

**Edward J. Lantz**  
**President, CEO & Founder**  
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**Harmony**  
CHANNEL™



**Statement of Expertise** – Ed Lantz has over 20 years of Management and Executive level experience in media and entertainment technology, art, science and business. He has demonstrated consistent success in envisioning and leading high-risk technical and entrepreneurial operations with excellent strategic planning, management, marketing, P&L and negotiation skills. Mr. Lantz is internationally recognized as a pioneer and leading authority in large-format digital cinema and immersive experiences. Other areas of expertise include cable television, themed entertainment, photonics, virtual reality, events production, 3D animation and special effects for large-format film and video. Interests include entrepreneurial activities in advanced digital mass media and e-commerce systems, web-based content exchange and production, interactive television, immersive video and film production, large-scale immersive theaters, interactive place-based entertainment, real-time video/music performance, independent films with socially conscious themes, fine art visual music, and wellness applications exploiting the psychophysical effects of digital media. Mr. Lantz is President & CEO of Harmony Channel (a national cable television network), operates Visual Bandwidth, Inc., an immersive cinema and fulldome video advisory network, and recently co-founded Vortex Immersion Media as President and CTO.

### **Employment History**

**11/07 to present** - President, CTO and Co-Founder, Vortex Immersion Media, Inc. Responsibilities include:

- Business launch with CEO co-founder, P&L management.
- Product development and management of IP portfolio.
- Negotiation of VAR and strategic alliances with advanced entertainment technology/media providers.
- Produced Feb. 2008 Event Solutions opening party at Chameleon Studios and tradeshow booth.
- Strategic alliance with Chameleon Studios for Vortex Entertainment Technology Showroom.

**6/04 to present** - President, CEO and Founder, Harmony Channel. Responsibilities include:

- Business launch including concept, detailed business plan, capital formation, hiring key personnel, marketing material development, content development, business management and operation.
- Negotiated video-on-demand agreement with Comcast Programming Development.
- Launched Harmony Channel in 9 million On Demand households in June 2006.
- Launched broadband content delivery site May 2007.
- Management of sales, marketing and other operations with 8 employees and 4 consultants.

**4/04 to present** - President and Founder, Visual Bandwidth, Inc. Responsibilities include:

- Creation and management of consultant network in large-format immersive video business area.
- Lead \$2M fulldome RFP development and vendor selection for Oakland's Chabot Space & Science Center.
- Advisor for Theater Innovations, Inc., Vortex Immersion Multimedia, Virtue Play and 5DX Design.
- Write monthly column in the *Planetarian*, the journal for the International Planetarium Society.

**1/96 to 4/04** - Product Development Manager for Spitz, Inc. Responsibilities and accomplishments include:

- Developed and managed R&D department of 7 engineers, computer scientists and technicians.
- Led immersive theater conceptualization, design, development, sales, integration and maintenance.
- Successful development of the ElectricSky®, ElectricSky II, ElectricHorizon®, ImmersaVision® and SciDome™ immersive visualization theater products, doubling Spitz's sales over 5 years to \$12M.
- Project management responsibilities for \$1-3M subcontracts to \$10-300M international projects.

- Immersive theater architectural design including equipment layout, lighting design, ingress/egress, etc.
- Design and engineering of immersive, edge-blended video displays and supporting video electronics.
- Technical/creative advisor for numerous immersive show and HDTV productions.
- Creative/Engineering liaison for BRC Imagination Arts, Landmark Entertainment, Winn Las Vegas, etc.

**4/91 to 12/95** - Chief Engineer at Brevard Community College's Astronaut Memorial Planetarium and Observatory. Responsibilities and accomplishments include:

- Successfully built and led team of 2 engineers and 2 technicians to develop an advanced 21-meter diameter video-based domed theater – the largest in Florida and the most advanced in the world at the time.
- Directly responsible for laser graphics, planetarium control system and theater projection system design.
- Co-developed the award-winning polychromatic acousto-optic modulator (PCAOM) which revolutionized RGB laser projectors. Developed compact Argon/Krypton ion laser projector based on PCAOM.

