



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-2017-presentations/>
- 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 Hamilton | 9:15 AM | 0:45 | Light Field Displays: From Current Developments to the Next 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 | 0:25 | Trade-offs in Light Field Streaming, Processing and Display Requirements for High and Low Fidelity Applications |
| Naval Sea Systems Command | Nilo Maniquis | 11:20 AM | 0:25 | Improving Battlespace Awareness, Reducing Warfighter Workload, and Enabling Rapid Response Through the Use of Collaborative 3D Holographic Display |
| Oak Ridge Leadership Computing Facility (OLCF) at the Oak Ridge National Laboratory (ORNL) | Jamison Daniel | 11:45 AM | 0:25 | Visualization Technologies and the Challenge of High Performance 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 Thomas | 1:35 PM | 0:25 | SMFoLD Streaming 3D Media |
| FoVI3D | Thomas Burnett | 2:00 PM | 0:25 | 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

SMFOLD.
ORG

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