field Labs | Jon Karafin       | 2:50 PM  | 0:25  | Benefits of ORBX for Light Field Workflow and Display                      |
| coffee break     |                   | 3:15 PM  | 0:20  |  |
| Panel Discussion |                   | 3:35 PM  | 1:00  |  |
| Closing          |                   | 4:35 PM  |       |  |



# SMFoLD Workshop Overview



### Standard for Streaming 3D Media

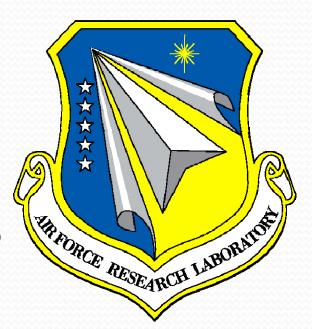
- Sponsored by the Air Force Research Lab (AFRL)
  - Phase I Completed
  - Phase II Initiated September, 2017
- Program Facilitators
  - Third Dimension Technologies
  - Oak Ridge National Laboratory
  - Insight Media





### AFRL Identified Issues

- 3D Sensor Data Increasing Dramatically
  - LiDAR, SAR, plenoptic camera, stereo or multi-view to 3D
  - 3D models (actual and created)



- 3D Visualization Needed to Improve Productivity
  - Stereoscopic 3D (S3D) not acceptable
  - Field of Light Display (FoLD) is desired
- Lack of Streaming Model is Barrier to FoLD Adoption
  - Proprietary hardware and software



### AFRL Objectives

- Develop Display Agnostic 3D Streaming Media Model
  - Includes scene description and transmission format
  - Allows for flow and view parameter control (TBD)
  - Visualization on any 2D, S3D or FoLD system
  - Open standard that supports DoD and commercial needs



### Workshop Objectives

- Understand the Light Field Ecosystem
  - Light Field Display and Capture Overviews
  - Light Field Streaming Applications
  - Light Field Streaming Proposals
  - Standardization
- Discussion and Feedback on Proposed Streaming Standards



## Field of Light Display (FoLD)

- No Vergence-Accommodation Issues
- Horizontal and (sometimes) Vertical Parallax
- Images Perceptually Indistinguishable from Reality (ideally)
- Standalone FoLD Systems or FoLD Eyewear
- Commercial, Military and Government Applications
- FoLD System Types: Holographic, Integral-Ray (Hogel), Stereographic, Volumetric



### Some FoLD Applications

- Cinema and Video
- Telepresence
- Design of Autos, Aircraft, Buildings, etc.
- VR/AR/MR for Gaming, Entertainment and Work
- Situational Awareness (military, commercial asset control)
- Big Data Visualization (satellite, oil & gas, pharma, scientific)
- MRI, CT and Ultrasound Data



### SMFoLD Standard Project Plan

- AFRL Support for Limited Time
  - SBIR/STTR (Small Business Innovation Research) funding
  - TDT/ORNL are leading the AFRL Phase II effort

Goal: SMFoLD transfer to Standards Body