**4/90 to 1/96** – President of Cosmic Light, a visual effects and events producer. Accomplishments include:

- Produced a series of well-attended evening festivals featuring live music, multi-image and video effects.
- Co-produced seven special Melbourne, Florida nightclub events featuring laser lightshow, stage show, special effects lighting and themed environments. Nearly every event sold out with over 1200 attendees.
- Original visual music performances with laser, video, and multi-image art and music (live, DJ, VJ).

**10/84 to 4/91** - Lead Engineer at Harris Corporation, Government Information Systems Division, Electro-Optics Technology, Melbourne, FL. Responsibilities and accomplishments include:

- Project Engineer on numerous advanced optical signal processing R&D studies totaling \$4M, including management of subcontractors and teams of up to 12 senior scientists, engineers, technicians & consultants.
- Major Contributor on numerous ELINT, SIGINT, C3, EW projects for ground, air and spaceborne platforms, applying design skills in digital signal processing, RF signal processing, image processing, acousto-optic signal processing, photonics and lens design, microcircuit design and software development.
- Scripted, produced, and directed 2 corporate video customer presentations.

**7/80 to 10/84** - Engineer (part-time), Tennessee Technological University, Cookeville TN 38505. Supervisors: Carl Ventrice, Jon McDearman. Responsibilities and accomplishments include:

- Engineering and Technical Design for local businesses including portable electrical fish shocker.
- Research into infrared materials for optical radomes and multilayer filters for laser eye protection goggles.

**7/79 to 7/80** - Fidelity Electronics, 88000 NW 36 St., Miami, FL. Supervisor: Malcolm Heimer

- Production Line Group Leader of 12 technicians & Biomedical Engineering Research Technician.

### **Education:**

**8/04 to present** – Wharton Business School SBDC, University of Pennsylvania

- Various courses in corporate finance and business planning.

**8/86 to 12/95** - Florida Institute of Technology, Melbourne, FL.

- Studied Optical Signal Processing towards Ph.D. Course work 80% complete.
- Classes in Nonlinear Optics, Radar Systems, and Satellite Communications.
- Self Study - *Advanced Animation and Rendering Techniques*, Mark and Alan Watt.

**8/82 to 12/84** - MSEE degree (GPA 3.8), Tennessee Tech. University, Cookeville, TN 38505

- Majored in Physical Phenomena including Electromagnetics and Quantum Physics.
- Classes in Antenna Design, Microwave Amplifier/Oscillator Design, Plasma Physics.
- Masters Thesis *Vacuum Ultraviolet Generation from a High Power Microwave Discharge*.

**8/80 to 8/82** - BSEE degree (GPA 3.5), Tennessee Tech. University, Cookeville, TN 38505

- Digital engineering emphasis area – passed all graduate-level courses in digital engineering.
- Chapter President - International Society for Hybrid Microelectronics.

**Affiliations:**

Member NCTA, GSCA, CTAM, PROMAX, ACM/SIGGRAPH, IEEE, NATPE, International Planetarium Society and Phi Beta Kappa. Founding Chair of IPS Fulldome Video Committee. Founder and Co-Chair of International Fulldome Summit, Valencia, Spain. Board member of Center for Visual Music (Los Angeles) and the Center for Conscious Creativity (South Pasadena).

**Patents:**

“Video-Based Immersive Theater,” USPTO #6,733,136, May 11, 2004

“Foveated Display System,” USPTO #6,909,543, June 21, 2005

**Publications & Presentations:** (for selected reprints see <http://extranet.spitzinc.com/reference>)

Keynote Speaker, Immersive Vision: 3rd European workshop & conference in immersive cinema, Plymouth, UK, March 2008

“Large Format Digital Cinema 101,” *LF Examiner*, March 2008

“Democratizing the Universe: Creating and Delivering a Scientifically Accurate Virtual Universe for the Masses,” *Virtual Worlds and Immersive Environments*, NASA Ames, Jan. 26-7, 2008

“Virtual Reality in Education, Entertainment, and other Interactive Media Applications,” panelist, VRST 2007, Newport Beach, CA, Dec. 2007

“Virtual Reality and the Perfection of Consciousness,” *TransVision 2007*, Chicago

“A Survey of Large-Scale Immersive Displays,” *Emerging Display Technology Proceedings*, ACM/SIGGRAPH, 2007

“Creating and Delivering Transformative Media Experiences,” Panel Organizer, GEMS Conference, Dec. 2006

“Digital Domes and the Future of Large-Format Film,” *LF Examiner*, Vol. 9, No. 8, Summer 2006

“Digital Domes: New Medium for Art, Science and Education,” panel chair, *Global Creative Economy Convergence Summit*, Philadelphia, PA, 12 June 2006

Moderator, NASA Explorer Institutes Focus Group, Chabot Space and Science Center, Oakland, CA, May, 2006

“New Media Technologies and the Delivery of Transformative Experiences,” *Southern California Writer’s Conference*, Los Angeles, 2005

“Digital Frontiers,” regular column in *Planetarian* focused on digital dome art & science, 2005 no. 3 – present

Presenter & Organizer, *Workshop: Immersive Cinema*, Espinho, Portugal, 2005 - <http://fulldome.multimeios.pt/>

Guest Editor, 2-issue Special Topic: “Digital Domes and the Future of Planetariums,” *Planetarian*, Vol. 34, No. 3&4, 2005

“Large-Scale Immersive Theaters as Healing Spaces,” *IONS Consciousness in Media Workshop*, May 2004

“Fulldome Display Specifications: A Proposal,” IPS 2004 Fulldome Standards Summit, 2004

“Digital Dome Theaters,” LFCA 2004 Digital Symposium, May 2004

“Large Format Digital Cinema: Medium of the Future?,” *Trends in Leisure Entertainment*, Berlin, Germany, Conference Proceedings, 2003

*Computer Graphics for Large-Scale Immersive Theaters*, Course 25, SIGGRAPH 2003, Course Organizer

“The Digital Planetarium,” IPS 2002 Proceedings, 2002

*Computer Graphics for Large-Scale Immersive Theaters*, Course 31, SIGGRAPH 2001, Course Organizer

“Spheres of Healing,” *Paradox*, No. 57, December 2000

“Large-Scale Immersive Displays in Entertainment and Education,” 2<sup>nd</sup> Annual Immersive Projection Technology Workshop, May 11-12, 1998

“ElectricSky Immersive Multimedia Theater,” *Proc. International Planetarium Society*, 1998

“Future Directions in Visual Display Systems,” Guest Editor, *Computer Graphics*, 31(2), pp. 38-45, 1997

Panel Chair, “The Future of VR: Head Mounted Displays versus Spatially Immersive Displays,” *Computer Graphics, SIGGRAPH 96 Conference Proceedings Series*, pp. 485-486, 1996

“Spatially Immersive Displays for Group Information Visualization,” *Workshop on New Paradigms in Information Visualization and Manipulation (NPIV’96)*, in conjunction with CIKM 96, pp. 37-40, 1996.

*Graphics Design and Production for Hemispheric Projection*, SIGGRAPH 95, Course Organizer

“Virtual Reality in Astronomy and Space Education,” *Planetarian*, 23(1), pp. 16-17, 1994

“Laser Display Technology and Applications,” *Planetarian*, 22(3), pp. 8-10, 1993

“Virtual Reality in Science Museums,” *Instruction Delivery Systems*, 6(4), 10-12, 1992

### **Productions:**

***Harmony Channel*** (various productions - October 2004 – present)

Producer for HDTV and standard definition network design and monthly content formatting including network IDs, original music videos, playlists of visual music and related programming within themed MoodZones.

***Black Hole: The Other Side of Infinity*** (2005 – DMNS, Lucas Productions, Spitz, Inc., NCSA)

Technical Advisor – fulldome planetarium production. A concurrently produced fulldome planetarium program and NOVA HDTV special funded by NSF.

***Dark Star*** (2005 – Spitz, Inc.)

Technical Advisor – fulldome planetarium production. A character-animated feature about black holes and other cosmic curiosities. Running time: 25:00 min.

***Eye of the Eagle*** (2002 – Spitz, Inc., Boston Productions)

Technical Advisor – HDTV production in ImmersaVision format. Story about a young newlywed couple who discover their Native American roots in the Pacific Northwest. Running time 24:00 min.

***Oasis in Space*** (2000 and 2003 – Spitz, Inc.)

Technical Advisor – 3-screen spherical video in ImmersaVision format, later re-rendered as a fulldome planetarium production. A startling and beautiful journey through our Solar System and beyond in search of water and water worlds like Earth. Running time: 24:00 min.

***PopMania!*** (1998 – Spitz, Inc.)

Technical Advisor – 3-screen spherical video in ImmersaVision format. A nostalgic look at the trends that have shaped the face of the past 100 years. Set to popular music, this toe-tapping show is a must-see for fans of pop culture. Running time: 24:30 min.

***Laser Van Halen*** (1991 – Astronaut Memorial Planetarium and Observatory)

Scripted and directed visual music compositions for laser/multimedia lightshow at Cocoa, Florida planetarium.

### **Theater Projects:**

Project Manager and/or Experience/Theater Designer on the following immersive theater projects:

**ImmersaVision Virtual Reality Theater**, Carnegie Science Center - Pittsburgh, PA (temp. exhibition - 1999)

**The Franklin Institute** - Philadelphia, PA (\$600k upgrade – 2004)

**Glasgow Science Centre** - Glasgow, Scotland (\$0.8mm - 2002)

**Schiele Museum of Natural History** - Gastonia, NC (\$0.3mm retrofit – 2004)

**Samford University** - Birmingham, AL (\$1.2mm – 2004)

**Domo Digital, Papalote Museo del Niño, Mexico City, Mexico**



- Opened February 2004
- Fulldome video
- 23m dome screen
- 9x Barco DLP's
- Over 9M pixels
- 24,000 lumens
- 30,000 Watts of 5.1 sound
- 280 seats
- System Integrator: Spitz
- \$3M

**National Space Science Center, Leicester, UK**



- Opened June 2001
- Refit to Fulldome 2005
- 17.7m dome screen
- 6x Marquee 9" CRTs
- E&S D3 Image Generator
- Spitz System 1024 Star Projector
- AVI Omniscan Laser Projector
- System Integrator: Spitz
- \$1.6

**Science City at Union Station, Kansas City, Missouri**



- Opened November 1999
- 18.3m dome screen
- 3x Marquee 9" CRTs
- Panoramic video
- Spitz Starscape Star Projector
- AVI Omniscan Laser Projector
- **System Integrator: Spitz**
- \$1.2M

**Ask Jeeves Planetarium, Chabot Space and Science Center, Oakland, CA**



- Refitted 2005
- Fulldome video
- 21.3m dome screen
- 6x Projection Design F3 DLPs
- Zeiss Universarium Star Projector
- System Integrator: SEOS
- Lead Consultants: Visual Bandwidth

**Autostadt, Volkswagen Motor Corp., Wolfsburg, Germany**



- Opened 2000
- Fulldome video
- 14.7m dome screen
- 4x Barco 12K lumen DLPs
- Designers: Spitz & Ferneaux Stewart
- \$1.8M

**The Imaginarium, Explore@Bristol, Bristol, UK**



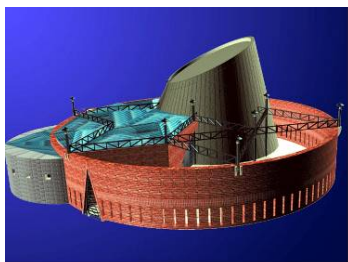
- Opened May 2000
- 12.2m dome screen
- Panoramic video
- Spitz System 1024 Star Projector
- System Integrator: Spitz
- \$1.2M

**The Planetarium at Bibliotheca Alexandrina, Alexandria, Egypt**



- Opened 2001
- 14m dome screen
- Panoramic video
- Spitz System 1024 Star Projector
- Mega Systems 8/70 film projector
- 5.1 sound
- System Integrator: Spitz
- \$2M

**Rauch Memorial Planetarium, University of Louisville, Louisville, Kentucky**



- Opened 2001
- 16.8m dome screen
- Panoramic video
- Spitz System 1024 Star Projector
- AVI Omniscan Laser Projector
- System Integrator: Spitz
- \$1.2M

**Northern Lights Centre, Watson Lake, Yukon, Canada**



- Opened 1998
- 12.2m dome screen
- 3x Marquee 9" CRTs
- Panoramic video
- Spitz System 1024 Star Projector
- System Integrator: Spitz
- \$0.8M